

Proceedings  
of the  
Eighteenth Convention  
of  
**Association of Municipal  
Electricity Undertakings**  
of South Africa and Rhodesia.

*(Founded 1915)*

held at

**JOHANNESBURG**

From Monday, April 24th, to  
Thursday, April 27th.

**1944.**

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Price Ten Shillings.



A. T. RODWELL, PRESIDENT.

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## FOREWORD

The Business Conference reported in these Proceedings is a new departure in the development of our Association. During the four-and-a-half years which have elapsed since our previous Convention, held at Umtata in November, 1939, the world has been enmeshed in the greatest war in history. South Africa and Rhodesia have been singularly fortunate to have escaped the terrible physical consequences which have been experienced in Europe, Asia and even the more northerly parts of this continent. Nevertheless, some of the more damped vibrations of this social earthquake have reached us. As affecting the affairs of this Association these have assumed the shapes of Government legislative measures which gave rise to difficulties; shortages of materials, equipment and staff; and an abnormally long period since we were able to meet and discuss our affairs. It was items such as these which prompted the decision to hold our Eighteenth Convention purely in the form of a Business Conference. Confusion and difficulties were becoming worse founded; members in the outerlying districts were not in so fortunate a position as those in our very few larger centres in resolving their perplexities; a great deal of doubt was abroad concerning the part we should play in the maze of post-war plans which bespoke a promise of an era which was likely to be very different from that of pre-war days. Virtually we arrived at a stage which compelled us to hold a Convention to give focus to our views in these matters.

Few members will deny that these compelling evolutionary circumstances have had a very healthy reaction on the affairs of this Association. As these Proceedings show, we now understand more clearly and in a more co-ordinated fashion what our difficulties are, and have taken steps much more far-reaching than heretofore in the effort to solve them. We have taught ourselves that we can, if we wish, make much more progress and practical use of our Association and our Conventions if we do not confine our Proceedings too rigidly to the reading and discussion of formal papers.

On the other hand, we are now faced with other major considerations which emerge from this Convention. The first and foremost is that the passing of resolutions is not, in itself, sufficient. It is very tempting to register a vote in favour of a motion and then to retire to our respective posts all over the country comforted by the thought that now somebody was going to do something for us, be it the Government, or our Executive Council. If our Association is to grow in vitality and to have the voice it claims in the affairs affecting the electricity supply industry in this land, its members must each personally put their shoulder to the wheel of progress in helping to implement these many resolutions, particularly by serving on, or otherwise assisting, the various sub-committees which will have to be established.

To do this satisfactorily is no easy task in view of our extreme geographic dispersion. The first practicable step, of course, is for members to display a more lively and constructive part in the affairs before us by a greater use of the available channels of

correspondence in submitting information, constructive suggestions and details of practical difficulties for the assistance of the Executive Council. But that constitutes only the first of a series of steps which will be necessary if we are to be effective. The Executive Council, together with the sub-committees which will have to be constituted to deal with certain of our Convention resolutions, are themselves widely dispersed geographically. This gives rise to considering the desirability of establishing Provincial and Rhodesian sub-committees to co-ordinate their affairs preliminary to submitting them to the full Executive Council for final integration and implementation.

These considerations emerging from the Convention involve a great deal of work which it is hoped members will share enthusiastically enough to make certain that this Association can fittingly assert itself in its rightful claims for representation in all affairs affecting the electricity supply industry.

Another factor is that these matters are likely to involve heavier financial outlay in return for the benefits we seek to gain. Engineer and Councillor Members of the Association can play a useful part in persuading Town and City Councils to meet the occasional expense of allowing Regional Sub-Committee members, or main Executive Council members, to meet at central points for discussion of matters which have reached the stage of no longer being amenable to satisfactory treatment by correspondence. Moreover, it is not unlikely that the expenses of the Association are likely to mount in direct proportion to the vigour of our activities.

A final point I would leave with members for cogitation is this: We appear to have reached a stage when we will be able to resume our Annual Conventions with some regularity. When we compare the very enjoyable "breaks" occasioned by our pre-war Conventions with the less enjoyable but perhaps more effective Proceedings of this Eighteenth Convention, we cannot avoid considering the introduction of a greater degree of "business discussions" at future Conventions.

The Proceedings which follow will afford members a basis on which to decide. As will be readily appreciated, the editing of these has involved considerably more work than arises in the case where formal papers are presented. This has been accentuated by the fact that few of the twelve stenographers who kindly gave their services in the effort to take down verbatim reports on such technical matters were used to this class of work. Where it has appeared to the Editor that the subject matter has been seriously distorted, the preliminary draft has been submitted to the speaker for correction. It is hoped that all such cases have been covered and that members will be indulgent if they feel that what they said has not been precisely transcribed.

ARTHUR RODWELL,

President.

ASSOCIATION OF  
**Municipal Electricity Undertakings**  
OF SOUTH AFRICA AND RHODESIA

Founded 1915.

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**EXECUTIVE COUNCIL, 1944.**

**President:**

A. T. RODWELL (Johannesburg).

**Vice-President:**

J. S. CLINTON (Salisbury).

**Past Presidents:**

I. J. NICHOLAS (Umtata).

H. A. EASTMAN (Cape Town).

**Councillor Members:**

H. H. VERITY (Johannesburg).

C. OLLEY (Salisbury).

H. E. GEARING (Cape Town) (Alternate).

R. N. THOMAS (Durban) (Alternate).

**Other Members:**

D. J. HUGO (Pretoria).

C. KINSMAN (Durban).

J. C. FRASER (Johannesburg).

G. R. E. WRIGHT (Benoni).

**Secretary and Treasurer:**

L. L. HORRELL,

P.O. Box 7462 — Johannesburg.

**REPRESENTATIVES:**

World Power Conference (Local Committee): A. RODWELL, Johannesburg.

S.A. Standards Institution: G. R. E. WRIGHT, Benoni; D. J. HUGO, Pretoria.

Safety Precautions Committee: J. C. FRASER, Johannesburg; G. R. E. WRIGHT,  
Benoni.

Electrical Wiremen's Registration Board: A. RODWELL, Johannesburg.

PAST OFFICERS AND MEMBERS OF COUNCIL:

Past Presidents:		Sec. and Treas.:	
1915-17	J. H. DOBSON,	Johannesburg.	F. T. Stokes: E. T. Price.
1917-19	J. ROBERTS,	Durban.	E. Poole.
1919-20	B. SANKEY,	Port Elizabeth.	E. Poole.
1920-22	T. C. W. DOD,	Pretoria.	L. L. Horrell.
1922-24	G. H. SWINGLER,	CapeTown.	H. A. Eastman.
1924-26	J. ROBERTS,	Durban.	E. Poole.
1926-27	B. SANKEY,	Johannesburg.	R. G. Thesise.
1927-29	J. M. LAMBE,	East London.	P. Adkins.
1929-31	R. MACAULAY,	Bloemfontein.	E. Poole.
1931-32	L. L. HORRELL,	Pretoria.	E. Poole.
1932-34	L. F. BICKELL,	Port Elizabeth.	F. A. P. Perrow.
1934-35	A. R. METELERKAMP,	Bulawayo.	E. Poole.
1935-36	G. G. EWER,	Pietermaritzburg.	E. Poole.
1936-37	A. RODWELL,	Johannesburg.	E. Poole.
1937-38	J. H. GYLES,	Durban.	E. Poole.
1938-39	H. A. EASTMAN,	Cape Town.	E. Poole.
1939-44	I. J. NICHOLAS,	Umtata.	E. Poole until Dec., '40. L. L. Horrell, Jan., '41.

Past Ordinary Members of Council:

1915-17	J. Roberts; W. Bellad Ellis; B. Sankey.
1917-19	W. Bellad Ellis; G. Stewart; T. C. W. Dod; T. Jagger.
1919-20	W. Bellad Ellis; G. Stewart; E. T. Price; A. S. Munro.
1920-22	L. F. Bickell; T. Millar; L. B. Proctor; E. Poole.
1921-24	L. F. Bickell; T. Millar; R. W. Fletcher; J. Roberts.
1924-26	T. Jagger; A. S. Munro; T. Millar; L. F. Bickell.
1926-27	L. F. Bickell; T. C. W. Dod; T. Millar; E. Poole.
1927-29	L. F. Bickell; R. A. Young; T. Millar; E. Poole.
1929-30	L. F. Bickell; T. Millar; F. C. D. Mann; G. H. Swingler; A. Rodwell.
1931-32	T. Millar; F. C. D. Mann; G. H. Swingler; A. Rodwell.
1932-34	T. Millar; J. H. Gyles; G. H. Swingler; A. Rodwell.
1934-35	T. Millar; J. H. Gyles; G. H. Swingler; A. Rodwell.

Councillors:	Alternate Councillors:	Engineers:
T. P. Gray (J'burg).	1935-1936:	G. H. Swingler (C.T.).
J. McLean (P.E.).	H. W. Dely (Pretoria).	J. H. Gyles (Dbn).
		T. Millar (H'smith).
		E. H. Behrens (P.E.).
	1936-1937:	G. H. Swingler (C.T.).
H. Middlebrook (Dbn.).	F. Morrell (C.T.).	T. Jagger (C.T.).
T. P. Gray (J'burg).	J. McLean (P.E.).	E. A. Behrens (P.E.).
		G. M. Pirie (Blftn).
	1937-1938:	L. L. Horrell (Pretoria).
H. G. Capell (Dbn.).	H. Middlebrook (Dbn.).	J. S. Clinton (S'bury).
W. James (C.T.).	L. Hofmeyer (S'bosch).	A. Q. Harvey (Springs).
		G. M. Pirie (Blftn).
	1938-1939:	D. J. Hugo (Pretoria).
E. Spilkin (Umtata).	G. C. Starkey (E.L.).	J. S. Clinton (S'bury).
W. James (C.T.).	W. Fowkes (C.T.).	A. Q. Harvey (Springs).
		G. M. Pirie (Blftn).
	1939-1944:	D. J. Hugo (Pretoria).
E. Spilkin (Umtata).	G. C. Starkey (E.L.).	C. Kinsman (Dbn).
C. Olley (S'bury).	W. Fowkes (C.T.).	A. Q. Harvey (Springs).
		G. M. Pirie (Blftn).
		W. M. Powell (Blftn).

## RULES AND CONSTITUTION.

# ASSOCIATION OF Municipal Electricity Undertakings OF SOUTH AFRICA AND RHODESIA

### 1. TITLE.

The name of the Association shall be "The Association of Municipal Electricity Undertakings of South Africa and Rhodesia."

### 2. OBJECTS.

The objects for which the Association is formed are:

- (a) To promote the interests of Municipal Electricity Undertakings.
- (b) To bring Municipal Electrical Engineers and Chairmen and Members of Municipal Electricity Committees together.
- (c) To arrange and hold periodical meetings for the reading of papers and discussions of subjects appertaining to Municipal Electricity Undertakings.
- (d) To take such action as may be lawful and expedient for the protection and defence of the rights or interests of Municipal Electricity Undertakings.

### 3. MEMBERSHIP.

The Association shall consist of:

- (a) Honorary Members.
- (b) Councillor Members.
- (c) Engineer Members.
- (d) Associate Members.
- (e) Associates.

All Hon. Members and Members of the Association of Municipal Electrical Engineers shall ipso facto become Hon. Members and Engineer Members of the Association of Municipal Electricity Undertakings and existing Associate Members shall be eligible to transfer to the class of Associate.

### 4. QUALIFICATIONS.

The qualifications for admission to the Association shall be as follows:

- (a) **Honorary Members** shall be distinguished persons who are or who have been intimately connected with Municipal Electricity Undertakings and whom the Association especially desires to honour for exceptionally important services in connection therewith.
- (b) **Councillor Members.** The Member whose Chief Electrical Engineer shall have qualifications acceptable to the Council shall be the Committee appointed by the Municipality or Local Authority to have control over its Electricity Undertakings and shall be represented as regards its qualifications to vote by one member of such Committee.
- (c) **Engineer Members.** The Member shall be the Chief Electrical Engineer engaged on the permanent staff of an Electricity

Undertaking owned by a Municipality or Local Authority and who has had a thorough training in Electrical Engineering and is otherwise acceptable by the Council of the Association. Any duly qualified Assistants in an Undertaking with sales of over 20,000,000 Units per annum may also be admitted to this class on the recommendation of the Chief Electrical Engineer.

- (d) **Associate Members.** The Member shall be a Technical Assistant engaged on the permanent staff of any Electricity Undertaking represented by its Councillor Member and/or Engineer Member.
- (e) **Associates.** Any Member resigning from the class of Engineer Member or Associate Member shall be entitled to apply for transfer to the class of Associate.

An Associate may also be an Engineer in the employ of the Victoria Falls and Transvaal Power Company or the Electricity Supply Commission, who may be engaged in the public supply of electricity to Municipalities.

#### 5. ADMISSION OF MEMBERS.

- (a) The election of Honorary Members and other classes shall be vested in the Council.
- (b) Councillor Members may be admitted on an application signed by the Town Clerk of the Municipality or Local Authority concerned.
- (c) Every candidate for election into the Association as Engineer Member shall make application on the prescribed form suitably endorsed by two supporters who shall be either Engineer Members, Councillor Members or Members of the Committee of the Municipal or Local Authority in charge of the Electricity Undertaking of which the applicant is Chief Electrical Engineer.
- (d) Every candidate for election into the Association as Associate Member or Associate shall make application on the prescribed form suitably endorsed by the Engineer Member on whose staff he is engaged.
- (e) Every candidate for transfer to the class of Associate shall make application in writing for transfer.

#### 6. CONTRIBUTIONS.

Contributions shall become due and payable annually on the 1st day of September which shall constitute the new Financial Year of the Association.

- (a) **Honorary Members** shall not be required to pay any contribution.
- (b) **Councillor Members.** In the case of the Committee appointed by a Municipality or Local Authority to have control over the Electricity Undertaking, the undermentioned scale of contributions shall apply:

up to $\frac{1}{2}$ million	2 guineas.
up to 1 million	3 "
up to 10 million	4 "
all over 10 million	5 "

- (c) **Engineer Members.** The contribution of an Engineer Member in the service of a Committee making a contribution shall merge into and form part of such contribution. When a Committee is not a Member or resigns from Membership, the Engineer Membership contribution shall be two (2) guineas.
- (d) **Associate Members and Associates.** The contribution of Associate Members or Associates shall be one (1) guinea.

**Part Year Contribution.** All members shall pay the contribution for the year in which they are elected without reference to the period of the year at which their election takes place and they shall be entitled to receive a copy of the Proceedings or any other publications issued during such year.

**Arrear Contributions.** No class of Member whose contribution is six months in arrear shall be entitled to attend or take part in any of the meetings of the Association or to receive any of the Association's publications.

Any class of Member whose contribution is in arrear at any Convention shall deem to have forfeited claim to Membership and his name may, by the Council, be removed from the register of the Association, but he shall nevertheless be liable for such arrears up to the date of his name being removed.

## 7. COUNCIL.

**Management.** The affairs of the Association shall be managed by the Council, who shall have power to incur any expenditure necessary for the objects of the Association.

**Members of Council.** The Council shall consist of a President, Vice-President, two Immediate Past Presidents, all of whom shall be Engineer Members, and six other Members, two of whom may be Councillor Members.

**Officers of Council.** The Officers of the Council shall be the President, Vice-President and Secretary & Treasurer.

**Election of Council.** Officers and Members of the Council (other than the Secretary & Treasurer) shall be elected by nomination and ballot at the Convention, and shall hold office until the next Convention. In the event of a vacancy occurring during the year the remaining Members shall have power to appoint a Member to fill the vacancy.

**Co-option.** The Council shall have power to co-opt any members of the Association or other person for any special purpose whose services in their opinion may advance the objects of the Association.

**Election of Secretary & Treasurer.** The Council shall appoint and from time to time determine the remuneration (if any) and prescribe the duties of the Secretary & Treasurer who shall hold office during the pleasure of the Council.

## 8. MEETINGS.

**Council.** The Council shall meet as often as the business of the Association may require and at any meeting three shall constitute a quorum.

**Convention.** The Association shall hold Conventions yearly (of which the local Press of the town in which the Convention is held



shall be given full particulars) as far as may be conveniently arranged, and at that meeting the Secretary & Treasurer shall present the Report and Balance Sheet of the Association for the immediate past period.

**Quorum.** At any meeting of the Association 15 shall form a quorum.

**Chairman.** The President shall take the chair at all meetings of the Association, the Council and the Committees, at which he is present, and shall regulate and keep order in the proceedings.

In the absence of the President, it shall be the duty of the Vice-President to preside at the meetings of the Association, and to regulate and keep order in the proceedings. But in the case of the absence of the President, and of the Vice-President, the meeting may elect any member of the Council or, in the case of their absence, any member present to take the chair at the meeting.

**Resolve into Committee.** The Association shall reserve to itself the right to resolve itself into Committee at any time during its proceedings; moreover, it shall be competent for any member to have his paper read and discussed in Committee if he so desires.

**Sectional Voting.** When a motion is before any Convention or meeting of the Association it shall be competent for any member of either the Councillor or Engineer sections to apply to the Chairman for a "Vote by Section." This application shall be granted by the Chairman whereupon each of these sections shall vote separately on the motion and unless a majority shall be obtained in each section the motion shall be lost. On a sectional vote being called for, Associate Members and Associates shall not be entitled to vote.

ASSOCIATION OF  
**Municipal Electricity Undertakings**  
OF SOUTH AFRICA AND RHODESIA

MEMBERS AND VISITORS ATTENDING THE CONVENTION:

HONORARY MEMBER: L. L. Horrell.

ENGINEERS AND COUNCILLORS:

- BRANDFORT**—  
J. Lategan.
- BENONI**—  
G. R. N. Wright.  
Councillor A. Dingwell.
- BETHLEHEM**—  
K. M. Fisher.  
Councillor Dr. W. F. Noble.  
Councillor P. T. Edeling.
- BLOEMFONTEIN**—  
W. M. Powell.  
Councillor Gordon H. Smit.
- BOKSBURG**—  
W. J. Sellar.  
Councillor C. R. Vickers.
- BULAWAYO**—  
A. R. Sibson.  
Councillor P. J. Shacklock.  
Councillor Millar.
- BURGERSDORP**—  
E. L. Smith.
- CAROLINA**—  
P. Vergottini.
- CAPE TOWN**—  
H. A. Eastman.  
Councillor H. E. Gearing.
- CRADOCK**—  
A. Rossler.  
G. L. E. Venter.
- DURBAN**—  
C. Kinsman.  
Councillor R. N. Thomas.
- EAST LONDON**—  
A. Foden.  
Councillor C. L. Logan.  
Councillor Whirrell.
- ERMELO**—  
J. I. Inglis.
- GEORGE**—  
P. H. Newcombe.
- GRAHAMSTOWN**—  
J. Iverach.  
Councillor A. W. Parsons.
- JOHANNESBURG**—  
A. T. Rodwell.  
J. C. Fraser.  
The Mayor, Councillor A. S. Holland.  
Councillor Mrs. M. Kirby.  
Councillor W. Light.  
Councillor E. Boylan, M.P.C.
- KIMBERLEY**—  
C. R. Burton.
- KLERKSDORP**—  
W. Theron.
- KOKSTAD**—  
W. Mortimer Mall.
- KRUGERSDORP**—  
G. J. Muller.  
Councillor J. G. Schoeman.  
Councillor Mrs. A. Edwards.  
Councillor P. E. Mulders.
- LADYBRAND**—  
G. A. Lotter.
- LADYSMITH**—  
F. Stevens.  
Councillor H. Quick.
- MAFEKING**—  
G. E. H. Jones.  
Councillor Major C. L. Cooke.  
D.G.M.
- MIDDELBURG (Cape)**—  
H. R. Bevington.
- MIDDELBURG (Tvl.)**—  
A. J. Verryn.
- MATATIELE**—  
D. G. Calder.  
Councillor L. v.d. Horst.
- NIGEL**—  
H. Bickley.  
Councillor I. E. Ellis.
- OUTSHOORN**—  
C. H. Adams.
- POTGIETERSRUST**—  
W. Rush.
- PIETERSBURG**—  
L. B. Sparks.
- PIETERMARITZBURG**—  
C. R. Halle.  
Councillor A. E. Hirst.
- PIET RETIEF**—  
T. M. Mocke.  
Councillor K. P. van Dyk.
- PORTELIZABETH**—  
J. Houston Angus.  
Councillor J. W. Lea.
- PORTELALFRED**—  
F. Anderson.  
Councillor W. Dickinson.
- PRETORIA**—  
D. J. Hugo.  
J. Wilson.  
Councillor J. A. Lombard.

**QUEENSTOWN—**

T. P. Ashley.

**RUSTENBURG—**

P. A. Meintjes.

**RANDFONTEIN—**

W. Houeuld.

**ROODEPOORT-MARAISBURG—**

H. Groom.

Councillor M. L. Rutter (Mayor).

Councillor N. Toorney.

**SPRINGS—**

A. Q. Harvey.

J. C. Downey.

Councillor Geo. Moffat.

**SALISBURY—**

J. S. Clinton.

Councillor C. Olley (Mayor).

Councillor Gibb.

Councillor A. Haddon.

**SOMERSET EAST—**

H. A. Provost.

Councillor P. S. C. Meaker.

**STELLENBOSCH—**

D. W. Ritson.

**STANDERTON—**

C. E. Gregor.

**UMTALI—**

H. T. Turner.

Councillor E. K. Evans.

**UMTATA—**

Councillor Spilkin.

**UITENHAGE—**

A. Elliott.

**VRYBURG—**

P. V. Veltman.

**WINBURG—**

A. M. Ford.

**WORCESTER—**

H. J. Gripper.

Councillor E. Traub.

**OTHER MEMBERS:**

G. E. Delpont (Bedford View).

Dr. J. H. Dobson (Johannesburg).

B. Marchand (Witbank).

W. H. Milton (Johannesburg).

**DELEGATES:****Electricity Supply Commission—**

C. M. Jacobs.

W. H. Milton.

E. T. Price.

**Director-General of Supplies—**

T. P. Stratten.

**Union Government—**

Public Works (Electrical):

A. K. Scrooby.

Posts and Telegraphs:

J. A. F. Mitchell.

R. C. Hendries.

S.A. Railways &amp; Harbours:

G. A. Dalton.

Department of Labour:

F. W. Joubert.

C. H. Clutterbuck.

**Controller of Building Materials—**

H. A. Tinson.

**Social, Economic & Planning Council**

Dr. H. J. van Eck.

**Industrial Development Corporation**

Col. H. A. Reid.

**S.A. Standards Institute—**

Chairman, Electrical Sectional Committee, C. J. Monk.

Chairman, Fuel Sectional Committee, Dr. P. M. Lategan.

Chairman, Mark Sub-Committee, Dr. V. Bosman.

**S.A. Institute of Electrical Engineers**

J. C. Fraser.

**S.A. Institute of Engineers—**

W. D. Andrews.

**Chamber of Commerce—**

J. Berry.

**S.A. Federated Chamber of Industries**

F. M. Ashen.

**Institute of Certificated Engineers—**

A. C. Cruickshank.

**Victoria Falls & Tvl. Power Co., Ltd.—**

T. C. Otley.

V. Pickles.

**Rand Water Board—**

J. P. Leslie.

A. W. Lincker.

**S.A. Engineer & Electrical Review—**

W. A. Buchanan.

**VISITORS:**

P. C. Cowie.

E. F. Darker.

W. Denholm.

Geo. Drewett.

W. R. Gray.

Dr. P. E. Kanthack.

R. Leishman.

P. R. McIntosh.

W. R. Norton.

G. J. Privett.

Dr. O. R. Randall.

Major S. G. Redman.

A. E. Val Davies.

#### ELECTRICAL TRADES:

British General Electric Co., Ltd.—	International Combustion—
R. M. Stephenson.	W. J. Cotterell.
S. B. McMurray.	Johnson & Phillips—
A. Mortimer.	H. L. Dawe.
British Insulated Cables—	Metropolitan Vickers—
A. L. Sanders.	T. Riley.
Crompton Parkinson—	Reunert & Lenz, Ltd.—
A. B. Stratford.	J. H. Todd.
Dowson & Dobson—	Reynolds, Sons & Partners—
T. W. Jauncey.	H. Reynolds.
English Electric Co., Ltd.	Reyrolle Co., Ltd.—
B. E. Mahon.	W. J. Gibbons.
Enfield Cables (S.A.), (Pty.), Ltd.—	C. E. R. Langford.
A. E. Torrance.	Rice & Diethelm—
Fraser & Chalmers—	W. T. Tallent-Bateman.
A. Hay Davidson.	T. F. Suttle.
R. H. Black.	S.A. Cable Makers' Association—
H. D. T. Harris.	E. R. Smith.
E. Green & Son (S.A.), Ltd.—	Wilson & Herd—
A. Butler.	W. Herd.
Hubert Davies & Co., Ltd.—	R. G. Edwards.
S. F. Harvey.	Waygood Otis, Ltd.—
Henley's (S.A.) Telegraph Works Co.	G. Crutcher.
F. J. Head.	

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#### LADIES:

Mrs. Bevington (Middelburg, C.P.).	Mrs. Kinsman (Durban).
Mrs. Burton (Kimberley).	Mrs. Olley (Mayoress of Salisbury).
Mrs. Eastman (Cape Town).	Mrs. Powell (Bloemfontein).
Mrs. Gibbs (Salisbury).	Mrs. Rodwell (Johannesburg).
Mrs. Haddon (Salisbury).	Mrs. Sparks (Pietersburg).

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L. L. Horrell, Secretary and Treasurer.

# Eighteenth Convention

## JOHANNESBURG

### PROGRAMME.

Saturday, 22nd April, 1944.

10.00 a.m. Council Meeting, Victoria Hotel.

Monday, 24th April, 1944.

- 8.30 a.m. Council Meeting.  
9.00 a.m. Registration and issue of papers.  
10.00 a.m. Official opening of Conference by His Worship the Mayor of Johannesburg.  
10.15 a.m. Annual General Meeting (Municipal delegates and visitors may attend, but only members are entitled to vote.)

### AGENDA.

1. Annual Report of Secretary and Treasurer.
2. Election of President.
3. Election of Officers.
4. Venue and provisional date of next Convention.
5. Report on activities of A.M.E.U. Advisory Council since last Convention.
6. Discussion arising therefrom.
7. Proposed Agenda of this Conference and method of dealing therewith.
8. General.

### RETIRING OFFICERS.

The following are the retiring Officers:

- President: I. J. Nicholas (Umtata).  
Vice-President: J. S. Clinton (Salisbury).  
Past Presidents: H. A. Eastman (Cape Town).  
A. T. Rodwell (Johannesburg).

Councillor Members:

E. Spilkin (Umtata); C. Olley (Salisbury); G. C. Starkey (East London (Alternate)); W. Powkes (Cape Town) (Alternate).

Other Members:

D. J. Hugo (Pretoria); C. Kinsman (Durban); A. Q. Harvey (Springs); W. N. Powell (Bloemfontein).

### Section A.

- 2.30 p.m. 1.0 Electrical Development.  
1.1 Existing Machinery.  
1.2 Co-ordination and Standardisation.  
1.3 Rural Electrification.

Section B.

- 2.30 p.m. 4.0 Registration of Electrical Wiremen.  
Evening: Free.
- 

Tuesday, 25th April, 1944.

- 8.30 a.m. Council Meeting.

Section A.

- 9.30 a.m. 1.4 Conservation of Primary Power Sources.  
1.5 Load Building and Sale of Electrical Apparatus.

Section B.

- 9.30 a.m. 5.0 Factories, Machinery and Building Works Act, 1941.  
2.30 p.m. Visit to Orlando Power Station.  
7.45 p.m. Members are invited to attend the meeting of the S.A. Institute of Electrical Engineers. (Paper: Recent modification and additions to the Johannesburg Municipality's electricity distribution systems," by A. Ravno.)
- 

Wednesday, 26th April, 1944.

- 8.30 a.m. Council Meeting.

Section A.

- 9.30 a.m. 2.0 Acquisition of Materials and Equipment.

Section B.

- 9.30 a.m. 6.0 The Standard Wiring Regulations.  
2.15 p.m. Official Photograph.

Section A.

- 2.30 p.m. 3.0 The Personnel of Electricity Undertakings.

Section B.

- 2.30 p.m. 7.0 The Registration of Wiring Contractors.  
7.45 p.m. Cinema entertainment, followed by refreshments at His Majesty's Roof Garden.
- 

Thursday, 27th April, 1944.

- 8.30 a.m. Council Meeting.  
9.30 a.m. Joint session for reports of Sectional progress, discussions and voting on motions arising therefrom.  
2.30 p.m. Ditto.  
4.30 p.m. Council Meeting.

## SECTION A : DRAFT MOTION

### FOR DISCUSSION, AMENDMENT AND PROVISIONAL ADOPTION BY SECTION A, PRELIMINARY TO DISCUSSION, AMENDMENT AND FINAL ADOPTION BY JOINT SESSION OF SECTIONS A and B.

Whereas this Conference of the Association of Municipal Electricity Undertakings of the Union of South Africa and Rhodesia, assembled in Johannesburg, this 24th day of April, 1944, is of the opinion that the interests it represents have an important part to play in the development of the State and that therefore measures should be initiated by the appropriate Government Department to:

- (a) enable the National and Municipal Electricity Supply Authorities to take their proper place in the planned and co-ordinated development of the State;
- (b) ensure that a regular and co-ordinated development of the Electricity Supply Industry shall take place;
- (c) introduce procedure by means of which a planned and co-ordinated development within the areas served by an Electricity Supply Authority is expedited;
- (d) ensure the co-ordination and acquisition of materials and equipment for such development schemes;
- (e) prescribe the methods of financing extra-normal development schemes;
- (f) define the share to be borne by the Electricity Supply Industry in the rehabilitation and absorption of unemployed manpower.

And whereas this Conference is of the opinion that the foregoing purposes could be more expeditiously served by a closer association between Municipal Electricity Supply Undertakings among themselves on the one part and with the Electricity Supply Commission on the other, provided such means of association is afforded official status and has official advisory and executive powers.

To this end it is now resolved:

That the Government of the Union of South Africa be requested to establish, at as early a date as possible, a Joint National Electric Power Board comprised of delegates of the Electricity Supply Commission and of the Association of Municipal Electricity Undertakings (South African Section), with executive and advisory powers, and the power to establish local advisory panels where deemed expedient in the Union of South Africa, in order to achieve the following objectives:

- (1) the pooling of operating, design and administrative experience with a view to a wider adoption of recommended practice and standardisation;
- (2) To advise on uniform policies in respect of forms of accounts, methods of charge and forms of tariffs, the regulation of profits and relief of rates;
- (3) to advise on uniform policies in respect of local electricity supply regulations and interpretation of Government Legislation affecting the Electricity Supply Industry;
- (4) the planning and development of rural electrification;

- (5) collaboration with the Fuels Research Board and other relevant bodies concerning the conservation of primary power sources in so far as the Electricity Supply Industry is concerned;
- (6) the development of electrical load and consumption of electricity in accordance with the underlying purposes of the Electricity Act 1922;
- (7) introducing measures for the sale of electrical appliances which will ensure that appliances sold to the public conform to specified safety standards;
- (8) making recommendations for the promulgation (by the Governor-General) of regulations in terms of Clause 53 of the Electricity Act (No. 42 of 1922);
- (9) the co-ordination, standardisation and acquisition of material, equipment and spares required by electricity undertakings in the prosecution of their functions and making recommendations to the Director-General of Supplies;
- (10) the investigation of national salary scales and pension funds for the personnel of electricity undertakings.
- (11) to advise on questions arising from the training of apprentices and other personnel to be employed in the Electricity Supply Industry;
- (12) the rehabilitation and absorption of semi-fit and unemployed manpower in the Electricity Supply Industry and collaboration with the Volunteers' Employment Board (Union Gazette Extraordinary, 3rd November, 1943);
- (13) calling upon any electricity supply authority, via the Provincial Administrator, to prepare and submit for co-ordination planning and development schemes for the ensuing five or ten years' period and making recommendations to the Provincial Administration, Electricity Control Board and Department of Economic Planning concerning such schemes. Where any supply authority has not the necessary facilities to prepare such schemes the National Electric Power Board may request the Provincial Administrator concerned to appoint a competent person or persons to prepare such schemes, the Provincial Administrators in calling for the submission of proposed schemes to lay down the form in which, and specify a period within which, the requisite details shall be rendered;
- (14) making recommendations to the Department of Commerce and Industries concerning the functions of the proposed S.A. Standards Bureau in so far as these concern the Electricity Supply Industry;
- (15) generally co-ordinating, developing and integrating the Electricity Supply Industry in the best national interest and assisting any Government Department or Board or the Provincial Administration in any activity having a direct bearing on the Electricity Supply Industry;



## SECTION B: DRAFT MOTION

**FOR DISCUSSION, AMENDMENT AND PROVISIONAL ADOPTION BY SECTION B, PRELIMINARY TO DISCUSSION, AMENDMENT AND FINAL ADOPTION BY JOINT SESSION OF SECTIONS A and B.**

That in view of .....  
it be a recommendation to the Government that Electricity Supply Authorities throughout the Union of South Africa come under the jurisdiction of the Mines and Works Act instead of the Factories, Machinery and Building Works Act, 1941.

Failing the acceptance of this recommendation, then this Convention recommends that the Government amends the Factories Act 1941 to exempt Electricity Supply Authorities from the provisions of the following clauses, because:

Clause No.

Reason.

.....  
.....  
.....  
.....  
.....  
.....

# Association of Municipal Electricity Undertakings

OF SOUTH AFRICA AND RHODESIA.

MEMBERS AND DELEGATES AT JOHANNESBURG, 19th CONVENTION, APRIL 24th to 27th, 1944.



FIRST ROW (sitting, left to right): L. L. Horrell (Secretary and Treasurer); Councillor (Major) G. L. Cooke, Mafeking; D. Ritson, Stellenbosch; G. E. H. Jones, Mafeking; W. Mortimer Mail, Kokstad; W. H. Milton, Johannesburg; J. C. Fraser (Member of Council), Johannesburg; H. A. Eastman (Past President), Cape Town; A. T. Rodwell (President), Johannesburg; J. Houston Angus, Port Elizabeth; Councillor C. Olley (Member of Council), Salisbury; G. R. E. Wright (Member of Council), Benoni; C. Kinsman (Member of Council), Durban; A. Q. Harvey, Springs; A. Peden, East London; Colonel G. G. Ewer, Johannesburg; W. Houreld, Randfontein; W. Powell, Bloemfontein.

SECOND ROW: C. R. Vickers, Boksburg; W. J. Sellers, Boksburg; C. L. R. Quick, Ladysmith; F. Stevens, Ladysmith; D. H. Adams, Oudtshoorn; Councillor D. E. Ellis, Nigel; H. Bickley, Nigel; Councillor W. Dickenson, Port Alfred; Councillor A. Worrall, East London; M. R. Bevington, Middelburg, C.P.; Councillor A. Haddow, Salisbury; Councillor E. K. Evans, Umtali; S. T. Veldman, Vryburg; A. Elliott, Uitenhage; J. W. Lea, Port Elizabeth; Councillor K. P. van Dyk, Piet Retief.

THIRD ROW: Councillor M. Toomey, Roodepoort; H. L. Groom, Roodepoort; C. E. Gregor, Standerton; Councillor J. G. Schoeman, Krugersdorp; P. H. Newcombe, George; E. R. Smith (Visitor); J. F. Lategan, Brandfont; Councillor H. E. Gearing, Cape Town; Councillor C. L. Gibb, Salisbury; Councillor H. J. Kelly, Randfontein; G. D. Lotter, Ladybrand; A. T. Turner, Umtali; H. A. Tinson (Visitor); C. R. Halle, Pietermaritzburg; Councillor E. Traub, Worcester.

FOURTH ROW: A. E. O'Dowd (Visitor); B. Mahon (Visitor); P. A. Meintjes, Rustenburg; Councillor M. L. Rutter, Roodepoort; Councillor (Mrs.) A. Edwards, Krugersdorp; G. J. Muller, Krugersdorp; F. Anderson, Port Alfred; F. J. Head (Visitor); A. L. Sanders (Visitor); Councillor G. Moffat, Springs; E. L. Smith, Burgersdorp; J. I. Inglis, Ermelo; J. G. Downey, Springs; T. H. Mocke, Piet Retief; W. Theron, Klerksdorp; C. J. S. McMurray (Visitor); H. J. Gripper, Worcester; Councillor (Dr.) W. F. Knoble, Bethlehem.

FIFTH ROW: G. J. Privett (Visitor); W. J. Gibbons (Visitor); J. Wilson, Pretoria; H. N. Hancox (Visitor); D. G. Calder, Matatielle; Councillor S. van der Horst, Matatielle; C. J. Burton, Kimberley; V. Pickles (Visitor); Maj. S. G. Redman (Visitor); C. T. Bateman (Visitor); S. G. Mortimer (Visitor); A. J. Verryn, Middelburg, Tvl.; G. Gills (Visitor); Councillor R. M. Thomas, Durban.

SIXTH ROW: A. R. Sibson, Bulawayo; G. Delport, Bedford view; J. S. van Velden, Pretoria; C. R. Langford (Visitor); A. M. Ford, Winburg; B. Marchand, Witbank; J. Iverach, Grahamstown; T. Ashley, Queenstown; W. Denker, Johannesburg; P. L. Vergottini, Carolina; W. Rush, P.P. Rust; R. Letshman, Johannesburg; W. Denholm, Johannesburg; W. R. Gray, Johannesburg.

PROCEEDINGS OF THE  
*Eighteenth Convention*  
(WARTIME BUSINESS CONFERENCE)  
MONDAY, 24th APRIL, 1944.

**T**HE Eighteenth Convention of the Association of Municipal Undertakings of South Africa and Rhodesia was opened in the large Committee Room of the Public Library, Johannesburg, at 10 a.m. on Monday, the 24th of April, 1944. The Convention, the first since that held from the 20th to the 23rd of November, 1939, at Umtata, had before it a comprehensive agenda covering the difficulties which had accumulated during the intervening four-and-a-half years of war-time conditions in so far as they affected Municipal Electricity Supply Undertakings. The agenda was of such formidable size that it was necessary to deal with it under two separate sections of the Convention which met simultaneously, and to exclude the presentation and discussion of formal papers.

Present at the Convention were representatives of 50 Municipalities, including 37 Councillor Members, 53 Engineer Members, 4 other grades of Members, 26 delegates from Government Departments, other Power Supply Authorities, Engineering Institutions, etc., 13 other Engineer visitors, 27 Trades representatives, and 10 Ladies—a total of 170 who signed the attendance register.

**The Vice-President, Mr. J. S. Clinton (Salisbury)** in the Chair: Mr. Mayor, Ladies and Gentlemen,—My first duty is to express regret that Mr. Nicholas, of Umtata, the Association's President, is unable to be present at this Convention. Councillor Spilkins has reported that Mr. Nicholas' health is suffering from the strain of a very large amount of work he has had to carry out recently more or less single-handed on account of the number of his staff away on active service. I am asked to convey to you Mr. Nicholas' sincere apologies for his inability to be with us to-day.

No Convention has been held for a number of years due to war conditions, but now there are a number of very pressing problems which will be submitted to this Convention for discussion and solution. In asking His Worship the Mayor, Councillor Holland, to open the Convention, he hardly needs introduction by me as many of you will have met Councillor Holland when he attended the last Convention held at Umtata.

**His Worship the Mayor of Johannesburg (Councillor A. S. Holland):** Mr. President, Ladies and Gentlemen,—A good deal of "juice" has passed along the wires since I met you at Umtata five years ago, the most momentous five years in our history. A lot has happened to me. At the time, I was in the very onerous position of Vice-Chairman of our Electricity Committee and I can assure you it was not an easy job to keep the sparks from flying about too freely, even though I had my friend, Mr. Rodwell, to pull a switch when things got too hot. I certainly never suspected that I should have

to tackle an even heavier job, but here I am—out of the electrical frying pan into the Mayoral fire—and I can tell you it is hot! Of course, in opening this Conference, I can only speak to you as a layman. I do not pretend to have become an electrical engineer through a few years' service on the City Council. Many of you will no doubt remember that, at the Umtata Convention, Councillor Berman, of Cape Town, outlined a "rapid results" course, by means of which one became an engineer on being elected as a Town Councillor. I should be glad if Councillor Berman, if he is present to-day, could tell me of any rapid course available to cover the universal knowledge which Mayors are supposed to possess immediately they take office. As that would presumably be styled an "omnibus" course, I expect you will refer me to the next Transportation Conference!

Although your Constitution provides for Annual Conventions, I can well understand your departure from this rule for the past five years in view of war conditions. As I said at the commencement of my speech, much, however, has happened in those years and one can readily realise the need for your getting together again in order to pool your experiences. As we all know, scientific discovery has advanced with seven-league boots in the past few years, spurred on by war demands, unfortunately in the line of destruction. But we are all now keyed up for the final stage towards victory and inspired by thoughts of construction. And what more powerful force to that end can we harness than electricity; the handmaiden of commerce, industry and the home; the invisible influence that governs our lives in everything that is useful in our activities whether we live in a palace or a cottage.

I have no doubt that your Conference will reveal advances in the method of production and use of electricity that would have staggered us even at the conclusion of the last war.

In opening this Conference, I know that I can leave the many problems you have to face in the capable hands of those gathered here to-day, representing most of the vast undertakings which do so much in the Union to make life easier for us. The difficulty the Municipal Treasurers were faced with at their annual conference which I opened last week was to make bricks without straw—in other words, to meet the continually increasing duties imposed upon them by the Government without proper financial aid.

Mr. President, Ladies and Gentlemen, I will not keep you any longer from your very full agenda. I have great pleasure in opening this Business Convention and wishing you good progress. I regret that this City is not entertaining the members in any way, due to the austerity conditions arising from the war. Nevertheless, on behalf of Johannesburg, I welcome the members of this Association wholeheartedly and wish you success in your deliberations.

**The Vice-President:** Mr. Mayor, on behalf of the Association, I would like to thank you for your address and for the welcome extended to us. May I ask you to extend this Association's thanks to your City Council for the privilege of meeting in this City and, moreover, in this fine Library building. I will now call on Mr. Horrell, our Secretary and Treasurer, to present his report.

## ANNUAL REPORT AND BALANCE SHEET

of the Association of Municipal Electricity Undertakings.

Mr. Horrell: Mr. President, Ladies and Gentlemen,—I have the honour to submit the Annual Report together with the Balance Sheet for the last financial year.

### COUNCIL.

It is to be regretted that owing to ill-health, Mr. Pirie retired from the position of City Electrical Engineer, Bloemfontein, and also from the Executive Council of this Association. The remaining members, in accordance with the powers invested in them by the Constitution, elected Mr. Powell, the new City Electrical Engineer, Bloemfontein, to take his place.

### ADVISORY COUNCIL.

Since the last report, dated January, 1943, the Advisory Council have met in Johannesburg quite a number of times, and matters relating to numerous subjects have been dealt with, amongst which are the following:

S.A. standard voltages for three-phase alternating current systems.

War emergency regulations.

Protection of series street lighting circuits.

Captain A. Q. Harvey, Municipal Electrical Engineer of Springs, is now on full-time military service and has been unable to attend the meetings of the Council. Mr. Downey, his Assistant Engineer at Springs, has, however, taken his place. The members of the Advisory Council are as follows:

Mr. J. C. Downey, Acting Municipal Electrical Engineer, Springs.

Mr. D. J. Hugo, City Electrical Engineer, Pretoria.

Mr. W. H. Milton, Electricity Supply Commission, Johannesburg.

Mr. G. J. Muller, Municipal Electrical Engineer, Krugersdorp.

Mr. A. T. Rodwell, General Manager, Electricity Undertakings, Johannesburg (Chairman).

Mr. G. R. N. Wright, Municipal Electrical Engineer, Benoni.

### STATISTICS.

The statistics of all Electricity Undertakings in the Union, Rhodesia and S.A. Africa for the year 1943 have again been compiled by the Secretary of the Association and the tables have already been distributed.

### FINANCIAL.

It will be seen from the Balance Sheet that the financial position of the Association is most satisfactory, for not only was there a credit balance in the bank of £61 11s. 2d. at the end of the financial year, i.e., 31st August, 1943, but also the Association holds Union Loan Certificates to the value of £753 18s. 3d. and, in addition, £100 has been placed on fixed deposit at the United Building Society.

The Subscriptions for the year 1943-44 are nearly all to hand and the amount in the bank to the credit of the Association at the end of March, 1944, was £203 17s. 6d.

## MEMBERS.

I have to report that Mr. George Swingler, City Electrical Engineer of Cape Town, retired from the service of the City Council a short while ago and, before the end of the year, Mr. Rodwell, the General Manager of the Johannesburg Undertakings, will also be placed on the retired list. These two members have been the backbone of the Association for many years and it is hoped that in some way or other we shall be able to retain their services.

The following members have been elected to the Association since the last report was issued:

Council Members: Municipal Council of Umtali, Southern Rhodesia.  
Engineer Members: Calder, D. G., Municipal Electrical Engineer, Matatiele. Fraser, J. C., Asst. General Manager, Electricity Undertakings, Johannesburg. Halle, C. H., City Electrical Engineer, Pietermaritzburg.

The membership is as follows:

	1942	1944
Honorary Members . . . . .	3	3
Council Members . . . . .	65	66
Engineer Members . . . . .	63	67
Associate Members . . . . .	2	2
Associates . . . . .	16	16
	<hr/>	<hr/>
	150	154
	<hr/>	<hr/>

I am,

Mr. President, Ladies and Gentlemen,

Yours faithfully,

L. L. HORRELL,

Secretary and Treasurer.

April 17, 1944.

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**BALANCE SHEET**

as at

**31st August, 1943**

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## ASSOCIATION OF MUNICIPAL ELECTRICITY UNDERTAKINGS OF SOUTH AFRICA & RHODESIA.

### REVENUE AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st AUGUST, 1943.

Expenditure:		Revenue:	
Audit Fees .. .. .	£4 4 0	Subscriptions .. .. .	£256 4 0
Statistical Tables .. .. .	20 0 0	Statistical Tables .. .. .	30 5 0
Printing and Stationery .. .. .	12 17 0		
Secretary's Salary .. .. .	80 0 0		
Secretarial Expenses .. .. .	29 6 7		
Bank Charges .. .. .	3 13 2		
Depreciation—Fixtures and Fittings .. .. .	1 10 0		
Balance, being Excess Revenue over Expenditure .. .. .	134 18 3		
	£286 9 0		£286 9 0



## BALANCE SHEET AS AT 31st AUGUST, 1943.

Liabilities:			Assets:	
Accumulated Fund .. .. .	£981 18 4		Investments—Union Loan Certificates .. .. .	£753 18 3
Balance 1st September, 1942 .. ..	£821 6 4		Balance 1st September, 1942 .. ..	£476 3 9
Add Surplus for year .. .. .	134 18 3		Add Interest .. .. .	25 13 9
Interest on investments .. .. .	<u>25 13 9</u>			<u>£501 17 6</u>
			Less Matured .. .. .	300 0 0
				<u>£201 17 6</u>
			Add Certificates purchased .. .. .	552 0 9
				<u>31 8 9</u>
			Presidential Badge .. .. .	7 16 2
			Sundry Debtors .. .. .	£1 17 6
			Outstanding for books .. .. .	5 18 8
			Books from I.M.E.A. .. .. .	<u>13 13 0</u>
			Subscriptions unpaid .. .. .	13 11 0
			Fixtures and Fittings .. .. .	£15 1 0
			Balance 1st September, 1942 .. ..	1 10 0
			Less Depreciation .. .. .	<u>100 0 0</u>
			United Building Society .. .. .	61 11 2
			Fixed Deposit .. .. .	<u>£981 18 4</u>
			Cash at Bank .. .. .	61 11 2
				<u>£981 18 4</u>
	<u>£981 18 4</u>			

We report that we have examined the above Balance Sheet with the Books and Vouchers of the Association for the year ended 31st August, 1943, and certify that in our opinion the above Balance Sheet is properly drawn up so as to exhibit a true and correct state of the affairs of the Association as at the 31st August, 1943, according to the best of our information, the explanations given us and as shewn by the Books.

Pretoria.

18th November, 1943.

WARREN &amp; HOFMYR.

Auditors.

**Mr. Rodwell:** Mr. President, it gives me much pleasure to support the Annual Report of our Secretary and Treasurer. In view of the very difficult times through which we are passing, it is indeed pleasing to know that our Association is in such a sound financial position and that during this time of stress our membership actually increased. The report is of necessity condensed and deals briefly with a number of important functions and activities by no means representing fully the progress we have made.

I congratulate our Secretary and Treasurer on the Report and Balance Sheet and have pleasure in moving its adoption.

**Mr. Eastman:** I second that motion, Mr. President.

Motion carried.

### ELECTION OF PRESIDENT.

**The Vice-President:** Ladies and Gentlemen,—We now reach the stage of electing our President for the ensuing year. As has been approved by your Executive Council, subject to your confirmation, I would like to propose from the Chair that Mr. Rodwell be elected to this office. As you all know, Mr. Rodwell will be retiring from municipal service at the end of this year and we feel that this is our last chance of securing the benefits he can bestow on this Association. Moreover, it has been our past tradition that the President should be the Engineer Member who represents the City in which we are holding our Convehtion.

**Mr. Mall:** I second that proposal, Mr. President.

**The Vice-President:** Are there any further nominations? There being none, I declare Mr. Rodwell duly elected.

**His Worship the Mayor** invested Mr. Rodwell with the insignia of President and Mr. Clinton vacated the Chair for Mr. Rodwell.

**The President:** Mr. Mayor, Mr. Clinton, Ladies and Gentlemen,—As you are aware this is not the first time that I have occupied the Presidential Chair. Taking into account our Association's successful achievements of the past under a long line of able Presidents who are eminent in our profession, and the very real and difficult problems of the future I realize fully the duties and services expected and imposed. I accept the honour and the duties you have conferred on me; whilst I appreciate the honour I value still more your continued confidence in me expressed thereby.

Owing to war-time conditions, the period of the Convention has been reduced to a minimum consistent with the many problems confronting us. The agenda we have prepared is formidable but I feel that under the able guidance of our colleagues who have consented to be Chairmen of the various sections, many of the existing difficulties will be overcome and a sound foundation laid for preventing possible difficulties of the future. Largely because of the comparatively short time at our disposal to deal with this long agenda, it has been decided that the usual Valedictory Address of our Retiring President and also the Presidential Address shall be omitted from this particular Business Convention.

Our Association and these Conventions will continue to provide progress by the interchange of ideas and information, not only

between Engineer Members but also between our Councillor Members, creating a better understanding of the problems to be tackled and co-operation in their solution to the benefit of the cities and towns we represent. I thank Mr. Clinton for the kind things he has said of me and you, Ladies and Gentlemen, for your hearty reception.

Before we proceed with the election of Officers, I would like to welcome all our visitors. We trust they will assist with the discussions on those items of which many of them have specialised knowledge and that they will have an interesting and profitable time at our debates.

I desire to express our pleasure in having Dr. van Eck here with us to-day. As you are aware, among other important duties Dr. van Eck is Managing Director of the Industrial Development Corporation which will, we know, under his able direction loom large in the future affairs of our country. I feel I am voicing the wishes of all in asking him to address the meeting.

**Dr. van Eck:** Mr. President, Mr. Mayor, Ladies and Gentlemen,—

It is a great honour to me to have the opportunity of saying a few words to you on this occasion. I appreciate the privilege and I hope I shall not abuse it by keeping you too long from your very important discussions.

The Association of Municipal Electricity Undertakings of South Africa and Rhodesia is a very important body indeed. Your members have been in the van of the march of civilisation in Southern Africa. Not only have you kept pace with our industrial development, but you have also initiated a part of it and were yourselves responsible for very considerable advances.

During this war also your members have played an important part and contributed a great deal towards our war effort by confirming your high reputation for efficiency, devotion to duty and to the ideal of service. Very often with sadly depleted staffs and suffering severe handicaps in inadequate supplies of essential materials you have not only maintained essential power supplies so that the general public have suffered no disability but you have also assisted in providing power whereby many essential industries, particularly munition plants, could expand their activities. Your members have indeed played a vital part in carrying on the war. I may say that a great deal of work still has to be done; I do not think that we are at all in a position to relax our efforts one whit. While I agree that the submarine menace has been largely overcome, we must still bear in mind that in so far as we have to obtain supplies from overseas, we shall find great difficulty in obtaining supplies as our friends are still heavily engaged in war production with very little to spare for civilian needs.

Your achievements in the past fully confirm our expectations regarding the role your Association will play in the future planning and development of Southern Africa. We have great tasks ahead. As I have had something to do with planning the future—trying to work out schemes to indicate the direction we should follow in regard to re-employment and increasing our national production—you might wish me to make a few remarks on that. It is very

necessary to increase our national income per head considerably during the next few years. National income is nothing else but national production. The more we produce economically the higher is our standard of living and general welfare. It is a fallacy to say that the world has been suffering from over-production. The world is still a very poor place and very far from satisfying the essential needs of all. I have indicated a desired increase in our national income over the next ten years of 50 per cent. This increase can only take place in conjunction with a very considerable development of power production in Southern Africa. Indeed I should not have been so sanguine about the development of secondary industry in Southern Africa if we did not have the opportunity of developing power production. When we have re-organised agriculture to put our food supplies on a proper basis, when we have brought our gold mining to its peak, we shall still have to increase our national production per head very considerably in order to compare with the achievements of New Zealand, Australia, Canada and Great Britain.

One of my main reasons for always stressing the importance of developing secondary industry is, firstly, because we have the raw materials and also the human beings whose skill and activity can be developed in such a way as to satisfy their crying wants for good food, good clothing, sound housing, sound health, their educational and recreational needs. Secondly, we have in the Union and in Rhodesia a cheap and adequate supply of coal, which is the basis of power development. We therefore have the enormous reserves of power by which we can aid the puny human strength in achieving our desires. In this development you, gentlemen, will play a great part.

The development of electricity in its application to long-distance power transmission and in the field of communications has opened up new fields in the planning of regions on a balanced basis. I have been very much interested in the possibilities of developing secondary industry on a regional basis, and in my opinion the outstanding example of regional development in the world, outside of countries like Russia, is the Tennessee Valley Authority scheme for industrial development in America. The scheme started first of all with cheap electric power as a basis. There was a very large tract of country over which soil erosion had gained an enormous hold, and where good human stock had suffered great deterioration as a result of the unfavourable economic conditions under which the people worked and lived. It was felt that if power could be sold cheaply, even below cost, it might assist in the rehabilitation of the area. This policy was crowned with great success as the cheap power attracted so many industries that in the course of time the charges which initially were below cost actually became profitable. It seems to me that a similar plan might well be considered in this country, as I do not think we have given sufficient attention to the idea of pioneering the supply of electric power at below cost. We know that if we spend money on research we get little or no return in the first instance but it is eventually returned a thousand times or more. I submit that in seeking an expansion of the use of power

the question of pioneering on a basis below cost of production may well be worthy of your serious consideration.

A further point I would like to touch on is the fact that in South Africa our high cost structure militates very considerably against our industrial development. I must emphasise that in trying to reduce our cost structure it is very necessary that the primary elements should be at as low a price as possible; not only our raw materials but also the power used so extensively in industry. If the cost of primary raw materials is increased only slightly this increased cost seems to be cumulative like a rolling snowball and this cumulative effect makes itself felt through the whole structure.

I think it very necessary that municipalities and other public undertakings should therefore, always bear in mind that power should be supplied at as low a price as possible and should not be loaded with any extraneous elements that have nothing to do with the development of enterprise and industry.

In the post-war period we shall have to re-employ many people and we shall have to work out schemes very carefully in order to employ all our people productively. We must increase our national income as we progress. Let me remind you of just a few of the features which could be developed. In power development it seems to me that Southern Africa has almost the ideal form of advancement for our type of natural and human resources. With our gold production we are placed in the position to purchase the skill, ability and the fruits of research work of overseas industrialists, in the form of high-class boilers, turbines and generators needed for power generation. We on our side can use our coal and our lesser skilled human resources. Furthermore, we have copper in Rhodesia and also produce copper in South Africa. There is no reason why the copper produced here should be exported, then to be brought back again in the form of copper wire. I therefore feel that there is a very wide field in this country for the expansion of the production of copper wire. Similarly, we can increase the production of steel, of which large quantities are required in the building of transmission lines. We are happily in the position of having the natural resources and other comparative advantages for the expansion of the steel industry. These few remarks will sufficiently indicate the very important part power development can play in providing additional employment in the exploitation of our natural resources and in increasing our national income.

In the first report of the Social and Economic Planning Council we recommended the planning of a proper public works policy. That has been criticised by some economists but I am afraid that if we are not ready with plans to satisfy the essential needs of the people a situation may arise where in our urge to find employment we may be tempted to embark on schemes which will not satisfy the immediate needs of the population, and which in the long term will be uneconomic. Your activities in extending the use of electricity in housing schemes, town planning, and the use of household electric appliances, form a very important part in that type of public works policy we had in mind. A planned public works policy is also a most important factor in shaping a wise monetary policy,

but I cannot here expand on this theme. I want to emphasise how important it is for municipal electricity undertakings and other public bodies to obtain as clear a picture as possible of their plans for expansion with as much detail as possible. In this way we shall be able to prepare ourselves for the rapid initiation of schemes which will provide employment and meet our economic requirements. I visualise that it may even be possible from the collation of such prepared schemes to get a list of all materials and of all the men we need in our various development programmes. When all this information is collected we shall then be in a position to see whether we have sufficient supplies and labour in this country to meet the full requirements of our programme, but in order to decide that we must first have the summary of well-prepared individual schemes. We expect such schemes from experts like yourselves who are in close touch with the needs of the various communities you serve.

Mr. President, Ladies and Gentlemen, I have the fullest confidence that the members of your Association will play their part in the future development of Southern Africa. We have a wonderful country and it is up to us to make it well worth living in for every member of our community. I wish you all success in your important discussions.

**The President:** Thank you, Dr. van Eck. We are very grateful to you for having afforded us some of your most valuable time in order to give us such an informative and interesting address. We also appreciate your kind and congratulatory remarks concerning this Association which we trust will be able to play its fitting part in the development of this country.

Before we pass on to the election of officers for the ensuing year, I would like to express on his behalf, Dr. van der Byl's regret that he is unable to be present with us at this Convention. You will appreciate the extreme pressure on his time and will be pleased to hear that he has delegated representatives to take part in and listen to our proceedings.

We will now proceed to the

#### ELECTION OF OFFICERS.

As you are all aware, our Constitution provides that the Council shall consist of a President, Vice-President, two Immediate Past Presidents (namely, Mr. Nicholas of Umtata and Mr. Eastman of Cape Town, who remain members of the Council), and six other members, two of whom shall be Councillor Members.

I have much pleasure in proposing from the Chair that Mr. Clinton of Salisbury, our existing Vice-President, be re-elected to that position.

**Mr. Kinsman:** I beg to second your proposal, Mr. President.

Mr. Clinton was unanimously re-elected.

We will now proceed to the election of the remaining four Engineer Members. The Engineer Members elected to the Executive Council at the last Convention were: Mr. Hugo (Pretoria), Mr. Kinsman (Durban), Mr. Pirie (Bloemfontein), Mr. Harvey (Springs).

Subsequently, Mr. Pirie of Bloemfontein retired from municipal service and Mr. Powell, his successor at Bloemfontein, was, in terms

of the power vested in the Council by our Constitution, elected by the Council in his place.

Mr. Harvey of Springs has been on active service and has been unable to take part in our work for some considerable time; therefore, at present they are three serving members, i.e., Messrs. Hugo-Kinsman and Powell.

I now invite nominations for four Engineer Member vacancies on the Executive Council.

The following nominations were made:

Name.	Proposed by	Seconded by
Mr. Hugo (Pretoria).	Mr. Bevington.	Mr. Houreld.
Mr. Kinsman (Durban).	Mr. Bevington.	Mr. Houreld.
Mrs. Powell (Bloemfontein).	Mr. Bevington.	Mr. Houreld.
Mr. Wright (Benoni).	Mr. Foden.	Mr. Sell.
Mr. Foden (East London).	Mr. Stevens.	Mr. Hugo.
Mr. Fraser (Johannesburg).	Mr. Gripper.	Mr. Smith.
Mr. G. J. Muller (Krugersdorp).	Mr. H. M. S. Muller.	Mr. Schoeman.

A ballot was taken and Messrs. Horrell and Leishman appointed as scrutineers.

Tea interval.

**The President:** I have to make known the result of the ballot for the election of four Engineer Members on the Executive Council: those elected are Mr. Hugo (Pretoria), Mr. Kinsman (Durban), Mr. Wright (Benoni), and Mr. Fraser (Johannesburg).

Gentlemen, we now have to elect two Councillor Members to our Executive. The custom in the past has been to choose one from the town where the Convention is being held and the other is usually of the town to which we expect to be going, namely, Salisbury. I ask for nominations for two Councillor Members.

**Mr. Eastman:** Because of the fact that we have our President in Johannesburg and because our Vice-President is from Salisbury, I have pleasure in proposing Councillor Verity of Johannesburg and Councillor Olley of Salisbury.

Seconded by Mr. Evans.

Unanimously carried.

**The President.** It is usual for the two representative Councillor Members to attend the Executive Council Meetings, but at times it is impossible for them to do so. However, I would like them to attend whenever possible to keep au fait with the work of the Association. To provide against the possibility of their not being able to attend it is usual to elect two alternate Councillor Members.

**Mr. Clinton:** I propose Councillor Gearing of Cape Town and Councillor Thomas of Durban.

Seconded by Mr. Kinsman.

Unanimously carried.

#### SUB-COMMITTEE REPORTS.

**The President:** Gentlemen, the next item on the agenda is the reports of the various A.M.E.U. representatives on standing committees. Firstly, we will take the report of the South African Standards Institution. Our representatives were Mr. Harvey of Springs and Mr. Wright of Benoni. As previously stated, Mr. Harvey has been fully occupied on military service and I will therefore call on his alternate, Mr. Wright, to read the report.

# S.A. Standards Institution Report

By Mr. G. R. E. Wright.

The South African Standards Institution held regular monthly meetings throughout the year, under the Chairmanship of Professor John Orr.

The main item of interest to members of this Association was the question of Standardization of the Low Tension Pressure of Supply at 400/230 volts. After discussion by the Advisory Committee of your Association, it was decided to recommend to members that this Association should support the Standards Institution in this matter. Copies of the Advisory Committee's report on this subject have been circulated amongst members of the Association.

A Standard Specification for Creosoted Wooden Transmission Poles is under consideration. The draft specification has been circulated amongst members for their comments.

Sundry other South African Standard Specifications were adopted, which included salt, lime, black and galvanised mild steel sheets etc.

The South African Standards Institution was one of the main bodies instrumental in bringing forward the "Standards Bill" which is "to promote the standardization of commodities, process and practices, and for the purpose to establish a South African Bureau of Standards, to define the objects for which it is established, and to prescribe the manner in which it shall be managed and controlled, and to provide for other incidental matters."

**The President:** Thank you, Mr. Wright, for your comprehensive report. The next item is the election of our representatives on this Committee for the ensuing period. As I have mentioned, they were Mr. Wright and Mr. Harvey, but unfortunately the latter will be unable to serve during the forthcoming year. I think you will agree, Gentlemen, on the desirability of your nominees being resident in the Witwatersrand area to enable them to attend the meetings which are held in this City. I call for nominations.

**Mr. Angus:** I propose Mr. Wright of Benoni and Mr. Hugo of Pretoria.

Seconded by Mr. Mail.

Messrs. Wright and Hugo were duly elected.

**The President:** As I am your representative for the World Power Conference, it falls to me to report.

## World Power Conference

By Mr. A. Rodwell.

At our last Convention at Umtata during 1939, I reported that, owing to the unsettled state of Europe, the international crisis had seriously interfered with the work of the above Conference. Obviously, nothing has been achieved since that time. The last Annual Meeting of the International Executive was held in Vienna during September of 1938.

I can only again express the hope that the war clouds will soon lift, when this and similar organisations may again function for the



advancement of science and the betterment of the peoples of the earth.

**The President:** I do not know whether you wish to elect a representative to the next Conference. Frankly, I do not think this necessary. As, however, it is possible he may be able to do something useful, I call for your nominations for a representative for the World Power Conference.

**Mr. Gripper:** I propose the re-election of Mr. Rodwell.

Seconded by Mr. Mocke.

Mr. Rodwell was duly elected.

**The President:** Next we will take the Safety Precautions Committee on which Mr. Wright and I have represented this Association.

## Activities of Safety Precautions Committee since Last Convention

By Mr. A. Rodwell.

The Safety Precautions Committee is a standing Committee of the Institution of Certificated Engineers. Its members comprise three representatives of the S.A. Institute of Electrical Engineers, three of the Institution of Certificated Engineers, one of the Association of Municipal Electricity Undertakings, one of the National Federation of Building Trade Employers, and one of the Electricity Supply Commission. This Association has been represented by Mr. Wright and myself.

Since the Umtata Convention in November, 1939, the Committee has held several meetings and a great deal of detailed work has been necessary, particularly in respect of the following main items:

- (i) Corrections, amendments and preparations for printing the First Edition of the Standard Wiring Regulations.
- (ii) Arrangements for the translation of these regulations into the second official language.
- (iii) Preparation of corrigenda and explanatory notes to the First Edition.
- (iv) Drafting "War Emergency Modifications" to the First Edition, designed to ease the difficulties arising from the war-time shortage of certain wiring materials which were required to comply with the Standard Regulations. In this connection it is to be noted that, as explained in the Association's circular to all Engineer Members, dated 3rd September, 1943, it is ultra vires to permit wiring to be done in terms of such modifications unless given the force of law by promulgation.
- (v) Collecting and preparing further modifications and additions which it is proposed to incorporate in the Second Edition of the Standard Wiring Regulations which will probably be published after the war.

The First Edition of the Standard Regulations for the Wiring of Premises was published in September, 1940, and the "Notes, War

Emergency Regulations and Other Modifications" in July, 1942, under the auspices of the S.A. Institute of Electrical Engineers.

The Association of Municipal Electricity Undertakings, as a principal beneficiary under these Standard Wiring Regulations, owes a particular debt of gratitude to those other bodies who have expended so much time and effort in giving the Union of South Africa, for the first time in its history, an authoritative and unified set of Electric Wiring Regulations.

We would also like to pay tribute to the Electricity Supply Commission who have put in a great amount of work in connection with this matter. They have helped us tremendously; without their help things would have been very difficult.

**The President:** We will proceed with the election of our representatives on the Safety Precautions Committee and I call for nominations.

**Mr. Hugo:** I have pleasure in proposing Mr. Wright and Mr. Fraser as our representatives on the Safety Precautions Committee.

Seconded by Mr. Harvey.

Messrs. Wright and Fraser were duly elected.

**Mr. Milton:** Before you proceed, Mr. President, I would like to express our thanks to Mr. Harvey who has had to bear a great burden of work in the group promulgation of the Standard Wiring Regulations.

**The President:** I heartily support your statement, Mr. Milton. We had to find some town and someone willing to take on the work arising from the promulgation of these Standard Wiring Regulations. In doing this we wanted to cheapen the cost of promulgation, translation, etc. We had to ask some Municipal Engineer to take the responsibility of arranging for a joint Municipal promulgation, so that the whole thing be done as one unified unit. It was Mr. Harvey who got his Town Council to agree to that, and they had to put in a tremendous amount of work and expense. We want to record a sincere vote of thanks to Springs Municipality and to Mr. Harvey for helping us in this connection.

Unanimously carried.

We will now deal with the next item on our agenda, namely,

#### **THE VENUE AND PROVISIONAL DATE OF NEXT CONVENTION**

As you know, at Umtata we were invited by Councillor Olley, now Mayor of Salisbury, to go to Salisbury for the next Convention. This we accepted with thanks but owing to the war we have so far been unable to hold a Convention there. I understand that Councillor Olley would like to renew his invitation for next year and would like to address you.

**Councillor Olley:** Mr. President, Ladies and Gentlemen,—It almost seems like the prehistoric days since I asked the Convention to come to Salisbury. Since 1939 much has happened. For several reasons this Salisbury Convention has not taken place, but we are now making a fresh start and for all these years our invitation has been open.

Salisbury Town Council have considered the question recently

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and have asked me to invite you to come to Salisbury for the next Convention; the suggestion we make is for the month of May. In September or October we could show you a lot of beauty in the country, but the month of May is far cooler than in September or October. Accordingly, our invitation is that you come to Salisbury next May. We particularly would like you to do so because, firstly, our City Council has been very interested in this Convention and, secondly, it is a great believer in a good-neighbour policy. It is the practice of the South African Government to be friendly towards us and we would like to reciprocate on every possible occasion that we can.

We cannot go back a hundred years as you can in South Africa, but we have built up quite a number of towns which may be small in comparison to Johannesburg. We get on very well among ourselves and are becoming very civilised in the wilds of Africa; we would like you to see what we have done so far. Furthermore, we in Salisbury come down to the Convention and we do so to gain more experience in Municipal affairs.

Accordingly, I extend to you the invitation to come to Salisbury about the month of May next year. We are promised a very good time and not an austerity time either.

**The President:** Since the time of our Umtata Convention it has been our intention to visit Salisbury. In fact, we have been approached on several subsequent occasions to go to Salisbury and I personally appreciate very much the fact that we have already been asked once.

**Councillor Millar:** Mr. President, Ladies and Gentlemen,—On behalf of the Town Council of Bulawayo, I want to extend an invitation to the Convention to visit Bulawayo. Bulawayo usually follows Salisbury and, should you come to Salisbury, having penetrated that far into Rhodesia, it might be possible, and even convenient, for the Convention to break its programme into two parts. You might possibly like to spend the first part in Salisbury and later on you would probably like to visit the centre of industry, that is, Bulawayo. Moreover, you will be quite near the Victoria Falls.

On behalf of the Town Council of Bulawayo, I heartily invite you to hold part of the proceedings of the Convention in Bulawayo if at all possible.

**The President:** Gentlemen, we are in a most fortunate position this year. I have known a time when we have called for invitations and there has been a blank silence; we wondered why. Of course, it has been a long time since we last met and you know the position we have been in since that time. It is for you to say where you would like to go. I think we are under some obligation to Salisbury, whose invitation we accepted in 1939 at Umtata. We would like to hear the views of the meeting.

**Councillor Millar:** Further to my remarks, I would like to make it clear that Bulawayo does not want to steal the Convention. We feel that having gone as far as Salisbury you might like to split your proceedings and hold part in Salisbury and part in Bulawayo; your delegates having travelled so far, we felt that to spend two days in Salisbury and two days in Bulawayo would be the best way

to do this. This means only one extra day's travelling.

**The President:** We want to oblige everybody and it is very difficult to deal with a matter of this kind. There is the question of accommodation when splitting up a Convention, and I do not remember splitting up a Convention before. I can easily imagine the feasibility of a visit of a day perhaps, but were we to split up the Convention as such, I am not quite clear as to how this would work out.

**Colonel Ewer:** Mr. President, a few years ago we spent three days at Salisbury and three days at Bulawayo. The arrangements worked out very satisfactorily.

**Mr. Milton:** At that Convention, Bulawayo put up two papers and during our visit to Bulawayo we had the opportunity of seeing what the papers had been written about. I think this was a very successful arrangement.

**Mr. Angus:** I suggest that the Convention be held at Salisbury for three days, followed by two at Bulawayo.

**Councillor Millar:** If it will assist, Mr. President, I should mention that Bulawayo's invitation is alternatively for the whole of the Convention.

**Mr. Kinsman:** I was impressed by the fact that it is a long-standing invitation for the Convention to be held at Salisbury. Would it not be possible for Mr. Olley to withdraw his invitation and for the Convention to be held at Bulawayo? If a portion of the Convention is held in Bulawayo and a portion in Salisbury, consideration would have to be given to the convenience of accommodation, railway travel, etc. (Hear, hear.)

**Mr. Clinton:** I feel I should say something about the Engineers who had to arrange these matters with their Councillors. When it was suggested that the Association might be invited to Salisbury, unofficially I got in touch with Mr. Jack Phillips of Bulawayo and put it to him that we might adopt the same arrangement as when the Convention last met in Salisbury. He naturally stated that this matter would have to be submitted to his Council and as a result now you have the invitation from Bulawayo. Personally, I feel that we should leave the decision in this matter to the Executive Committee.

**Mr. Harvey:** In view of the fact that we are so far away from Rhodesia, it is suggested that we have a five-day Convention, namely, three days in Salisbury, going to Bulawayo for two days and then on to the Victoria Falls.

**Mr. Venter:** I suggest, Mr. President, that we move a vote of thanks to the two Cities for their kind invitations. In regard to all these differing views, I do not think the matter should be further considered now and I would like to suggest that Mr. Millar of Bulawayo attends the Executive Council meeting to-morrow morning in these premises to talk the matter over in Council.

Unanimously agreed.

# Activities of Advisory Council since Last Conference

By Mr. A. Rodwell.

The last occasion on which it was possible to hold full meetings of the Executive Council of this Association was at the Umtata Convention held on the 20th to 23rd November, 1939. During the intervening  $4\frac{1}{2}$  years, an abnormal amount of work has arisen for the attention of the Council, not only on account of the difficult conditions emerging from the present war, but also from the introduction of the Factories, Machinery and Building Work Act, 1941, and the Standard Regulations for the Wiring of Premises. On account of the difficulties of attending to these and other matters by correspondence, it was decided, in August, 1941, to establish an Advisory Council on the Witwatersrand so that its members could meet to discuss business as it arose and, having formulated its decision, to submit these by post to the remaining members of the Council for approval, before taking action. The following members of the Association were appointed to the Advisory Council: Messrs. Hugo (Pretoria), Wright (Benoni), Harvey (Springs), Muller (Krugersdorp), Milton (E.S.C., Johannesburg), Horrell (Johannesburg), the Secretary and Treasurer, and myself as Chairman. Other Engineer Members of the Association who have been able to attend specially convened meetings of the Advisory Council on the occasion of their visits of Johannesburg were Messrs. Eastman (Cape Town), Clinton (Salisbury), Nicholas (Umtata), Angus (Port Elizabeth), and Powell (Bloemfontein).

Most members of the Association will be aware of many of the activities of the Executive Council during the past  $4\frac{1}{2}$  years by virtue of the circular letters which have been issued from time to time. The following, however, is a convenient record of the principal matters which have been dealt with:

## (1) Resignation of Secretary and Treasurer, Mr. Poole:

After many years of invaluable service to the Association, Mr. Poole relinquished his duties as Secretary and Treasurer. On behalf of the Association he was presented with a gold watch under cover of a letter of esteem and appreciation of his services. We regret that Mr. Poole is unable to be with us to-day.

The Association was fortunate in securing the services of Mr. L. L. Horrell, ex-City Electrical Engineer, Pretoria, to fill this vacancy.

## (2) Factories, Machinery and Building Work Act, 1941:

A very considerable amount of work was done in collaboration with the Electricity Supply Commission in seeking exemptions from various provisions of the Act which appeared oppressive to Electricity Supply Undertakings. As a result of correspondence with the Secretary for Labour and interviews with the Chief Inspector of Factories, difficulties were clarified to some extent. The difficulties experienced by Electricity Undertakings, however, are far from solved and this matter has been included in the agenda of this Convention.

A considerable amount of work was undertaken on behalf of the Association in response to the Secretary for Labour's invitation to submit comments on the various drafts of Chapter III, Machinery Regulations, which were ultimately gazetted on the 22nd May, 1942, some time after the Factories Act, which was assented to on the 10th April, 1941. Representations on various points were made conjointly with the Institute of Certificated Engineers, the S.A. Institute of Electrical Engineers and the S.A. Institution of Engineers.

### **(3) Standard Regulations for the Wiring of Premises:**

The technical provisions of these regulations are dealt with by the Safety Precautions Committee on which the Association is represented by two members of the Advisory Board (Mr. Wright and myself). The arrangements made for the Group Promulgation of these regulations in each Province were successfully put into effect and there are few towns in the Union which did not participate.

Notices were circulated to members drawing attention to the publication of the notes of the first edition of the Standard Wiring Regulations and explaining the applicability of the War Emergency Regulations and other modifications included therewith.

### **(4) The 400/230 Volt Standard Distribution Voltage:**

It was drawn to the Association's attention that the Electrical Engineering Sectional Committee of the S.A. Standards Institution had suggested to the Electricity Control Board that 400/230 be adopted in place of 380/220 as the standard L.T. distribution voltage in South Africa. After investigating this proposal all Association members were furnished with full information concerning the implications of such a change, preparatory to notifying the Electricity Control Board that the Association supported the principle of standardising at 400/230 volts for new installations, provided that existing schemes be afforded ample time in which to effect a change-over to the new standard. This matter has been set down on the agenda of this Convention for decision.

### **(5) Plant and Material Requirements of Electricity Undertakings.**

Many questions arising from shortages of materials and the use of substitutes, heavy plant requirements and the difficulties facing the Electricity Supply Industry, both in respect of present running and maintenance and future developments in relation to post-war schemes, have been considered. Questionnaires have been issued to the smaller undertakings in the effort to assess the extent of their difficulties under war-time conditions.

These matters are included on the agenda of the Convention and a letter has already been addressed to the Director-General of Supplies pointing out the need for some form of central organisation to co-ordinate the requirements of the Supply Industry, particularly if post-war housing and development schemes are to be effectively executed.

### **(6) A.M.E.U. Convention.**

At the Umtata Convention it was decided to hold the next Convention at Salisbury, Rhodesia, but this project had to be abandoned



in view of time and distance in respect of travelling conditions. Bloemfontein was tentatively considered as being more central, but war-time conditions eventually led to the Council deciding, early in 1941, to abandon further consideration of holding a Convention.

The present Business Convention has been organised as a matter of necessity, as the Council feels the urgency of many matters concerning Municipal Electricity Undertakings which require attention.

In conclusion, the Council wishes to express the hope that members attending this Convention will recognise the Association's good fortune in being able to gather so many of its members for discussions on the many important issues facing the Supply Industry, and trusts that each member will exert every effort to ensure that these discussions will lead to a revitalisation of the Association's activities and to constructive efforts on behalf of the Municipal Electricity Undertaking in particular and of the community in general.

The members of the Advisory Committee have attended the meetings in Johannesburg often at considerable inconvenience to themselves and also at considerable expense from a transport point of view. I am grateful to them for their support.

Now that it would appear possible for us to resume more regular meetings at Conventions, we would like an expression of opinion from our members relevant to the necessity or otherwise of continuing with the Advisory Council, bearing in mind that it was established to deal with urgent business at times which were much more difficult than those prevailing to-day and which could not be handled satisfactorily by correspondence.

**Mr. Harvey:** Mr. President, I do not see any immediate need to have an Advisory Committee in the near future.

**Mr. Kinsman:** There is no doubt that the Advisory Committee has served a very useful purpose and, as pointed out in Council, members may feel that on occasions the Advisory Committee may render further assistance. Meanwhile, this Convention should place on record its hearty appreciation of the work achieved by the members of the Advisory Council and to recommend to the full Executive Council that, where they cannot meet demands as satisfactorily as they would like to, they should take advantage of this Committee's particular experience when necessary, not so much as an Advisory Council but in extension of the Council's powers of co-option under our Constitution.

**Mr. Eastman:** In view of the election we have had to-day when representatives from Pretoria, Benoni and Johannesburg were represented in addition to Mr. Kinsman of Durban, our Vice-President and others who are a long way off from the Witwatersrand, I also am not clear as to why it is necessary to call the body an Advisory Council. In view of the special provision in our Constitution which says that our Council shall have, for any special purpose, power to co-opt any member whose services, in their opinion, may advance the objects of the Association, I do not see why we need constitute an Advisory Council in addition to our Executive Council. Accordingly, I associate myself with Mr. Kinsman and, if he proposes that we do not appoint an Advisory Council, as such, under that name, I would second that proposition.

**Mr. Gripper:** It should not surely be overlooked that the business before us is so great that nearly every item of the agenda might suggest the formation of a committee or sub-committee. Other sub-committees may still arise from this Convention so that an Advisory Committee is not necessary.

**The President:** In actual fact the Advisory Committee was a sub-committee appointed by your full Executive Council and we should not call it an Advisory Committee. All that is really involved is merely a change in name.

**Mr. Harvey:** This Association had its Council in the early days but owing to conditions which have arisen during the war it was necessary to form an Advisory Committee to deal with special matters. I feel with Mr. Eastman and Mr. Kinsman that, as in the pre-war days, our Council meetings used to be held prior to our Convention meetings, there is now no need to continue these emergency meetings.

**Mr. Milton:** As a member of the old Advisory Committee, may I point out that if the Council co-opts a member on to the Advisory Council, then the deliberations of that body would not necessarily ultimately represent the final decision of this body as a whole. The Committee was formed to discuss matters which were possibly slightly contentious with a view ultimately to submitting to the full Council motions which were likely to receive unanimous support. On the basis of this principle, I suggest that the Committee should continue because, after all, you will have a number of members distant from Johannesburg to communicate with before your full Council meets at Salisbury and can come to a final decision.

In the past, of course, we have had one or two serious matters which it was essential to discuss before submitting our views to the remaining Council in the form of some definite recommendation which we felt was likely to receive unanimous support. If you co-opt on to your Council, as has been suggested, we will be able to retain these advantages.

**The President:** I would like to say that we have never at any stage found occasion to put anything to the vote of Council. Council members have submitted further suggestions which improved the position. After discussions by correspondence we have always arrived at the same conclusion. Some good work was put in in this way and I would like to make it clear that we never had any case of dissension among the Council members; I do not want you to get the impression that there ever was. The Advisory Committee was formed to meet the difficulties which arose in dealing with important matters and to discuss these under the direction of your Council of the time. I think that Mr. Kinsman meant that this procedure should be continued and that the Council should retain the control as they have always done, but that we should drop the misnomer of "Advisory Committee."

I think perhaps it would be well if your Executive Council would go into this further at this Convention, but I am quite prepared to accept Mr. Kinsman's motion which was seconded by Mr. Eastman. Is it your opinion that the Council would be well advised to retain

this basis of working as they had the power to do under the Constitution in any case? I put Mr. Kinsman's motion to the vote.

Motion carried.

### BANKING AND AUDITORS TO THE ASSOCIATION.

**Mr. Clinton:** Mr. President, I would like to move that this Association retains the services of our Auditors, Messrs. Warren & Hofmeyr, for the ensuing year and that this Convention reaffirms the usual banking resolution in regard to the operation of its banking account with the Standard Bank of South Africa.

**Mr. Hugo:** I second.

Motion carried.

**The President:** Gentlemen, before we adjourn for lunch, I would like to make a few announcements.

In the first place, this Convention is essentially of a business nature and its success depends largely upon the interest in the proceedings and support afforded to the Chairmen of the different sections by our individual members. By taking part in the discussions, thereby giving our Association the benefit of their experience, our members will ensure that the decisions reached will be of great benefit not only to our Association but to the people of those areas we represent and serve.

The Convention is not following the usual orthodox lines based on the presentation of papers and discussion thereon, but has been arranged so that by discussion we may formulate resolutions leading to definite action. We also wish to consider problems of immediate and future importance arising from this war and how they may be dealt with and, if possible, solved.

For the purpose of correct record in our Proceedings, I shall be pleased if each speaker will announce his name on rising to speak and the town he represents.

From the programme it may be seen that a visit to the new Orlando Power Station has been arranged for to-morrow (Tuesday). Transport will leave Hoek Street, near the Victoria Hotel, at 2.30 p.m.

I shall be grateful if those members who have not already done so will fill in the forms provided as soon as possible, stating the functions they desire to attend and whether transport to and from Orlando is required. All this is essential so that the necessary transport and bookings may be determined.

Other visits to the City power station and workshops, sub-stations and the distribution system will be arranged for members on request, but I would urge that members do not forego giving us the benefit of their experience at the discussions in favour of these specially arranged trips.

The Convention is now adjourned until 2.30 p.m., when we will reassemble in this room for Section A and in the next room for Section B in order to deal with the respective agenda of the two sections.

## SECTION A.

# The Electricity Undertakings' Share in a Planned Economy

MONDAY, 24th APRIL, 1944, at 2.30 p.m.

- 1.00 COLLABORATION IN ELECTRICAL DEVELOPMENT SCHEMES.  
Chairman: M. J. S. CLINTON (Salisbury).
- 1.10 EXISTING MACHINERY.
- 1.11 The extent to which the A.M.E.U. is effective and could be made more effective in the development of the Electricity Supply Industry from Municipal aspects.
- 1.12 The functions of the Electricity Supply Commission under Clause 3 of the Electricity Act (No. 42 of 1922).
- 1.13 The forms of organisation and method of functioning whereby the Electricity Undertakings of the Union may more fully express their combined and individual viewpoints and collaborate with the Electricity Supply Commission in adopting the objectives of the Electricity Act and items detailed hereafter.
- 1.20 CO-ORDINATION AND STANDARDISATION.  
More effective means of pooling operating, design and administrative experience with a view to wider adoption of recommended practice, standardisation and co-ordination in respect of:
  - 1.21 Types of plant, equipment and spares.
  - 1.22 The 400/230 volt standard distribution voltage.
  - 1.23 Local regulations and interpretation of legislation governing electricity supply.
  - 1.24 Forms of accounts.
  - 1.25 Methods of charge and forms of tariffs.
  - 1.26 Regulation of profits and relief of rates.
  - 1.27 General.

**The Chairman:** At the outset it is necessary for me to explain the procedure it is proposed to adopt for the deliberations of Section A. As you will have noted, there are three main groups, for the substance of which a draft general resolution has been prepared. This I now formally move, and if someone will second the motion, I shall proceed to outline the procedure your Executive considers should be adopted.

It is anticipated the draft motion will be amended and added to. It is suggested that each group of Section A should consider at its meeting the text of the motion pertinent to each of the subsections of the group agenda before you as it is felt that this procedure will enable the groups to deal efficiently with the business of the two sections.

You will note that the motion proposes to represent to the Government that the supply industry has an important part to play in the planning of our State, and to obtain from the Government statutory powers to perform executive functions which we define, and sets out the manner in which we suggest these prerequisites of planning be established. We hope to evolve thereby a constructive outline of the supply authority's part in a planned economy.

How best we are to carry out our obligations to the community depends to a great extent upon the instrument of delegation, upon the charter of responsibility which we hope to obtain from the State.

There are several schools of thought in social government. The one is wedded to nationalisation of the means of production; another to government by master blue-prints prepared in advance by managerial groups of experts; and, lastly, we have the group which believes in a system which will integrate the efforts of the whole people and truly represent their aims and desires—a system which springs from the foundations of society and not from a managerial oligarchy—a system in which we do not wait for orders but proceed, co-ordinating as we go.

I feel that democracy is more than an ideal. Its growth and development are essential to the well-being of our community. For a time it seemed the way of democracy was immediate and complete nationalisation, with direction from State bureaux. To-day we see the picture much more clearly. The war has taught us that the will of the people is a social force no master blue-print, no managerially operated state can adequately represent. The energies of the people can be directed to a common goal only when we delegate responsibility to the individual component parts. If we are to inhibit apathy, we must condition the average man's environment so that he has a more direct interest in the actions of the community than at present. He must not be allowed to pass entirely his obligations to some executive body. He must share the duties of the State by active participation. The Government is to-day doing too much, where it should merely be regulating. The Government cannot be an active participant and judge fairly causes other than its own. Nor yet can it, as at present, discharge effectively the jobs it has taken on, for delegation on a democratic basis is as yet rarely practised. I feel local autonomy should be extended: that the plans of the State should be the weighted average of the ideals of the component parts of our community. If these principles are to become enfranchised in our way of life, the virtues of individual initiative, the ambitions of people can be realised without resorting to government by a managerial group, nor nationalisation of the thoughts of the people.

We feel, many of us, that the share the Electricity Supply Industry plays carries little autonomy, no delegation by the central authority and, further, that we could do much. It is perhaps not entirely the fault of any government but is the fault of the Association, too. We have now reached a stage where I feel members should take a very much greater share of responsibility from the Government for the people. The Electricity Supply Commissions in all countries have achieved a great deal, but until to their achievements are added the properly co-ordinated efforts of the whole of the supply industry, technical resources cannot be regarded as having been mobilised.

The resolutions before you attempt to define what is lacking, and how our body can effectively take a part in the future of the Union. We feel the way democracy should develop is along the road of delegation and co-ordination, not towards Fascist Corporations or Leader States. Social progress is the integrated sum of every unit. The speakers who follow will elaborate some practical ways of progressing to such goals.

**Mr. Milton:** We are very fortunate in having Mr. Clinton in the Chair

for this section of our Conference, because I know how extensively and intensively Mr. Clinton has studied the problem before us. There is, of course, some difference between Rhodesia's position under its Electricity Act and the South African Commission's position under its Electricity Act. Our Agenda quotes Clause 3 of the Union Act. Under Section 3, the Commission is required, inter alia, to make provision for a cheap and abundant supply of electricity wherever required. Some people have lost sight of these two words "wherever required," but I can assure you that wherever an enquiry has been made for a supply of electricity from the Commission, the Commission has done its utmost to furnish that supply. There are, of course, cases met with by the Commission probably more frequently than by Local Authorities, where the layman's idea of the cost of furnishing a supply is rudimentary in the extreme. For example, the presence of an 88,000 volt line across a farm is taken by some to indicate that lighting of the farmhouse can be accepted as a foregone conclusion at next to no cost. When some laymen are told what it costs to erect a transmission line they stand aghast. On the other hand, there is the class which openly expresses the opinion that the transmission lines built by the supply authorities are far too expensive and that they could have lines built very much more cheaply. These people lose sight of the fact that if they build for themselves they accept unsatisfactory service as part of the penalty of cheap construction but they refuse to acknowledge that when the project is provided by a supply authority and a cheap construction leads to poor service that this poor service is part and parcel of the attempt to make a supply available at low rates. They invariably complain bitterly and broadcast their complaints. I suppose it is only human nature that this anomaly should exist, although it is damaging to the efforts of supply authorities.

In my own experience, one of the principal difficulties faced by Municipal Power Engineers desiring to extend to rural electrification is Councillor opposition to investment of money on the grounds that a municipality cannot be expected to finance a project which would benefit non-ratepayers, living possibly on the outskirts of the town to avoid paying rates, unless that project is definitely going to benefit the ratepayers themselves financially. In some cases they feel that development outside the municipal boundary cannot be undertaken because they would lay themselves open to criticism from areas inside the boundary not served at the time for economic reasons.

Regarding the item before us for co-ordination and standardisation I feel that much good work could be done by the Association as there will undoubtedly be every need for such co-ordination and standardisation in the immediate post-war period in order to speed up the supply of materials required to cope with the pent-up development which will then be released.

I see our old friend, the regulation of Profits and Relief of Rates is down for discussion. There seems to have been a trend of municipal opinion in the direction of such regulation but I do hope that the time of this Conference will not be wasted in argument for and against in discussing this vexed question, to the detriment of the other useful items also included for discussion.

**Mr. Eastman:** Our thanks are due to our Chairman for his lucid explanation of the procedure contemplated by the agenda for this Convention.

The agenda contains many items of vital interest to our Association, not the least important of which is the question of the extent to which our Association is effective and could be made more effective in the development of the Municipal electricity supply industry, and I was particularly pleased to note Dr. van Eck's reference in his address to the assistance which our Association could render by its contribution to a planned economy.

It has been a source of disappointment to me that during the war period it has not been possible to hold meetings for the discussion of ways and means of taking effective steps to deal with various matters which have arisen from time to time affecting the interests of the power supply industry because I feel that our Association's voice should be heard. As far back as 1938 in the course of my Presidential Address I expressed the opinion that our Association was worthy of more interest being taken in its affairs by its members and that it was in a position to render service to the Government through its potentialities as a leading body representing the power supply industry for promoting the welfare of the country as a whole.

Whilst our members are not responsible for the major portion of total quantity of electricity sent out from generating stations, eighty to ninety per cent. of the total number of consumers in the country take supply from Municipal mains. Further, most of the industrial concerns in this country also take electricity supplies from Municipal sources.

Our Association thus represents very important interests in the electricity supply industry and is indeed a body which in its widest aspects is more representative of this industry than any other, but I have yet to learn that during the war period the Association as such has been represented on any authoritative body controlling directly or indirectly the supply of electricity.

This is a matter, however, to which I hope to refer in discussions in the course of the Convention relating more particularly to the acquisition of essential materials and equipment and the co-ordination of requirements of plant and equipment for post-war development.

I would like to refer briefly to Clause 8 of the draft resolution before us dealing with the question of making recommendations for the promulgation (by the Governor-General) of regulations in terms of Clause 53 of the Electricity Act.

Doubtless it has come as much a surprise to other members as it has to me to learn that the Central Government has power under the Electricity Act to control the conduct of Municipal Electricity Undertakings as no such Government control has been exercised as yet.

My personal view is that a measure of control over certain aspects of the conduct of Municipal Electricity Undertakings, particularly in regard to financial policies, is to be welcomed. The wide variety of financial arrangements in existence and the financial expedients to which many, if not most, of the Municipal Electricity Undertakings

are subject in relation to general Municipal expenditure call for the introduction of uniformity of control in the interests of consumers individually and the Municipalities as bodies.

The question of standardisation of distribution voltage appearing in the agenda is also one of major importance. This matter has been raised by another body in this country which has recommended to the Electricity Control Board the substitution of 400/230 volts for the present-day standard of 380/220 volts, although the latter was adopted in the first place on the recommendation of our Association. Possibly a case exists for reviewing that recommendation at the present time and this is an excellent opportunity of raising the matter.

In conclusion, I would like to refer to that item on the agenda which relates to the conservation of primary power sources—particularly coal.

The sources of high grade coking coal in the Union are strictly limited and it so happens that for many years the whole of the output from one of the few collieries producing it has been burnt to waste for power production purposes.

The greatly increased requirements of the steel-making industry has drawn attention to the need for diverting to its use coking coal which previously was burnt in boilers, but even apart from that aspect of the matter, serious consideration should be given as part of the post-war development schemes, particularly in the planning of new large power stations, to the incorporation in the steam raising plant of means of recovering at least part of the volatile constituents of the coal.

\*Particulars have already been published of experiments in which it was found that for 100 tons of coal treated by a low temperature carbonisation process in a typical power station, by-products, all readily saleable, were obtained to a value of 8/-. This is a matter which deserves every consideration in the future.

**Mr. Powell:** I find that I am not quite sure how best to broach the matter arising in our agenda. I find that, unfortunately, our Chairman has forstalled me in much of the subject matter with which I had hoped to deal. However, I would like to treat our present subject matter strictly in reference to the question of power supply and the existing provision for controlling the industry.

My thoughts run in the direction of considering the effect of legislation which will grant to the Electricity Control Board wider powers, even to the exclusive control of all electric power supply, with a view to bringing about a greater measure of very necessary standardisation in the industry. Also I feel that we should consider making recommendations that the power inherent in Clause 53 of the Electricity Act of 1922 be invoked for deriving regulations governing (a) safety of the public and a sufficient supply of electrical energy wherever required, (b) overhead line construction and design, (c) the wiring of premises and, (d) standard forms of accounts.

In these connections, I feel that this meeting should consider recom-

[\*The Journal of the Institution of Electrical Engineers, London, Volume No. 68, No. 398 dated February, 1930.]



mending that the Electricity Control Board should become the central administrative authority in South Africa responsible to the Government for all matters connected with the Electricity Supply Industry. It would become a central authority to which all supply undertakings could refer for guidance and advice in any problem concerning electricity supply.

I feel that if Mr. Clinton's form of plan for the future is to be implemented, there must be some form of central authority to co-ordinate his and other ideas and guide their adoption in practice. As legislation stands in this country, we have the Electricity Supply Commission as one entity, the Municipal Electricity Undertakings as another, and a third in the shape of private owner undertakings. There should be some single over-riding authority to co-ordinate and direct these entities as a means of overcoming many of the divergencies of practice and removing the discriminatory effects of legislation, e.g., the Factories Act of 1941 and the Mines & Works Act of 1911. Such authority besides being a control authority, would be empowered to determine the broad lines of policy in respect of power supply in South Africa and so co-ordinate the part the industry is to play as a public utility in the planned economy of the State. I feel that the Industry must be looked upon more realistically as a public utility than is the case at present and the most efficient way of ensuring this lies in its direction by a single party or body, if necessary assisted by some system of advisory committees or boards. I am convinced that if such exclusive control is adopted, all parties will benefit from the best experience of the individual components and that this will accelerate progressive development.

To-day we have far too many forms of association for different purposes which are more nominal than real. If we were all to gain a clearer conception that there are no fundamental differences between various types of power undertaking from the public utility viewpoint and if we were all, on a voluntary basis, prepared to seek a centralised directive it would be practicable to fit our industry into a much better co-ordinated place in the scheme of rational economic planning. Any legislation in this direction would, however, include definite and adequate powers of compulsion to cater for those instances where parochial interests tended to react against the over-riding national interest.

The results of adopting such a scheme would, of course, end the days of Municipal autonomy in so far as electricity supply is concerned. But this does not appear in tragic guise to me when I see how few Municipal Electricity Undertakings have really made the most of their opportunities and progressed in that brilliant fashion which is possible in our rapidly-expanding industry.

Accordingly, Mr. Chairman and Gentlemen, I submit that we should consider supporting a recommendation that a single over-riding authority be established in this country for the control of the Electricity Supply Industry in all its aspects.

**Mr. Jacobs (E.S.C.):** I would like to refer to certain remarks made by the Chairman concerning the different methods that could be adopted in advancing the supply industry. The only method that is workable is one which allows of willing co-operation. People feel

and act differently and therefore you must allow for typical reactions in this matter. Whatever solution you gentlemen find, and it is for you to find the solution, it must be a solution which will be in line with the general make up of the people of this country. We fortunately are governed by democracy and therefore would have to react sharply to anything approaching a strong dictatorship—I have my own ideas in regard to dictatorship and I think they are not dissimilar to those of most of you.

In the Electricity Act, one of the obligations laid down is that the Commission is to encourage a cheap and abundant supply of electricity wherever required. I have been with this Commission from its inception, and we are 21 years old this year. We have tried to survey the possibility of opening up regional supplies in this country and, as far as lies within our powers, to give supply proportionate to the lowest possible price at which we can buy current. We must take into consideration the area of the Union. The vast rural spaces which separate the towns is a problem in itself. Take, for instance, the Eastern Province, where there are a number of towns, each requiring its own generating station. To work out a unified scheme giving them a bulk supply of current at a reasonable price would be a matter of very great difficulty. We realise that one of the principal factors is the high cost of distribution lines. We have tried to reduce the cost of transmission lines, in order not to jeopardise any particular scheme on which we require a long transmission.

In this Association, you Engineers and Councillors represent a very large area and very large proportion of the electricity consumers in this country. I regret that so far there has not been more direct contact between the Association of Municipal Electricity Undertakings and the Electricity Supply Commission, although some contact has been made through the Electricity Control Board. The Control Board is the Government body to which you have to refer particular development problems. So far there has been too little collaboration between you people and the Commission, although I must acknowledge the close collaboration we have enjoyed in the Cape.

I personally can speak for the Electricity Supply Commission and would welcome a closer contact between the Municipality and the Commission.

**Mr. Pickles (V.F.P.):** When I came to this meeting I did not expect to have to contribute anything to the discussion on the subject under consideration. As some of you know, I have been associated with the V.F.P. for over 30 years, and I may say straight away that I am an out-and-out supporter of private enterprise.

We are to-day going through a phase in history which in years to come will probably stand out as a milestone in human development. We are engaged in a war against what is called Fascism and which we entered to determine whether we should remain as free as we have been in the past. If you analyse the trend of events in this country to-day, however, I think you will come to the conclusion that just now there is a distinct tendency to move away from the democratic form of government and the conceptions of

freedom to which I take it we all here subscribe and for which we are all fighting.

I therefore agree with Mr. Clinton that while we ought to plan for the future, the body responsible for the planning should be one which is established by yourselves and all other supply authorities and not one whose activities you cannot control.

I think that the function of the State in the development of electrical enterprise, or any other enterprise for that matter, should be to advise on the wide issues involved and to control only if necessary. But the actual details should be left to the people upon whose energy we depend for the carrying out of the work. It may be right for a State-controlled body to establish inter-connecting power lines between undertakings, as in the case in Britain, but I do not agree that it is the function of any such body to take over the operation of Municipal Undertakings unless the Municipalities themselves wish such a course to be taken.

Nor can I agree that any central authority should be made responsible for the generation of power and distribution throughout the country. I have an innate dislike of bureaucratic control, for we must remember that while at its inception such method of control may be effective, all history teaches that sooner or later it degenerates and becomes ineffective and inefficient.

**Mr. Angus:** It is rather stimulating to find that my own ideas are not ideas that have occurred solely to myself. At the same time it is rather disturbing to find that practically all my material has already been covered by previous speakers. Half of my experience has been under company direction and half under Municipal direction. As far as progress and development is concerned, the Municipal authority has powers to concentrate rather more on service to the community than on large profits and a quick return on capital invested as in the private company.

Let us give our attention for the moment to the assumption that we cannot do better than have an Advisory Board and that this body should be advisory only. The draft motion would fall flat since it suggests that somebody else should be urged to do something, somebody else should be asked to take steps without a sufficiently clear indication as to what the steps should be. I feel strongly that an Advisory Committee should be formed under the Ministry of Economic Development, advised, if you like, through Regional Commissions. In the motion we should stress that an Advisory Panel is necessary to the sound and unified development of our industry. Panels and committees generally take up too much time if too widely dispersed throughout the country. A Joint Commission should be given executive powers to require any local authority to give effect to any plan which is in the interests of the community.

Regarding remarks which have been made concerning the existing machinery for the operation of our industry, I rather gathered that some of these were out of place. Our guiding principle should be the welfare of the community. Engineers will be called upon in the near future to draw plans capable of serving the community in the implementation of the ambitious schemes that are being planned

by the Government for the post-war era. I would ask that one of the recommendations should include a request to the Government to give an indication in the planning stage of their schemes of the steps they consider necessary on the part of the Power Supply Industry in order that it may be properly co-ordinated in time and extent with these future development schemes.

**Chairman:** I would like to draw the attention of the meeting to the preamble of the draft resolution. This, in association with sub-clauses (a), (b) and (c), seem to cover quite adequately why the Government should establish some form of central authority and how this should be done with the existing interests responsible for the supply of electric power in a manner which will co-ordinate their individual activities with the plans the Government is preparing for the benefit of the country as a whole.

**Mr. Gripper:** I am not going to discuss the question of existing machinery in the Power Supply Industry, because I am new to this Association. I notice, however, the initials of this Association, namely, A.M.E.U. I feel that there is, and must be, emphasis on the "M" in the range of our discussions, although such emphasis by no means precludes our taking into account that there are non-municipal interests in the field of power supply in this country.

Particularly at times when there is some dissension concerning steps which we engineers consider necessary in the development of small undertakings, we are apt to become despondent as a result of adverse decisions being made by the guiding body of men who have the last say in the expenditure of ratepayers' money, despite the number of these men who are not suited by their training or outlook to appreciate fully the engineering and even financial aspects of the matter in hand. This fact raises a matter of no little importance. Whatever we, as engineers, may say in regard to schemes for the improvement of our electricity supply industry, we have, in the end, to secure the sanction of our Councillors who nominally represent the will of the local community.

Now I do not fear much contradiction when I say that there are very many Municipal Councillors throughout the country who are not concerned in working towards the end of providing a cheap and abundant supply of electricity wherever it is required. We are to-day discussing ways and means of co-ordinating our individual schemes within the framework of a national plan and one of our first hurdles will be to persuade certain of those who control our undertakings to concur with the steps proposed in these directions.

At this juncture I would like to make it clear that I have been more fortunate than most in the Municipality in which I have been employed since 1940 — namely, Worcester — since my Council has been progressively-minded in the manner in which it has tackled the very difficult problems with which it was faced. The notes which I have tabled for members' reference will indicate the typical difficulties which face many other small undertakings. (These notes are included at the end of this speech.—Editor.)

What I wish to stress is the basic need to re-orientate our views on electricity supply by adopting the conception that electricity must be provided for everybody who wants it rather than confining our-

selves to those whom it is profitable to supply. After all, fundamentally our industry is becoming a service rather than a profit-making enterprise. In applying to the Government for the establishment of a Central National Control Board having a carefully selected personnel, we should include reasonable indications of the manner in which we propose to render electricity supplies more readily available to everybody in the community. Great care should be taken in selecting Regional Committees from those Council Members and others who are likely to be most suited to the guidance of development of their own undertakings against the background of a nation-wide plan. In this I acknowledge quite freely that many towns in the Union are careful in the selection of their local Electricity Committees; on the other hand, others are not.

Municipal administration of Electricity Undertakings is not in itself at fault, but it is handicapped by a shortage of experienced technical personnel and lack of financial powers. It cannot be expected to run efficiently along lines of national development unless such shortcomings are alleviated and some form of Joint Central Authority is a first step in this direction.

Ownership of undertakings can be discussed as a political matter which we can leave Parliament to deal with. What we desire is that electricity supply should be placed on a basis of true democracy, available to all, no matter what the cost. The Railway system in this country might conceivably have been operated by a large number of separate transport undertakings (comparable with those in the Power Industry) but the practicability of such a scheme is doubtful. Nevertheless, there is Central Control which to-day we look upon as a necessity in Railway administration.

I feel that when we get past this first question of Central Control the solution of other difficult questions will follow naturally—for instance, railway and rural electrification schemes. In this connection I would draw to the attention of members, who may not have studied them, three reports that were published recently by the E.P.E.A., the I.M.E.A. and a Joint Committee of Power Companies in Britain.

Summing up, I consider that a Central Technical Control which also has Financial Control, is the only means of ensuring a proper and lasting national development of our industry. At present we have part of the necessary machinery available in the form of the A.M.E.U. which represents practically every Municipal Electricity Undertaking in the country.

Accordingly, I submit that we should receive full representation on all Regional and National Committees, together with other Power Supply Authorities as well as the more important classes of consumer in each regional area.

(The following cyclo-styled notes were tabled for members' reference by Mr. Gripper):

**WORCESTER MUNICIPAL ELECTRICITY UNDERTAKING, APRIL, 1944.  
NOTES ON DEVELOPMENT AND DIFFICULTIES.**

These notes have been compiled for general information and it is hoped that they may be useful as a background for discussions on many of the items of the agenda for the 1944 A.M.E.U. Business Conference.

**Growth of Undertaking:**

Year.	Units Output (Millions).	Peak Load kW.	Plant Capacity kW.
1925	0.4	200	400
1930	1.4	400	700
1935	2.6	700	1700
1938	3.75	975	1700
1939	4.1	1150	1850
1940	4.3	1200	1850
1941	4.8	1375	1850
1942	5.1	1500	1850
1943	5.9	1570	1850

Annual Load Factor (approx.) 40 per cent.

**System and Plant Capacity:**

In 1938 it was decided to plan a change-over from D.C. to A.C. and to install more plant. A comprehensive report was given by consultants in 1939, but this was immediately followed by an offer from the Electricity Supply Commission. The two schemes were under consideration when war broke out. Each scheme was then put forward by rival parties in the town and after much bitterness a new Council was elected.

In the meantime, the Engineer had resigned and the writer took over about two months later (August, 1940). By this time neither of the two schemes were practicable. With the rapid increase in load on the station and the overloading of D.C. feeders—(some poles were carrying 14 cross arms and the voltage drop a mile from the station was often as much as 20 per cent.)—the undertaking was in danger of collapse.

It was decided to proceed immediately with the change-over and to obtain a single stand-by power line from the E.S.C. The Council was fortunate in obtaining a 1,250 kW La Cour Converter from the Cape Town Corporation and in receiving the necessary transformers, switchgear, cables, motors and accessories from overseas. (In all, some 50 shipments, totalling approximately 250 tons of equipment, were received without any material loss in transit.)

The standby-power line and the converter were in service at the end of 1941 and the change-over is proceeding only just fast enough to keep pace with the development in load.

The predicament which faced the undertaking could only have been overcome by prompt action on the lines indicated, and the whole scheme is essentially one that could only have been planned, executed and operated by a single control. The writer takes no special credit for what is, after all, merely the outcome of circumstances and the fact that the situation was saved is due in a very large measure to the helpful co-operation of the Council, the Electricity Supply Commission, the Government Controllers of Materials and, last but not least, the Power Station and Distribution Staffs.

There have been, and still are, many difficulties to be met, among these the following:

1. Staff is less than the pre-war maintenance standard. Apart from Shiftmen, we have only one man and an apprentice outside and one man and a handyman inside the Power Station. A few non-European linesmen complete the total.
2. There is only one reliable contractor in the town with a wiring licence, but there have been several parties who have caused more trouble than they were worth.
3. The public, having been spoilt in the past, want all their work done by the Department.
4. The operating staff, hitherto satisfied and contented, and promoted regularly until they received salaries in advance of their counterparts in many other undertakings, large and small, have been obliged by the Factories Act to become "bargain conscious" and the senior men object to booking overtime on their own authority.
5. We have 40 rural consumers with as many miles of high tension line to look after and little or no assistance can be expected from private contractors.
6. For most of the period under review the Department had not only to construct, but also to maintain, the installation of power and lighting

for the local prisoners of war camp which can accommodate some 3,000 prisoners, plus the necessary guards and administrative staff.

7. Eight 11 kW sub-stations had to be built and equipped, some four or five miles of H.T. cable laid and jointed and three or four miles of H.T. overhead lines erected in or around the town.
8. Several factories have had to be re-wired and equipped and an average of 12 or 15 domestic installations changed over each month.
9. Routine work is, of course, increased by the necessary controls of materials, tyres, petrol, oil, etc., etc., and aggravated in our case by overlapping of Departmental Work within the Municipality without any corresponding degree of centralised authority.

Members will, no doubt, be able to think of many more difficulties, some of which could be more easily remedied than others, but the writer puts forward these notes in the hope that they may in some way provide food for discussion in all the sectional meetings of the A.M.E.U. Conference and compensate to some extent for the fact that he has not had time to prepare any constructive data or resolutions.

There are many indications of post-war potential power loading without, at present, any hope of co-operative planning in the development stages. Such planning as may come is in danger of being cloaked and stifled by matters of short term parochial interest, fettered on all sides by extraneous authority.

A central national controlling body, with properly selected regional committees, might avoid the effects of local handicaps which the war has shown up in Worcester and which, no doubt, exist in many other undertakings. It is not that Municipal administration in itself is at fault, but, fettered by the combination of Government and Provincial control and handicapped by lack of technical experience and financial powers, it cannot be expected to guide the development of an Electricity Undertaking efficiently along lines of national development with the ideal of providing electricity for all and not merely those whom it is immediately profitable to supply.

(Signed) H. J. GRIPPER,  
Municipal Electrical Engineer,  
Worcester, C.P.

**Councillor Gearing:** I feel that the speakers who are advocating an over-riding Central Authority are on dangerous ground in asking for a Government Authority to control electricity in all phases of its use. You are mostly high technical officials and you are mostly concerned in the efficient distribution of the product you are generating, and I say, with all due respect to you gentlemen, you are losing sight of the kind of democratic Government we have to-day. I feel, Mr. Chairman, the last thing you should ask for is Government control for the distribution of electric current. I am speaking as a Councillor appreciating the viewpoint of technical men. I also am an engineer of sorts. I still say that in asking for Government control you are on dangerous ground.

We have in South Africa to-day a form of Government which Mr. Pickles has alluded to as a form of Government tending too nearly to the Fascist form. We have Government control of transport, Government control of broadcasting, and Government control of industrial development, etc. There is great danger, Mr. Chairman and Gentlemen, in suggesting that you should ask for a form of Government control of the Electricity Supply Industry which can dictate to you in what form and at what price and under what authority you should distribute current. It is far better to leave Municipalities as they are to-day to distribute current and not to take that power away from them. Just imagine the position if the control of electricity is taken out of the hands of the Municipalities—

your greatest asset will have gone with nothing to take its place.

I feel that there is, in this country, too great a tendency to build up machinery which encourages various interests to run to the State crying: "Please come and control this, and please come and control that." This is a danger; we should fight against it. You already have too much Government encroachment upon private enterprise and the building up of legislative machinery to further this encroachment. I therefore ask for the machinery not to be set up to control the Electricity Supply Industry which is now under autonomous control and is progressing steadily and healthily under such control. Whatever you do, I hope you will see that you do not lose that reasonable measure of control which is your right on whatever body you call into being with this resolution.

**Councillor Olley:** I feel that this meeting has reached the stage when it has either to make up its mind or continue to talk in riddles. I for one feel that there should be some over-riding authority to guide and shape the course of development in the Electricity Industry. We are just those little men in a State who willingly accept what advice they can get.

I feel that in establishing this over-riding authority, the most vigorous steps should be taken to get the right men selected to its Board, men who are free from parochial or sectional interests and have the right ability and outlook. Under such a Board I consider that all Electricity Undertakings should be nationalised.

My view is that a Commission or other over-riding authority ought to take over the whole of the planning and the running of generation plant for the Municipalities. In fact, I would not object to them taking over the distribution also, if they so desire. In this way we might get real standardisation in the industry.

Tea interval.

**Mr. Milton:** Mr. Chairman and Gentlemen, I think it would be wise to review the existing machinery as it seems that there is some misapprehension as to how things stand at the moment. In the Electricity Undertaking the only control over development in Municipalities at the moment is by way of a provisional secondary control, and that only applies when any Municipality is extending its installed generating capacity by 10 per cent. or more; beyond that there is strictly no control on Municipal development.

The next point is the general function of the Electricity Supply Commission which is already established under the Electricity Act. The function of that body is to make a supply of electricity available to anyone in the Union outside the area of jurisdiction of a Municipality. From that point of view, therefore, the existing machinery caters to a large extent, as I see it, for the desires set out in the agenda.

The Commission's present difficulty lies in getting in touch with those people who require a supply of electricity and who are outside the area of jurisdiction of a Municipal authority. It seems to me, therefore, that if any Municipality has an application or request for supply from its environs but is not prepared to undertake the extension required to furnish that supply, they can refer the matter to the Commission whose duty it is to undertake that supply. One



of the difficulties which the Commission faces is that in terms of the Act it could only make that supply available at cost. It cannot therefore undertake an uneconomic scheme. There has been a trend in the Commission's administration whereby what might appear uneconomic propositions have been taken on. These propositions are only uneconomic at the outset. The Commission always satisfies itself in advance that the normal development which generally follows the initiation of a supply will place the scheme in a given area on an economical footing. Only then is it decided to inaugurate such a supply.

We have had some remarks on the question of the exclusion of competition. There the Electricity Act provides the protective clause which seems to be worrying people at the present moment. The Commission cannot undertake the supply to any individual or group of individuals to the exclusion of any other supply available, if that other supply authority can furnish electricity at a lower cost. Therefore it seems to me that the Commission, operating as it must on a cost basis, probably functions as a useful check reference on the costs and efficiency of other ordinary suppliers in the area. From the point of view of Municipal organisations, however, the Commission has no advantage if the Municipal authority is prepared to make a supply available at cost. Now then, in so far as the development of rural areas around a Municipal area is concerned, the Commission would be quite prepared to purchase a supply in bulk from the Municipality and undertake to finance and operate all the supply in the adjacent rural area.

From that point of view, therefore, it seems to me that generally the existing machinery caters for much which is considered desirable and is up for discussion before the Association. It would seem therefore that a considerable amount of material before us to-day is already covered—in other words, we would be wasting our time in attempting to discuss this particular point without a knowledge of the facts which I have just put before you.

I can reiterate, however, that the Commission would wholeheartedly welcome any machinery which would bring the individual Municipalities, as a group, into closer contact with officials of the Commission.

I have established friendships with many of you but I do not think that is quite sufficient. Contact should not be merely personal; rather we should have the impersonal contact of the Municipal organisation with the Commission and I think that if the discussion of this agenda centres around that conception as a method of implementing our desires we would go far to reaching a decision which would benefit the country very greatly.

**Mr. Sibson:** I had intended to say a few words on this subject but Mr. Milton has said all I intended to say. Briefly, the issue that is before us is one that will lend to improvements in efficiency and not so much for other improvements that might be available in some form or degree as an ideal which can barely be reached. I think that is the aim of our discussion this afternoon as much as anything else. Following agreement on that, we must decide what method to adopt to bring about a greater degree of standardisation.

Two alternative methods have been discussed. The one cleared up the suggestion that the best way of standardising is to embody the whole supply industry under a single authority and, in the view of some of you, that is suggested as the only way of producing a satisfactory result. Now I think that what is really in the mind of our Chairman is the desire to find some more palatable means whereby to achieve the same result. We are seeking some other way than leaving the control in the hands of a single non-democratic body and I think that is the key to the first item we have on the agenda, namely, the extent to which this Association is effective and might be made more effective. I suggest this as a line to go on if we are to reach more productive results this afternoon. It really boils down to this fact. The Association at the moment is a very pleasant gathering; we enjoy these conferences, which are a good week-off at somebody else's expense and we all have a pretty good time. The Executive Council has worked hard from year to year, but the Association, as a body, does not do very much in between Conventions. The position has not improved during the last five years owing to the fact that we have had no conference and I think, therefore, that what the Chairman has in mind is to draw out some ideas whereby this Association can fulfil a more valuable function.

Personally, I have no sympathy with Mr. Powell and his ideas of putting everything in the hands of a controlling authority; we all know the effect of doing that. Most of us approach this problem with a sense of idealism and lose sight of the fact that we are all human beings, very prone to relinquish our efforts towards ideals in our hard schools of practice. When you have got a controlling body which is 1,000 miles away, the result is fairly obvious. With the best will in the world you are going to have inefficiency and are going to have arguments, largely due to the distances involved. For example, you can, of course, get service if you live in Pretoria, but the rest of us in the back of beyond have not this advantage. The next best thing is regional control and we have already got it provided for in our Municipal organisation. What we need, and should try to adopt, is some form of standardisation of our own free will without any necessity of improvising control. This Association can fulfil a very valuable function. It can provide the type of control of which we have been speaking and get some sort of standard in which we are interested. Is that to be the case or not?

**Mr. Milton:** I was not particularising in my remarks. The point I made was that if a Municipality would not undertake to supply the rural consumers in its neighbourhood then it was the Commission's duty to furnish the supply, but in the instance of the Commission having no supply sources available anywhere in the vicinity, the Commission have to make arrangements to produce that supply, but would be at the mercy of the Municipality in so far as overall costs were concerned. Municipalities at the present moment are supplying current to the farmers, and are within their rights in doing this. The Commission cannot interfere. The Electricity Act provides that a Municipality may supply electricity outside its area of jurisdiction subject to the approval of the Electricity Control

Board after considering the evidence submitted by the Electricity Supply Commission and the Municipality concerned as to the prices to be charged. Once the Municipality has secured that right, the E.S.C. cannot interfere.

**Mr. Inverach:** I would like to congratulate the Association on its work and the assistance it has given to other bodies and particularly the small undertakings. I would like to wish the Association all success in the particular subject which is under discussion, that is, obtaining a charter of recognition. The agenda reveals our feelings that small water-tight compartments which are not subjected to co-ordination or control are expensive and do not always function in a manner which is best for the country. I understand, however, that this Association is now seeking recognition of its services in order that it may have some authority to build up a co-ordinated plan of greater standardisation in view of the post-war work to be undertaken. I do not read into this that it is the intention to make a definite request for the Government to take over the whole of the Supply Undertakings. I think it is a very laudable effort to obtain a charter of recognition and definitely shew what this Association can do.

We were given a hint this morning not to raise the question of any donation from the profits on the sale of electricity towards the relief of rates. That has unfortunately been raised and it is only necessary to remind members that if it is going to be to the ultimate good of the Municipal or rural consumers that electricity should be delivered at less cost, then we should not refrain from taking steps to abandon this practice. The money derived from this discriminating surtax on electricity consumers for the execution of other non-electrical work of the town must then be subscribed from some other account.

**Mr. Bevington:** It is not necessary to have a control board but an advisory board as the out-lying Municipalities must of necessity have some form of advisory board. They are under the control of a Council which is not always in a position to understand these matters and the whole thing drops. If we have an advisory board then it is a Government Control Board. I would like to endorse the remarks of all the speakers on this subject.

**The Chairman:** May I attempt to define what was in the mind of your Executive Council when this agenda was drawn up. I would like to mention that Section A is dealing with electrical development schemes. This Association represents Municipal undertakings who cater for a large portion of the consumers in the Union and likewise in Rhodesia and we feel that the technical resources of this country are extremely limited. They are limited everywhere and if we are to play our part in the planned economy of South Africa we ought to co-operate and collaborate with any Government institution which exists for the same purpose. I do not think that the Electricity Supply Commission by itself can do everything. If we are to achieve results in our lifetime we should endeavour to persuade the Government to establish some form of joint board. As laid down in the draft motion before you the co-operative method will speed the achievement of the objects of the Electricity Act. The Commission

can do things which Municipalities are not prepared to undertake, but I think we should go further and ask the Government to amend the Electricity Act and change the whole structure and administration throughout the Union and throughout Rhodesia. By doing so it can provide the means whereby Municipalities can officially form area committees to undertake a lot of very necessary work which is allowed at present to lie in stagnation. But the first step is to acknowledge that this body has a big part to play in the development of electricity in this country and to give us statutory powers to perform greater things than those that we obtained under the Electricity Act, or even under the Municipal Ordinance. Before we proceed to item 1.20, I would formally move the provisional adoption of the following portions of the draft motion on pages 4 and 5 of the agenda as the recommendation of this Section to the joint meeting to be held on Thursday:

"Whereas this Conference of the Association of Municipal Electricity Undertakings of the Union of South Africa and Rhodesia, assembled in Johannesburg this . . . . day of April, 1944, is of the opinion that the interests it represents have an important part to play in the development of the State and and that therefore measures should be initiated by the appropriate Government Department to:

- (a) enable the national and municipal electricity supply authorities to take their proper place in the planned and co-ordinated development of the State;
- (b) ensure that a regular and co-ordinated development of the electricity supply industry shall take place;
- (c) introduce procedure by means of which a planned and co-ordinated development within the areas served by an electricity supply authority is expedited;

And whereas this Conference is of the opinion that the foregoing purposes could be more expeditiously served by a closer association between Municipal Electricity Supply Undertakings among themselves on the one part and with the Electricity Supply Commission on the other, provided such means of association is afforded official status and has official advisory and executive powers.

To this end it is now resolved:

That the Government of the Union of South Africa be requested to establish, at as early a date as possible, a Joint National Electric Power Board comprised of delegates of the Electricity Supply Commission and of the Association of Municipal Electricity Undertakings (South African Section), with executive and advisory powers, and the power to establish local advisory panels where deemed expedient in the Union of South Africa, in order to achieve the following objectives:

- (6) the development of electrical load and consumption of electricity in accordance with the underlying purposes of the Electricity Act 1922;
- (8) making recommendations for the promulgation (by the Governor-General) of regulations in terms of Clause 53 of the Electricity Act (No. 42 of 1922);
- (13) calling upon any electricity supply authority, via the Provincial Administrator, to prepare and submit for co-ordination planning and development schemes for the ensuing five or ten years period and making recommendations to the Provincial Administration, Electricity Control Board and Department of Economic Planning concerning such schemes. Where any supply authority has not the necessary facilities to prepare such schemes the National Electric Power Board may request the Provincial Administrator concerned to appoint a competent person or persons to prepare such schemes, the Provincial Administrators in calling for the submission of proposed schemes to lay down the form in which, and specify a period within which, the requisite details shall be rendered;

- (15) generally co-ordinating, developing and integrating the Electricity Supply Industry in the best national interest and assisting any Government Department or Board or the Provincial Administration in any activity having a direct bearing on the Electricity Supply Industry.

**Mr. Gripper:** Seconding the proposal of the Chairman, I would state that I was in favour of Government control, central control or even neutral control and did not essentially mean Government control in the sense of control by the political party in power. Again quoting the British and overseas experience they are aiming to obtain greater co-operation by giving their Electricity Commissions more power or, in other words, simply encouraging them to take the power, and in our own Electricity Act there are powers which the Supply Commission, assisted by some nationally appointed board could execute to greater advantage.

**Mr. Milton:** Mr. Chairman, there is just one point of amendment that I would like to put, as coming from the Chair, before you put this motion to the vote. If a motion of this description were to be put to the Government it seems to me that they would refer the Association to the Electricity Act, and I think it would be as well to add a rider that the intention is that the procedure should go beyond the present scope of the Electricity Act. I have in mind to ensure that it is clearly understood that our motion does not merely seek to introduce a procedure for development within the area served by the Municipal authority. That particular item is already covered by the Act. I think that if you add to this the fact that we wish to get beyond the scope existing under the Electricity Act, it will be an easy way out of having the matter referred back.

**The Chairman:** I think Mr. Milton's idea is a very good one. It is our intention that the Government should go beyond the present instruction or declaration of authority under the Electricity Act, and I think they are probably as anxious as we are to see the powers we have to-day very much more widely extended.

I should like to include Mr. Milton's suggestion that the Executive should draw up an amendment to include the intention of his remarks and this will be submitted to you before we close.

**Mr. Angus:** I support Mr. Milton's amendment.

The amended motion was put to the vote and was carried (42 for, 3 against).

## 1.20 CO-ORDINATION AND STANDARDISATION.

**The Chairman:** We now proceed to Item 1.20 of our agenda and I would ask Dr. Bosman if he would read the paper he has kindly prepared.

**Mr. Bosman** read his memorandum on "The Use of Certification Marks in the Electrical Industry." (This has been printed under Item 1.5 of the agenda—see page 59.)

**The Chairman:** Dr. Bosman, we are indeed indebted to you for the trouble you have taken in the case of standardisation marks. As you know, it was somewhat difficult in drawing up this agenda properly to separate the various items. Standardisation was rather involved in Item 1.20 with matters which you have also introduced concerning Item 1.50. The meeting can, of course, discuss the whole

of your remarks now or, alternatively, we can discuss part of them to-morrow.

Gentlemen, if you refer to our draft motion, Items 1, 2 and 3 particularly refer to the matters under co-ordination and standardisation and I shall be glad if you will contribute to the discussion.

**Mr. Milton:** There is one point which I would like to mention to the meeting right away. Referring to Item 1.24, form of accounts, a standard form of accounts has already been agreed by all the Provincial authorities for application in the Union, but this standard form and method of accounting has not been enforced on the Municipal supply authorities. Bearing in mind there is a standard form of accounts already in existence, I think discussion on that point can be very brief.

**Mr. Gripper:** Mr. Chairman, may I just get clear on that point. Form of accounts is presumably the accounts of the undertaking and not the statement of accounts. That is the rule surely by the Provincial authorities and as such these Provincial authorities will call for the accounts to be separate. I think I am correct in stating that they require the revenue to be separated as between the sale of light and the sale of power, and to-day such things are very difficult, if not impossible. One can classify domestic and commercial but to expect the revenue to be given as so much for light and so much for power is onerous as required by the provincial forms of accounting.

**The Chairman:** Gentlemen, Mr. Eastman raised a point but unfortunately he is not here at the moment. He wished to know whether the voltage of 400/230 volts had already been recommended as standard. The position as you know is as follows:

The Electrical Engineering Sectional Committee of the S.A. Standards Institution has recommended to the Electricity Control Board that 400/230 volts be adopted as the standard L.T. voltage in South Africa in future to line up with the same standard in Great Britain and the 115 volts standard in America. All A.M.E.U. members have already been circularised with full details as to the implications of such a step and it is now desired to get your formal approval to support the above recommendation. This was discussed by your Executive and I hope Mr. Eastman will soon be back so that he can speak to this point.

In Item 1.20 on co-ordination and standardisation, I would refer you to your agenda, where it states, "More effective means of pooling operating, design and administrative experience with a view to wider dissemination of recommended practice, standardisation and co-ordination in respect of the following . . ." Now we have to visualise that the Association meets so infrequently that it is extremely difficult to settle a number of points set down for discussion and the very important point that Dr. Bosman has brought forward. I do feel that as an Association we should contribute as much as possible and I feel we can contribute if we form sub-committees of members who can meet to discuss any particular item. Of course, that involves meeting at some central point. At the present moment you will find that most of our sub-committees comprise Reef members and to my mind it is a pity that we have

not made the Association far more valuable by arranging for these committees to meet during the year, either at the expense of the Association or by persuading Councils to send delegates to attend sub-committee meetings lasting for a week, to decide a number of these matters which are important to the future of electricity in this country. It would be a pity to expend the period allotted to this Convention and then find time running out, necessitating that various important matters be put forward to another Convention. I would like you to investigate at this Conference some means of expediting recommendations to the Government on co-ordination and standardisation.

**Mr. Monk:** You have mentioned, Mr. Chairman, that Mr. Eastman was to speak on this question of 400/230 volts as a national standard L.T. voltage, and in his absence it would appear that the issue, which is an important one, may lapse by default. I came prepared to listen to Mr. Eastman on the subject of adopting 400/230 volts as standard for South Africa. It is a standard of the British Standard Institution which is universally adopted in Great Britain. The 380/220 volts which is to-day applicable in the Union is one of the standards promulgated under Section 53 (h) of the Electricity Act of 1922, and came about some years ago, in fact as far back as 1926. I would like to submit for the serious consideration of all Municipal Engineers the adoption of 400/230 volts as the L.T. standard instead of the present pressure of 380/220 volts.

We all know that Pretoria has 433/250 volts. It is impossible for a city of that magnitude to change, but for all new undertakings it is sincerely hoped that this Conference will adopt 400/230 volts as a standard for the future undertakings to be developed in this country.

**Mr. Foden:** I would like to speak of what we are doing in East London with regard to this question of standard L.T. voltage. As you are aware, Mr. Chairman, I have replied to a circular giving my reasons for and against 400/230 volts, but there is one thing which we have to bear in mind and that is the final change-over to this voltage. Municipalities have a great deal of capital sunk in their present plant which is not designed for the proposed standard pressure. I think any new undertaking should definitely be planned for 400/230 volts and with that object in view we at East London, when we are ordering new transformers, are specifying them with tappings to give 380/220 and 400/230 for the change-over at a later date.

I expect members associated with the Overseas Institution of Electrical Engineers have read with interest the figures given for the installed kW involved in such a change-over in Britain. The cost is a very serious matter and we should make due allowance for this final implication of this change-over and bear in mind the increase in the cost the longer we delay. We appreciate that in Great Britain, where we get most of our products and are likely to for some time to come, the standard is 230 volts. That is the accepted standard and apparatus will be manufactured for that pressure. Is it possible for the Standards Committee to give a lead in the matter? If so, I suggest that they begin, for instance, with

refrigerators and wireless, and arrange for tapplings on this apparatus suitable for ultimate change-over to the new voltage.

I should also like to know what the manufacturers are going to do in this regard. It is obvious that standardisation is going to cheapen production and we would like a guarantee, as suppliers of electricity who are assisting in and making possible this standardisation, that they will pass such savings on to purchasers since cheapness of electricity-consuming apparatus is the only thing to popularise electricity consumption in a substantial degree. I would like to know from manufacturers' representatives whether they can guarantee us a cheaper product.

**Mr. Milton:** Speaking on behalf of the Advisory Council of this Association, I would like to mention that when the matter came before the Association it was submitted to the Advisory Council and Mr. Wright and myself were the two people delegated to obtain the information in respect of available apparatus. We interviewed a large number of the manufacturers' representatives in Johannesburg and learned that the bulk of the apparatus which is sold on the market to-day is for use on 230 volts. There are a number of items where that is not entirely true. I have in mind lamps which are 220, 230 and 250 volts, but from the point of view of wireless sets they are nearly all equipped with connections which will enable them to be used on 230 volts as they stand to-day; it is merely a matter of changing connections. One item on which we were a little disturbed was the electro-medical equipment. There again we were assured that this was, in the majority of instances, sold suitable for use on 220, 230 and 240 volts, and that it was merely a matter of changing tapplings. I think, from that point of view, the point is made to a large extent that the consumer is not affected to any large extent in effecting a change-over from existing 220 volt systems.

**Mr. Eastman:** I apologise for not being present at the commencement of this meeting as I was with Section B. I want to put forward this consideration from the standpoint of Cape Town. It does not matter very much in general whether we have 400/230 or 380/220 volts as standard voltage. I was rather surprised to note the matter had been raised at all. I want to draw attention to the comments I made when the circular was issued early in this year on this proposal, namely, that whilst the higher pressure has no substantial effect on the small single phase motors which are ordinarily used, there is some likelihood of trouble if they are run at under-voltage.

In Cape Town our supply voltage is rather over 220 than below it. In regard to wireless apparatus, which Mr. Milton has mentioned, we also went into the question as to what difficulties would be involved. We bore in mind that the statutory voltage variation was about 5 per-cent. on a wireless apparatus. The information we had was from a local firm who carried out wireless repairs and was to the effect that they did not expect trouble from modern domestic radio apparatus, but that old apparatus might give rise to trouble since transformers wound for 190/200 volts are fairly well known in the Cape area. The modern sets appear to be fitted with the necessary tapplings referred to, but the older ones are not, and a large number



of those wound for 190/200 volts may be the cause of considerable trouble and expense but as far as I know that is the only apparatus in which trouble may be found.

There will be a certain amount of work to be done in any change of voltage. From Cape Town we suggested in our correspondence that any active steps in this direction be postponed for, say, 12 months, when we hope that we shall get some of our electricians back who are on active service and would ordinarily be employed on work of the kind.

**Mr. Angus:** In connection with the change-over from 380/220 to 400/230 volts, I would remark that we have a 250 volt network in Port Elizabeth and a change to 400/230 would be most impossible for the Municipality, unless this change takes place over a considerable number of years. Ten years was suggested but the life of much of the apparatus is considerably longer than this. It would not help to reduce the voltage from 250 to 230 as under-voltage is more serious than over-voltage, and that is where we are going to feel a draught. In making the change-over to 400/230 there should be an exemption clause for the older organisations and I feel sure that in extending their area they will adopt the new standards, but the cost of changing-over the old areas to the new standard is almost prohibitive.

**Mr. Kinsman:** This is a point that has struck me. We are an Association of Municipal Engineers and it is greatly due to the co-operation of the City Councils, by whom we are employed and whom we serve, that we are in a position to suggest sending officials with executive powers to advise on the regulation of standard supply voltages. I feel that if we get an unwelcome response from our respective Councils in connection with such changes they might reconsider their continued support of this organisation. I also feel that we would be unwise as engineers, sent by Councils, to force this issue.

**The Chairman:** Gentlemen, I do not wish to direct the meeting in any way whatsoever, but might I once again refer to my suggestion that you consider asking your Executive to deal with the matter at its meeting to-morrow. Alternatively, you might delegate a committee to deal with each one of these items and to make recommendations and reports available to every member of the Association. As you will see, we are laying down our experiences but obviously, if ultimately a Joint Electricity Board is formed on which this Association is represented, your representative will want to come to the meetings of such board. We can contribute largely to the items put before us by working via a sub-committee of your Association and if anybody feels that is a way to deal with this matter I would like to consider a motion.

**Mr. Marchand:** I move that we appoint a sub-committee to deal with Items 1.21 to 1.27 (inclusive) as set out in our agenda.

**Mr. Halle:** I support this motion, but under Item No. 1.25 there is one thing I would like to consider. The butt-welder takes hold of two very large metal sections, clamps them together and then a few hundred amps. rush out of the main and it is all over. There is no means of getting our own back on this particular machine.

We have had some of these in Pietermaritzburg, and I am glad one set has been taken out. This is a very ugly form of load. I am afraid it is bound to grow and we have tackled it by charging a nominal fee per installed kVA. I would ask that this particular matter be put before the sub-committee under Item 1.25.

**Mr. Milton:** I would draw attention to a recent article from overseas where the same problem was met by determining the cost of supplying this type of load and a very effective reply was evolved in the form of a special tariff. The Commission has also got a number of these welders coming on to the mains and we are dealing effectively with them by a special tariff application.

**Councillor Olley:** I visualise the subject under discussion might require personnel other than those present to-day to whom you might delegate responsibility. I was hoping that this Association would develop its activities by confining itself to sending representatives from particular towns to central places like Johannesburg or Bloemfontein for the purpose of formulating plans of procedure. I certainly did not visualise a report at this Convention on the number of subjects set down.

**Councillor Gibb:** Mr. Chairman, under Item 1.24, Forms of Accounts, I would like to ask if I can obtain a copy, because I would like to put forward in Rhodesia before the E.S.C. the method of charging their accounts according to the customers' consumption.

**Mr. Milton:** No accounts are sent out to the consumer under this head.

**The Chairman:** Gentleman, the motion before you that we appoint sub-committees to report and make recommendations concerning items 1.21 to 1.27 has not yet been put to the vote.

**Councillor Olley:** Well, Sir, I do not see how we can come to a decision, but it is impossible for any committee to come to a decision at this Convention, I quite agree, in theory, with the suggestion for committees to meet for a week when necessary, but I will not discuss the subject.

**Mr. Gripper:** I think it is the intention of this Convention to air all its views as far as time permits. It might be difficult for the committee constituted to be representative of us all as a whole without some form of contact with, and a lead from, members. I think at this stage nothing should be rigorously decided before any committee deals with it.

It might be better to circularise members for their existing tariffs before deciding, for instance, on the question of butt-welders. We Municipal Undertakings are inclined always to adhere to the old order. If we are to frame a new tariff we immediately tend to think it must be on a kVA basis, even although we are quite prepared to include a voltage-drop limit clause, but still it must be kVA and not on an ampere basis. This is just an example and I feel that we might consider establishing a fixed charge based directly on the cost of giving supply in this abnormal case.

**The Chairman:** We will refer the matters under Items 1.20 to sub-committees and if I have your approval, I would suggest that your Executive Council considers the personnel of the committees at its meeting at 8.30 to-morrow morning, and make recommenda-

tions to this Section. I think you will find, Mr. Gripper, that any sub-committee appointed will work hard and will consider everyone's views before it finally sets out its recommendations and reports.

Motion carried.

**Councillor Gearing:** I would like to make representation to our Executive Council that the committee should not be composed of delegates from any one centre. I feel that every centre should be enabled to put forth their views. I would just like to stress that point.

**The Chairman:** I feel that, since it is rather late now, it will be necessary to leave the discussion on rural electrification until the morning. If there are no further points relevant to these issues I will now declare the meeting closed. We will resume our discussions at 9.30 a.m. to-morrow.

## TUESDAY, 25th APRIL, 1944.

Section A resumed its discussion on Item 1.00 — Collaboration in Electrical Development Schemes — at 9.30 a.m. Mr. J. S. Clinton (Salisbury) was in the Chair and the following items were on the agenda for the morning session:

- 1.30 RURAL ELECTRIFICATION.
- 1.31 The case for rural electrification.
- 1.32 Development of rural load.
- 1.33 The planning of rural electrification.
- 1.34 The financing of rural electrification.
- 1.40 CONSERVATION OF PRIMARY POWER SOURCES
- 1.41 Constitution and functions of the Fuels Research Board and the manner in which the power supply industry can collaborate.
- 1.42 Utilisation of national coal resources to minimise waste and conserve by-products.
- 1.43 The future of oil-driven plants in face of the Union's position and prospective world shortage of oil ten or twenty years hence.
- 1.44 Existing and potential hydro-electric resources.
- 1.45 Electricity as substitute for other fuels in rural areas and conservation of timber resources.
- 1.46 Electricity in urban areas and abatement of atmospheric pollution.
- 1.50 LOAD BUILDING AND SALE OF ELECTRICAL APPLIANCES.
- 1.51 Code of safety standards for domestic and commercial electrical appliances.
- 1.52 Branding of approved appliances and the functions of the S.A. Standards Institution and S.A. Bureau of Standards.
- 1.53 Limitation of sales to branded appliances only.
- 1.54 Sale of appliances by local authorities, electrical wiring contractors and commercial enterprise generally.
- 1.55 Battery vehicles and licensing on a weight excluding the batteries.
- 1.56 Propaganda and consumer relationship.

**The Chairman:** We have a few items arising from yesterday's proceedings to which we must first give our attention. Arising

from Mr. Milton's suggestion yesterday, it is proposed that the following addendum be appended after the words "... advisory and executive powers," in the preamble of our draft motion at the bottom of page 4 of your agenda:

"... beyond the aims and objects envisaged for the development of electricity supply in the Union under the provisions of the Electricity Act (No. 42 of 1922)."

Adopted.

The next item I have to put to the meeting is that Mr. Marchand proposes and Mr. Angus seconds the adoption of Items 1, 2 and 3 of the objectives of the proposed Joint National Electric Power Board, namely:

1. the pooling of operating, design and administrative experience with a view to a wider adoption of recommended practice and standardisation;
2. to advise on uniform policies in respect of forms of accounts, methods of charge and forms of tariffs, the regulation of profits and relief of rates;
3. to advise on uniform policies in respect of local electricity supply regulations and interpretation of Government legislation affecting the electricity supply industry;

Adopted.

We will now proceed with our discussion set down under Item 1.30 of our agenda.

### 1.30 RURAL ELECTRIFICATION.

**The Chairman:** The electricity supply industry has, for too long, regarded the rural consumer as the Cinderella of its family. There is, of course, some justification for the lack of attention given to areas outside an urban centre.

The application of electricity to industry started slowly, and gathered momentum only when mass-produced appliances were able to demonstrate conclusively the usefulness of electricity in the industrial sphere. The extension of electricity in the domestic field likewise depended upon the production by the manufacturer of a satisfactory appliance, since when its demands have grown apace.

The density of load within some central nucleus provided justification for the establishment of supply undertakings and the connection of consumers with tariffs which showed results superior to the costs by alternative forms of power.

There is no doubt, were rural consumers to enjoy the same tariff of charges and the rights of connection to an urban supply authority's mains, there would be the same successful application of electricity to their power requirements as in the case of those for industrial purposes. To-day, many manufacturers are producing appliances of recognised merit, quite apart from the standard motors which have a big field of application on the average farm. There appears to be no logical reason why electricity should not invade successfully the long-established methods of ploughing, etc., with a consequent reduction in the costs of production.

The owners of the supply undertaking, whether publicly or privately-operated, have been compelled, generally by circumstances,

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to withhold the same facilities from the rural consumer because, in the first instance, tariffs were designed purely on a sectional basis, giving supply only to those within some urban boundary; consequently, the cost of giving supply to rural consumers has come to be regarded as some separate entity in the economy of a particular area. Unless consumers within the rural areas have been able to justify a supply, no extensions, as a rule, are carried out.

To-day, we are adopting a far wider outlook in the provision of public amenities. No thinking person to-day considers that the economic area of a town is limited to the Municipal boundaries. Not only is the responsibility of every citizen within such boundaries inextricably bound up with the welfare of every farmer and market-gardener within some large radius of his town, but he is likewise not entitled to monopolise, to his own advantage, privileges which are ethically the right of every potential consumer within the wider economic boundary of the central nucleus. In many instances the nucleus is merely an administrative cell for the countryside around.

I think Mr. Milton mentioned yesterday that the Electricity Supply Commission has powers to give electricity supplies outside the township and that they were definitely willing to do so. On the other hand, we have in Great Britain the McGowan Report which I think sets out fairly clearly that the most suitable body to give a rural supply should be the urban centre, and that the principle should be adopted of supporting the electricity users of that supply undertaking which can more easily develop outside the urban boundary rather than setting up some separate rural supply authority.

The memorandum on future policy and practice in the supply industry of Great Britain, published recently by a joint committee, appears to contemplate the division of the country into electricity distribution areas, for each of which a permanent area committee would be appointed. The Electricity Acts in various countries have contemplated an intensive development of the rural areas. These aims have, however, not been realised, partly due to a failure to utilise existing supply undertakings in the urban centres, and by a failure on the part of the State to direct and delegate to these supply authorities the responsibility for incorporating rural development in each area. It has allowed undertakings to become completely sectional in the services they render, with the result that to-day it would be difficult to introduce rural electrification without showing a deficit in the finances of many undertakings. This is the handicap to extension of rural electrification.

It would seem desirable that a measure of local autonomy be retained in the planning of rural electrification in each area, for it may be many years before complete interconnection is necessary in South Africa and Rhodesia. Meantime, there is no reason why standard voltages and networks at secondary voltages cannot be proceeded with for these will be retained, even when a grid injects power at higher voltages at key points. This involves the measures we are contemplating beyond the aims and objects envisaged for the development of electricity supply under the provision of the Electricity Act. This is the reason why supply undertakings in

Great Britain recommend that the country should be divided into regional areas with supplies given according to industrial development, with varying prices to suit individual members.

It must therefore depend upon some direction from the State, not only authorising, but compelling, supply undertakings to perform the function contemplated. This should likewise be done in many areas, by permitting the area committee to be appointed and have a say in the operation of the concern on democratic lines. Its personnel, presumably, would be formed of representatives of all statutory bodies in the areas served.

In future it might be an instruction and directive from the State that there should be no division between the rural and urban consumer in the allocation of costs; after all, it is an extremely debatable point whether this division is accurate and effective to-day. Unfortunately, because we have developed many of the undertakings on a sectional basis, we have reached a stage where it is impossible to-day to develop the rural areas without needing, in many cases, great outlay. If the supply industry is to develop nationally and extend its services to all potential consumers, I think it will require a subsidy from the State. This is a matter which is impossible to debate at a meeting of this description, but I would like you to consider, in dealing with this matter, the alternatives that are available and, if necessary, either amend or support the draft motion which we have laid down for discussion in our agenda. Under Clause (e) we wish to have prescribed the methods of financing extra-normal development schemes and under Item (4) we have as an objective of the Joint Power Board the planning and development of rural electrification.

In the Salisbury area at the present time, some one thousand rural consumers have involved the undertaking in approximately £350 of capital expenditure per consumer: urban consumers in a domestic area probably cost in the vicinity of £100.

It will probably be necessary, before rural electrification plus supplies to existing urban centres can become self-supporting (on account of the limitations already mentioned) for the State to make a subsidy, on conditions to be determined. It is felt the objective will not be realised unless there is greater co-operation between this Association and the Supply Commission by means of a joint committee, with area committees, each delegated by the State with promotional functions. It would seem more desirable to proceed on these lines than to attempt, with the limited technical personnel available throughout the industry, to set up a second central commission or board when, in many cases, as the McGowan Report illustrated, the development can be well undertaken by existing technical staffs in each area. These are, however, aspects which should be fully debated.

**Mr. Milton:** I would like to speak first about the Commission's main policy on the question of rural electrification. As there is no other supply board in this country which can claim that, from the point of rural development, it has had supply carried out almost to saturation, we can, therefore, speak with experience.

The Commission's experience has been that these schemes pay



costs, and I think that this is a very important factor. If, therefore, you gentlemen decide on rural electrification, it will be understood that you should have no difficulty in developing that scheme on an actual cost basis. Cost may not be met in the first or second year without support, but thereafter may be carried on on a cost basis. I think Mr. Angus can give some of his experiences on this point. You can cover the cost in these rural areas. The actual development of a rural load is dependent on someone first obtaining a supply; his neighbourhood then would want it. But they are not willing to come forward with the necessary guarantees to establish the scheme which one hopes for in the area. If you go out, therefore, to develop a scheme there is one point you must make clear to the people in the district, namely, the fact that some of them who ultimately want supply will not have it made available at any lower rate than for the initial consumer.

From the point of view of planning rural electrification it is very necessary to plan in zones. For example, it does not pay to set out to supply people in areas at 380/220 volts from 3.3 kV if the area over which you wish to develop is to be extended. Some planning should be adopted to enable the neighbourhood to extend on voltages which will enable them to interchange spare part equipment, and to enable them to develop their rural areas.

In the Supply Commission's experience no subsidy has been necessary. On the other hand if there had been a subsidy there is no doubt the extent of rural electrification would have been greater. When you take a Government subsidy you face a difficult proposition, because if you are granted a sum of money to develop the area, you will be called upon to explain every single item of expenditure, which is not a very agreeable matter.

I think if you will bear those factors in mind you will arrive at some constructive conclusion.

**Mr. Angus:** I would like to speak on the question of rural electrification and put up several possibilities.

The benefits of electric supply are so obvious that it should be possible to formulate ways of meeting the question of finance. The development of rural load on a national basis leads one to the question of propaganda which we should like the Government or the Supply Commission to undertake in placing before the farmer the number of ways in which electricity can be used. Small factories use practically every process known to farmers. By using electricity the costs for running these farms would be at least comparable with the normal well-run farm and much cheaper than the present general type. In England there is a model electrical farm run by Mr. Borlas Matthews who has carried the use of electricity in farming to great lengths; in fact, every possible farming process has been electrified. I think that a model Municipal farm arranged on these lines would have great propaganda value. This Municipal farm would produce market produce and could be model-farmed within the town boundaries with all modern electrical equipment, so that the farmer could come in from the neighbourhood and see what is being done with electrical equipment.

I agree with Mr. Milton that the planning of rural electrification

must not go ahead in a slipshod manner and some central authority should exercise control of the development. In the case of Port Elizabeth, we are in a position where we are hundreds of miles from any Supply Commission network, and there seems to be no practical possibility of the Commission undertaking rural development in this district.

The best available power station supply was from Port Elizabeth, and my application to the Control Board has been granted to supply the Baakens River Valley. We are now investigating another scheme in connection with the Gamtoos River Valley which is about 60 miles from Port Elizabeth. At the present moment we shall do our best to give supply and, as an Engineer responsible to my Council, if I can show them that it will pay within one or two years so much the better. I do feel that this is a strong case for asking the Government to make outright grants for the establishment of rural electrification on national lines.

Another point is that every farmer has the right to go to the Government for assistance in developing his property. I have discussed the matter with farmers and they seem to be under the impression that they can obtain Government assistance for oil and electric pump-drives. If that is so, it is quite possible that the farmer is willing to pay a reasonable sum for a guaranteed supply for four years. The figure I have in mind for the scheme I am working on now is £7 10s. per month including current. I was very surprised that this did not worry the farmers in the least. The financial cost of cable and motors I think is going to be a difficult one.

These few remarks will give you my idea that extensive rural development immediately after the war appears to be a foregone conclusion.

**Mr. Gripper:** Coming from an area in the Western Province where rural electrification has already been fairly well developed, I submit that there can be no doubt as to the necessity for such development to be extended. Our rural load is very attractive since it is mostly the result of pumping in summer, while the urban peak load occurs in winter.

The products of agriculture invariably follow an annual cycle which embraces the periods of irrigation, reaping, grading, milling, preserving, dehydration, packing, etc., with additional demands from poultry and dairy equipment, plant propagation, soil sterilisation, artificial grain drying, timber sawing, and so forth.

Oil engines give rise to many troubles and difficulties apart from the cost of crude oil to-day. Dirt and inconvenience during overhauls as well as the fumes from paraffin and exhaust gases are more harmful to some farm products than others, but the wine farmer has learnt the improvement that results in his case by the change-over to electricity.

The adaptability and ease of distribution of electricity has been fully appreciated in our district and, to a large percentage of our farmers, the first cost is apparently of little consequence. In fact, the farmer is more concerned about having to pay a small kVA or horsepower charge for any month when his machine is idle than

he is over a matter of £300 to £500 for a high tension service which does not even become his property!

Nevertheless, proper rural development cannot be expected if the farmer is always required to pay the whole capital cost. There will always be the man who hangs back expecting to get a cheaper connection when his neighbours have paid for the line.

This is where a central controlling body, with regional committees controlling both technical and financial matters, is required. Electricity will never be available to all in rural areas as long as its development depends upon the whims, fancies, present plant capacities or finances of some local authority. Ratepayers' meetings and Provincial sanction are liable to put a severe drag on the wheels of rural development.

The cost of rural schemes can be reduced by operating 6.6 or 11 kV single and three phase spur lines with one phase at earth potential and low tension services can be run on the same poles as the H.T. lines if required. Tappings off 33 kV lines have been found quite practicable and economical for small hamlets or groups of farms in Great Britain and need not necessarily be equipped as elaborately as is done in the case of more important consumers.

Canvassing and propaganda work of a very special nature is necessary before launching any rural scheme and this would require more than the resources of a local urban undertaking can be expected to provide. Special tariffs will have to be devised which are readily accepted and understood by a farmer who will always pay for a satisfactory supply but has a deep-rooted objection to paying fixed charges for something he does not appear to get.

The necessary return on capital invested can be ensured by guarantees on a minimum consumption basis reduced pro rata as other consumers come on. A small capital charge per 100 yards of line might be made to late-comers in addition to their guarantee in order to induce as many consumers as possible to come on at the start.

In cases of exceptionally low consumption at certain seasons of the year it is always appreciated if some concession is given by a reduction in the guarantee charge representing the price of energy unconsumed. Account of this can, of course, be taken when fixing the guarantee in the first place.

**Mr. Halle:** I would like to bring up the question in the light of Government control over hotels in this country and suggest that as every hotel has to spend a certain amount of money on capital development before they are granted a liquor licence, the same idea might be applied to power undertakings. When a monopoly is granted to a power undertaking, the Government might insist that a certain amount of the capital be devoted to rural electrification schemes in the district as an addition to their being granted permission to supply urban consumers.

**Councillor Olley:** I would like to start off by referring to monopoly electricity supply. In Southern Rhodesia every farmer has the advantage of using electricity if he likes to pay for it. Take the view of other speakers that to supply people outside the Municipal boundary who need electricity is the duty of the Town Council. City

Electrical Engineers seem to want to make other people obsessed with their idea which is, I gather, to light up Africa. The question arises, what right have we to go planning areas outside of the Municipality and have to stand as guarantees of losses during times of depression? I always claim we have no obligation to light up the country at any cost.

This brings us back to talking about the right authority which should generate the current and supply it to the Municipalities at a profit and supply their farmers at cost. We have to agree that the E.S.C. have not helped the Municipalities for a good number of years, but the time must come when they will have to light up Rhodesia and go on developing within their own sphere without spending ratepayers' money. If you think it is going to take a long time for the Commission to do this, then the suggestion is that you might get a Government grant. Outside consumers unless they get a Government grant show no profit. Supplying current at cost is also something of the past. The Municipalities should look after their own farmers and the Commission look after the farmers in the more outlying districts.

**Mr. Sibson:** I take a similar view to that of the Engineers. I feel that what comes under the category of rural area might be called the peri-urban areas. In Bulawayo the Municipality licence is to supply over a total area of 10 miles radius and that naturally will some day form part of the peri-urban area of small market gardens. Within such a small area it is possible to contemplate the supply of electricity at charges which will not prevent it being an ordinary business proposition, but I feel that in most parts of the country, apart from places like Port Elizabeth, it will not prove economic where you have those large farms which may involve up to three miles of service-connection for each. Broadly speaking, this would cost something like £400 per farm if you do it in the cheapest possible way. The procedure adopted in Durban is to give supply if a return of £7 10s. per month is likely, that is, approximately 20 per cent. per annum.

**Mr. Angus** has been talking about a 60 mile transmission line and not one 16 mile scheme, which we have in Bulawayo, taking in an area of 20 miles across, which is all that the area of the town's supply allows. There are limits to which a Council should go before a subsidy is necessary. I am surprised at the moment with your attitude in South Africa as the Rhodesian farmers are without a subsidy. Subsidy is essential if we are going to supply widely separated parts. We can expect to have a Government subsidy from the point of leaving our area of supply, but it seems to be quite clear that the Supply Commission should deal with the problem and combine with the local interests to purchase supplies to serve beyond the area in which the local authority can furnish supply on a reasonable basis.

**Mr. Milton:** I think the discussions put forward have cleared the way for a number of potential users to receive supply. Councillor Olley has referred to Municipal obligations and Municipal ownership. He has referred to ownership by ratepayers. Regarding the question of ratepayers, I have always been given to understand that

the ratepayers are a few of the moneyed folk of a town who actually pay for services from facilities they do not altogether own. I agree, however, that it seems to be that the Municipal organisation is designed particularly for intra-boundary services, and is under no obligation to give a supply outside its area. We have a point from Mr. Sibson where he considers an area within a 10 mile radius to be the ideal in which a Municipal authority should supply, because it was a paying proposition to supply in that particular area no matter what rural extension was carried out. He wants the Commission to take over the supply outside that area and try and make a go of the job, the cream of the profit-earning load having been skimmed by the ratepayers.

The Government is also being brought into the picture to subsidise the supply of electricity as a necessary amenity to that particular owner who is otherwise refused a rural supply on account of the uneconomic length of the necessary service connection. The development of load and increase of load in any power station reduces the unit cost on that network, but the overall cost of supply may be pushed up by such situations.

Councillor Olley referred to the fact that the ratepayers would be the guarantors of rural supplies in the event of a depression. A depression is, after all, an embarrassment to a farming community as well as to people within an urban area. The actual increase in loan which the ratepayers' committee carry in respect of rural electrification is a debatable point, as they will have enjoyed the benefit of lower costs arising from increased loads in the past. From the contribution that they would be called upon to pay in the form of reduced loading during a short depression, it is, therefore, doubtful whether the urban ratepaying committee would sponsor the guarantee.

With reference to the 20 per cent. return per annum which Mr. Sibson referred to, we are given to understand that in development work, the yardstick in that return on the capital invested should not be less than 20 per cent. per annum. Actually, that is the Cape Town figure which is used as a guide. A 20 per cent. yardstick is a very useful one but it is also one that must be applied intelligently with due regard to the circumstances.

Mr. Sibson would admit that a 20 per cent. return on the investment of £400 per farm would give him more profit, being in the order of 10 per cent. to 12 per cent. Twenty per cent. must be applied with due reference to the actual cost; only for the average scheme does the 20 per cent. apply.

From the remarks so far made there is a case for rural electrification, and I stand by my statement that no subsidy should be needed for the time being, as the supply of electricity within the range of outlying areas is an economic proposition. That is why in my remarks I mentioned that a subsidy for rural electrification is unnecessary. Post-war planning, therefore, should be financed and taken care of by the Supply Commissions and rural electrification should be understood to be beyond the executive range of Municipalities. What to my mind struck a dangerous note was the mention of this area immediately outside a Municipal area. This so-called peri-urban area may also be regarded as peri-rural. Municipalities

are not prepared to go beyond this top layer of cream on the milk where population density is highest.

**Mr. Kinsman:** In regard to the 20 per cent. return per annum which was applied to recent costs (subject to those reservations made by Mr. Milton) for semi-loan development schemes comprising 100 acre plots in Durban, we have suggested this figure to the companies controlling these plots, and it has been accepted by one or two. We will notify them of the capital expenditure in making a supply available, the company undertaking to guarantee a return of 20 per cent. per annum.

**Councillor Gearing:** I can add very little to the discussion which has already taken place, but I would like to contest the point made by Mr. Milton that Councillors do not encourage the increased production of electricity and that most Councillors are not very intelligent. We all think that we should accept the existing position as it actually is as a basis for getting on with the job.

The way we work in Cape Town is that we have collaboration between the Supply Commission and City Council. We own power stations and they own power stations. They supply urban areas direct, and if there is any profit, we as the Council get a small share and they as the Commission get a share. What I do dislike is domination of a Municipality by the Commission as you probably gathered from my remarks yesterday. Collaboration between us is obviously the right idea. Dealing with rural distribution on the lines adopted in Cape Town fixes certain responsibility, and the fact that we have agreement with the Commission indicates the lines on which rural development will have to go forward in future.

**Mr. Powell:** We have a problem in Bloemfontein since somewhere up to 6,000 or 7,000 people are living on a settlement. They go out there hoping to evade the rates. The Council for many years has undertaken the responsibility of supplying these people with electricity and many more people will be drifting to this settlement in the future. The same difficulty is also met with in other towns and members who have met with this particular problem would no doubt like to air their views.

**Councillor Gibb:** Mr. Milton has pointed out that it is the Town Councillor's duty to accept responsibility within the Municipal boundaries and not to supply electricity to the outside areas. I think it might be advisable to bring up the Councillor's point of view. Mr. Milton stated that his suggestion should be taken as an initial point of view. I suggest to the Convention that the time has now arrived when it may become necessary for the Electricity Supply Commissions for both Rhodesia and the Union to take over the whole responsibility and to supply to the Municipalities in bulk.

It seems that there are two contentious Municipal points of view. If it is accepted, Mr. Chairman, that the Electricity Supply Commissions are to supply everybody in the country with electricity, then I submit to the Municipalities that it is time for them to take their supply in bulk, as Councillors have no right to discuss anything outside their Municipal boundaries.

#### 1.40 THE CONSERVATION OF PRIMARY POWER SOURCES.

Mr. Marchand: Mr. Chairman and Gentlemen, — Science has not yet succeeded in harnessing atomic energy for ordinary power purposes and for many years we shall still have to depend upon the primary sources of coal, oil and water for power generation. The Union of South Africa unfortunately has neither oil nor water as sources for this purpose. There are places in the Union where hydro-electric schemes could be established, but they are few and if they did not form part of some irrigation project the capital costs would probably be rather excessive. We are, therefore, virtually dependent upon coal as a primary source.

Although we have extensive coal-fields in Natal and Transvaal, estimated at about 250,000 million tons, only a small proportion has been classified to date and we are not too sure of the quality available. There is a grave suspicion, for instance, that our good coking coals may not last thirty years. As Dr. van Eck mentioned yesterday, coal will be used progressively more and more after the war if there is to be any industrial development. The coal industry will depend largely on the internal demand which will be a function of the internal industrial development. We find, for instance, that the annual coal sales have doubled themselves in the last few years—the present figure being about 23 million tons per annum. It is estimated that up to date about 500 million tons have been extracted. We must realise that this great national asset is being reduced hourly by about 2,500 tons. There is no replacement! But, Mr. Chairman, the sad part is that there is such colossal waste.

The demand for coal is from all over the Union and the distances from the coal-fields are relatively great, so that railage charges are high — in many cases very much higher than the cost of the coal. Buyers, therefore, naturally insist on the highest calorific value and coal below a certain grade has practically no market. This fact is mainly responsible for the terrible waste.

In the Witbank area there are five seams available, of which No. 2 seam is about the best, but it is rather limited in extent. Well, the best seam is worked—it may be ten feet thick but only half the seam may be mined because the calorific value of the rest of the seam is not up to standard. When such a mine is abandoned there is a great deal of good coal left, but the risk of fire is now very great and may result in the destruction of the partly worked seam and even the adjacent seams. In other cases, the method of mining results in the dropping of the surface of the ground over the mined area. In general, when the cream of the coal has been extracted and the mine abandoned for some years it becomes very difficult indeed to mine the other seams. Let me say here that I do not want to cast blame on the coal-mining companies—they are, after all, commercial concerns whose first duty is high dividends for the shareholders and they cannot be expected to look at coal-mining from the national point of view.

Of the coal actually brought to the surface, a percentage varying from 5 to 30 percent. is actually dumped and burns away—all its valuable heat being lost to us for ever. The annual wastage in this respect is at least a million tons per annum in the Witbank area alone.

It is estimated that the average calorific value of this waste coal is between 10 and 11½, so that there is no reason why it should not be used for power generation. If railage charges are too high to allow this dump coal to be transported then electrical transmission should come to the rescue. And if the railway steam-locomotives cannot use low grade coal, then more extensive railway electrification should help to conserve our coal reserves. It may even be economically possible in the near future to produce oil from coal for the use of our small power stations geographically so situated that they are remote from coal-fields and transmission networks. This may be necessary because this war's consumption and destruction of the world's oil reserves is appalling.

Mr. Chairman and Gentlemen, we are intimately concerned with power generation—it is not only our bread and butter, but it is a national necessity—especially so in our plans for a more secure future. We cannot stand by and see our primary source of power—coal—being wasted on such an increasingly large scale. I do not know that I can, at this stage, offer a solution to the problem, but I do feel that we should try our utmost to get some thoroughly competent body to investigate the whole position in order to plan and control the development of our coal resources. The sooner this is done the better.

Mr. Eastman: I welcome the points put forward by Mr. Marchand that close collaboration should be instituted in connection with the fuel question. In my previous remarks at this Convention I expressed pleasure that this was one of the items we are going to discuss as it has become important during recent years and even more so during the war years.

One point which has been brought up is the possibility of using coal that is now burnt to waste and which might be processed in order to enable us to obtain motor spirit, substitute turpentine, pitch and other products of market value. Particular attention has been drawn to the fact that quite a lot of experience has been gained in other countries of particular treatments of coal for obtaining this by-product use of such a valuable commodity.

I would remind members of the fact that as far back as February, 1930, a report was published in the Transactions of the Institution of Electrical Engineers (London) describing the actual results obtained by such a process. The value in Great Britain of products per ton of 2,000 lbs. was 8s., but it was not considered an economic proposition to instal the necessary plant in power stations consuming less than 100 tons of coal per day. We realise that probably a great deal of research work would have to be done in this country, probably at a high cost, in order to obtain the best effects of treatment on good coal.

The urgent need of conserving coal in this country arises also from the fact that a very small proportion of our coal is suitable for coking purposes as required in the production of iron and steel. I second this proposal, Mr. Chairman, and do so in the hope that it will find favour with the general body of our members, because I think this is a matter in which the Government who, after all, control the Fuel Research Board, will be able to give us that assistance which



we have not so far been able to obtain in this country in connection with coal.

**Mr. Angus:** I wholeheartedly support Mr. Eastman's suggestion to provide plant capital for the production of some of the raw materials at our disposal in this country. I have recently suggested to my Council that the power station and gas works should be combined, although the output of gas would be far in excess of Municipal requirements. I have seen the development of plastics overseas from coal by-products and I put forward this suggestion in order that the matter may be discussed.

In addition this could provide financial arrangements which might assist Mr. Eastman in his contention that we are burning the better grades of coal and leaving in the ground perfectly good coal. Is it not possible to approach the S.A.R. and ask them if they could not help us in connection with this coal problem? Satisfactory co-operation with them would help the mining companies to get this coal out of the ground.

**Mr. Sibson:** On the subject of fuel I understand that the Board, the establishment of which it is intended to recommend, will include representatives of the South African Government, the E.S.C., this Association and other interests, and will obviously have its relation in the Union. This is a body which will be interested in the subject of fuel conservation in the Union.

In the Wanke Colliery coal-fields in Rhodesia the coal produced is very good coking coal. There is a possibility that Rhodesia will have more hydro schemes than the Union, although it will be some little time before this takes place. I think we might suggest as an Association that the Rhodesian Government also investigates this question of fuel conservation and the use of hydro-power. We have a scheme at present under consideration by our E.S.C. for hydro-power. It is a somewhat expensive project, but the Victoria Falls could be made use of. There is increasing courtship with the Union, so the matter is not quite so unimportant as it might appear, and it may be just a matter of arousing interest by forwarding such a suggestion that collaboration between the Union and Rhodesia could be established on this problem.

There is one other point to note, and this is the Zambesi River which may have an available power at present of 25,000 kW at minimum flow could be exploited to the extent of 100,000 kW.

## **1.50 LOAD BUILDING AND THE SALE OF DOMESTIC APPLIANCES.**

The following paper on "The Use of Certification Marks in the Electrical Industry" was read by Dr. V. Bosman:

**Dr. Bosman:** Mr. Chairman and Gentlemen, — I desire in the first place to thank you for the opportunity you have given me to say a few words on the subject of standardisation which is now open for discussion. As I was approached by your Secretary in my capacity as Chairman of the Marks Committee of the South African Standards Institution, I have decided to confine my remarks to the question of certification marks, and for the benefit of those who are not acquainted with the activities in this direction of the Standards

Institution, I propose to give you a brief account of the work that has been accomplished and of the position as it stands to-day.

#### **The British Standards Institution:**

Some years ago the British Standards Institution, which has played such a great part in helping to raise the quality of British electrical and other manufactured goods, introduced a scheme by which goods could be marked by industrialists with the certification mark of the British Standards Institution, provided that such goods complied with its specification. But, unfortunately, no provision was made for testing or inspection in cases where the mark was used by industrialists and, for this reason, the scheme was not successful. The uncontrolled use of the mark was soon withdrawn from industrialists.

#### **The Imperial Conference, 1930:**

In spite of this initial failure to assist industrialists and consumers in this way, the value of the scheme was not lost sight of, and the question was brought up again and fully discussed at the Imperial Conference of 1930, when, amongst other things, the following resolution was passed:

"The Conference recommends that each standardising body should adopt a mark or brand to be applied under licence and control of such body to goods which comply with standard specifications issued by it and are produced or manufactured within the territory which it covers; and should take the necessary steps to secure for such mark or brand the full protection of law throughout the British Commonwealth of Nations, whether by its registration wherever possible as a standardisation trade mark or in some other appropriate way.

"The Conference is further of opinion that it would be advantageous for each standardising body adopting such a mark or brand to communicate from time to time, to the other standardising bodies, lists of the specifications to which the mark or brand relates, and of the holders of licences, together with an indication of the class or classes of products in respect of which the licence is held in each case."

This country was represented at that Conference and in accepting the above resolution undertook, along with other Dominion countries, a responsibility, the significance of which was perhaps not fully appreciated at the time.

In 1934 or thereabouts, the British Institution again took the lead in this matter and communicated with the South African Standards Institution, as well as with other Dominion Standardising Bodies, with a view to obtaining some sort of protection for standardisation marks in the respective countries. This correspondence was eventually followed up by a visit of its deputy director, Mr. P. Good, to Australia, New Zealand, Canada and the U.S.A. for the purpose, amongst other things, of establishing co-operation in standardisation and a similarity of practice as circumstances would warrant, in the use and control of certification marks so that such marks used in the respective countries should have the same validity.

I feel sure that all members of this Conference will appreciate the tremendous value which a universal scheme of this nature properly carried out would have in the industrial and commercial life of the countries concerned.

#### **The South African Standards Institution:**

In attempting to place itself in a sound position with regard to these matters, the South African Standards Institution found itself confronted with many difficulties. In the first place, although it was recognised by the Government as the national standardising body in the country, it had no legal status and, in addition, the registration of its marks under the Patents and Trade Marks Act would have involved a considerable expense which it could not meet. Furthermore, it had no testing or inspection facilities and no administrative offices and, therefore, adequate control of its marks was quite impossible. Under these circumstances the most that the Institution could do was to obtain the kind co-operation of the Registrar of Patents and Trade Marks and his undertaking that no trade mark would be registered containing the word "standard" without first submitting it to the Institution for its comments.

This arrangement was found helpful indeed, but obviously it had no legal status or backing.

For some time it looked as though no further progress in this connection would be made, until the Government decided to pass a Merchandise Marks Act. This move opened up new opportunities and the Institution was finally able to obtain the introduction of a clause by which its marks and other standardisation marks could be fully protected. This Act was passed in 1941, and under its provisions the Institution has since been able to protect the uncontrolled use of its marks and also the marks of the British Standards Institution.

It is considered that a big advantage results from the fact that these marks are protected under the Merchandise Marks Act rather than under the Patents and Trade Marks Act, as is the case in most other countries. By this means a clear distinction is made between certification marks and trade marks or brand names, and it is important that this should be done. The former, i.e., certification marks, associate the goods with a specification, while the latter are marks of origin and associate the goods with their maker.

#### **The Need for Testing Facilities:**

Having obtained the necessary protection, the Institution was still not able to allow industrialists to use its marks on goods for the reason that no testing or inspection facilities were available to the Institution and, consequently, no system of control over industrialists could be introduced. Certain efforts were therefore made by the Institution to obtain such facilities from Government but without success.

#### **The Standardisation Committee:**

In 1941, the Government appointed a Standardisation Committee to investigate certain features of the subject of standardisation and,

amongst other things, this committee urgently recommended to Government the establishment of a Standards Bureau. This Bureau would be a corporate body, with the proper legal status, one of whose functions would be to establish adequate testing facilities which would enable the Standards Institution to carry out its work more effectively, including the question of the control of its standardisation marks. The Government has accepted this proposal of the Standardisation Committee, and the Bill which will establish these facilities is now before Parliament, awaiting its second reading. If this Bill is passed in its present form and becomes law, the country will be equipped with machinery by which standardisation may be extended to all industry and which will enable industrialists to make use of certification marks for protecting the quality of their goods in the eyes of the consumer.

#### **Practical Application of Certification Marks:**

It should be emphasised that in obtaining these facilities for testing and inspection, this country is only falling in line with other countries of the British Commonwealth of Nations, as well as the United States of America. When the proper machinery is set up in this country it will be possible for South African industrialists to use certification marks under proper control and it will also be possible for industrialists to use British, Australian, Canadian and other standardisation marks on their goods (provided, of course, that permission is granted by the bodies concerned) under a system of control which should be equally effective and thorough as the systems at present in force in those countries. I need not emphasise what a great advantage this will be in all the engineering industries and, particularly, to the electrical engineering industry where standardisation has already reached such a high level, for it will establish means of protection for the legitimate manufacturer and for the genuine consumer against the competition of inferior goods which are placed on the market at lower prices. It will, in other words, assist the consumer to establish a much closer link between quality and prices.

#### **In Other Countries:**

In Great Britain the use of the marks of the British Standards Institution, under a satisfactory system of control, was well recognised before this war started. In Canada similar methods have been introduced; in New Zealand a Standards Act was passed in 1941 and, if we can judge by recent reports, important results of certification marking have already been established in that country. There can be little doubt as to the ultimate application of these trade procedures in all the larger countries after the war has ended successfully.

If, in concluding this memorandum, I may express an opinion, I would suggest that this new development in standardisation, namely, the use of certification marks, will play an increasingly important part in the industrial and commercial life of South Africa in the future and those industries like the electrical industry which are so highly standardised should reap the greatest benefits.

**Mr. Berry:** In the first place I should be glad if you would convey to your President and Association my thanks for the invitation extended to me to be present at your Convention as a representative of the Chamber of Commerce.

With regard to those matters which have been set down on your agenda under the scope of safety measures, my remarks will not be aimed in this direction. I would, however, wholeheartedly support safety measures to prevent the use of trashy appliances as prohibitions to these ends would be to the ultimate advantage of every consumer.

When we come to the question of the sale of electrical appliances by local authorities, the Chamber of Commerce holds views that come into a totally different category. There are circumstances which can be considered justifiable and other circumstances which are considered unjustifiable. If the trade does not make available the electrical appliances which are required for connecting in houses, then public bodies are fully entitled to take such steps as are necessary to make these available; but where they are available it is not justifiable that they should enter into schemes in competition with the usual trade channels and I suggest that you never lose sight of this fact.

Mr. Angus has told us that a monopoly is in a very privileged position. We realise that this position entails certain obligations and that there are obligations which are held in trust on behalf of the consumer. We have seen that unless these monopolies are adequately safeguarded they are of little benefit to the consumer. We notice you have competition in your calling, in so far that one electricity undertaking vies with another.

This point arose in 1940 when the Johannesburg Municipality intended entering the field of domestic appliances. The Municipality considered that they had adequate knowledge of distribution methods and considered that they could distribute much more cheaply than could commercial firms, but on this point there has been considerable dispute. They stated that they could do it at cost plus a small handling charge, but I suggest that, although it reduces the price of the commodity it does not reduce the cost of living.

The Chamber of Commerce considers that the position of the monopoly undertaking which is prepared to reduce the price of commodities below economic level is open to severe criticism, as this is a point which affects all our activities. If such activities are extended there is the possibility that we might lose sight of the aim of all of us, namely, what is known nowadays as social security.

We have Municipalities endeavouring to develop industrial sites and offering them to the public at below cost. I suggest that there is no material advantage to be derived from this procedure, as the reduction in costs will ultimately be borne in the form of increased rates and taxes by the consumer.

If we are going to surrender the control over these activities by allowing Municipalities to take them over, because they feel they can do it more cheaply even without careful investigation, then we will tend to deceive ourselves as the people may actually be paying more in the long run.

There is just one other point I would like to suggest. We are told that we must aim for social security to improve the standard of living. If we do this we must use our resources to the maximum and reduce the inefficient use of labour in this country. I suggest to you that we should reduce the number of domestic servants, and if we do this by the increased use of electrical domestic appliances we will create a better domestic load. I suggest that there is a greater possibility of finding the solution to improving your electric loading conditions in this direction. What I suggest may be justifiable depending on local circumstances which will develop their own ends. When I make this suggestion I submit that the solution of the problem is one of collaboration between the supply authority and commerce.

The E.S.C. are constantly engaged in schemes of developing and improving conditions everywhere in the country by collaboration, and I am quite sure that any town or any area which the Commission undertake to supply is receiving the best service possible under existing conditions.

**Mr. Eastman:** As I have been attending the proceedings of Section B I heard only the last few sentences by the last speaker in which he asked for collaboration in developing domestic load.

In Cape Town it has been the policy of the Council to get the maximum collaboration with dealers in electrical appliances, and the dealers were glad to have our assistance in that development. We hope to have their co-operation in the same degree as we had before when the time comes to push development of electricity load in the domestic sphere. We, in Cape Town, had a hire-purchase scheme and electrical appliances were sold through our organisation, but at no time did we buy any appliances owned by us, with the exception of a certain type of wiring material which we sold to contractors and which was not available to contractors themselves. It is not the Council's policy in Cape Town to engage in the sale of appliances across the counter which they have bought for sale. The Council has no intention, although it has powers to do so, of engaging in competition with dealers in electrical appliances. The Council has these powers for use in the event of our not obtaining collaboration from dealers.

As a result of the shortage of material, our hire-purchase scheme has died down, but we are keeping the showrooms in Cape Town ready and hope our hire-purchase scheme will have the same satisfactory co-operation from commerce as it did before the war.

**Mr. Halle:** We must look forward to a heavy demand for electrical appliances after the war and realise that there is going to be an ever-increasing rate of demand for supplies. We must remember that in pre-war days the number of accidents was high from domestic appliances. One of the investigations instituted showed that 34 per cent. of the accidents between 1937 and 1941 were due to faulty flexibles in the home. Something will have to be done to make those electrical appliances which are not properly designed more safe. This can be done by making the sale of electrical appliance exclusive to responsible people, and I favour the electrical contractor.

In smaller towns the only supplier of domestic appliances will be

the local Town Hall and it is up to them to train somebody in all the functions arising from hire-purchase schemes.

The local electrical trade in Pietermaritzburg is not in direct competition with ratepayers who go in for the Municipal hire-purchase scheme. We advance the money for any resident to go into a contractor's store and purchase any appliance he wants and put the transaction through ourselves. In bigger towns trouble has arisen in trying to control the level of prices. Durban succeeded and Cape Town did a good job, but it is necessary for dealers to be tied down to a reasonable price, and in Johannesburg they have endeavoured to do this since the money is advanced to purchasers through the Municipal hire-purchase scheme.

One other point is the need for making the hire-purchase scheme more uniform and interchangeable. In Maritzburg one in every five purchasers is a Government official who is liable to be transferred from one centre to another at short notice.

Another point arises from the scheme widely adopted in England where consumers need only hire the apparatus. One big concern in England puts in a stove at very little cost and charges a penny per unit on the total consumption. This is service on a power utility basis.

These are my main remarks and I did think that the question of the price and safety of domestic appliances installed should be gone into very thoroughly. Unless you have an inspector for every house you cannot keep track of what is being put into houses when an electrical contractor is left entirely to his own devices.

**The Chairman:** Now that Dr. Bosman has heard some of the discussion under this item, perhaps he would like to add to the valuable contribution he has already made.

**Dr. Bosman:** I spoke on the question of certification marks. That particular subject is only one branch of the subject. I do not know whether you would like me to take up that particular question, or whether you would like me to confine my remarks to what I have already referred to.

When we talk about standardisation in industry and commerce we generally deal with three branches of the subject. One is standardisation of apparatus and plant by the establishment of sub-standards by which industries can standardise their own apparatus; secondly, there is industrial standardisation which deals with the subject of commodity standards, that is to say, standards of products which are sold to the public in such small quantities that the small consumer is not able to put that material to the test in the usual way.

The second kind of standardisation should interest Municipalities buying on a very large scale. Provision is made by which products may be tested and certified to see whether they comply with the specification. In this connection Mr. Rodwell made application to the South African Standards Institution two or three years ago that they should approach the Government to establish some sort of Standardisation and Testing Bureau for the execution of such work.

The third way of standardisation which comes into being is the branch of commodity standards, and the sale of electrical appli-

ances gives, I think, a very good illustration of a commodity in which the Bureau could assist a great deal. For instance, in connection with the electric globe the consumer cannot have this tested and, therefore, does not know whether he is getting the usual life of 1,000 burning hours. The introduction of a commodity standardisation policy aims at some method by which an organisation such as the Standards Bureau will be able to allow the manufacturer to place on his globe some sort of certified mark to indicate that this globe complies with the recognised standard. This can easily be done with globes as all the Bureau has to do is to give to the dealer a record of how the tests were carried out and with what results.

I would refer also particularly to the new method of quality-sampling which has been adopted in overseas countries to make sure that a particular product complies in quality with the specification which has been set for that product. Very excellent and very wonderful results have been obtained on these lines. The British Standards Institution has allowed manufacturers to mark their products with a distinctive mark which signifies that they have adopted approved scientific methods of production and comply with standards. Many of these marks are recognised by the South African Standards Institution. Along these lines of reciprocity introduction of commodity standardisation may be of great assistance in the sale of electrical appliances. This has been introduced with marked success in the case of textiles which is a very difficult industry in which to introduce this idea. The Bureau contemplates that if products are standardised and controlled for quality a certain amount of encouragement will be given to high quality producers in adopting standardisation.

I would like to emphasise that some people erroneously feel that the Bill now before Parliament concerning the establishment of a Standards Bureau implies some form of compulsion. The whole basis of standardisation rests on voluntary co-operation. Provision is even made in the Bill that this can be facilitated to the advantage of both manufacturer and the consumer. Provision is also made for branding, but that can only apply compulsorily to goods which the manufacturer wishes to export so as not to degrade the name of the South African manufacturer in the eyes of the overseas buyer. It may also compulsorily apply to foods and drugs. Where you can establish a case for preventing accidents you might in certain cases have to compel the manufacturer to follow an approved specification. Otherwise in the course of business and industry the whole basis of standardisation is voluntary co-operation between the manufacturer and consumer, and I think, personally, that no movement can ever be based on a sounder principle than that.

**Mr. Berry:** I must thank you, Mr. Chairman, for giving me a further opportunity to speak. On the question of standardisation the Chamber of Commerce in this country is wholeheartedly in favour of any independent authority being able to give certificates of quality to the public and that is the main point which the Standards Committee should take care of. There has come a time when we must recognise that some authority should be established which represents all interests concerned. In respect of domestic appliances, the



authority established should represent the supply undertaking, the supplier of the material, and, I suggest, the consumer, since he is the person vitally concerned with the design and application of electrical appliances.

On the question of hire-purchase, this is a matter which I suggest should be discussed further, since I feel that Municipal ventures in this direction have not always been successful. Here I would like to suggest to the Municipalities one aspect of hire-purchase which I think should have the widest publicity. It is unfortunate that Municipalities did not take steps to adopt a scheme in which hire-purchase can be used as a final arrangement of continued service and replacement and not be regarded merely as a scheme affording the advantage of easy payments against a capital outlay.

I would like to mention that the Chamber of Commerce will wholeheartedly collaborate in fighting ring-prices rather than see a monopoly created in the hands of a private few. I would like to mention that there was no evidence in Johannesburg of such a price-fixing association in justification of a Municipal trading scheme.

Electric water-heaters constitute that most important form of loading sought by the Municipality under this scheme. It may have been that the sale of electric water-heaters to the public has not always been developed in the best interests of the Municipality as it is possible that under certain conditions other forms of water heating, such as slow-combustion boilers, have been more economical. I feel that this is a most important point and one that should be discussed at length between the Johannesburg Electricity Department and the Chamber.

**Mr. Ritson:** We get into this country every year a large amount of material which consists of a whole lot of junk. I think this is a very important question to bring up. When we start selling again after the war we must not think that people in South Africa have no Government support in preventing this happening. I think this calls for some good work by this Association and other interests. If we can get the Government to stop junk coming into the country, although it will increase the cost of the article, we will have done some good.

One case in point arose in connection with the wiring certain contractors put into houses on some of the Municipal sub-economic schemes. The Engineer put a piece of this wire in a drawer and about three or four months after he opened the draw and found it had all turned white under self-engendered chemical action. We also have the case of Japanese globes which sell at as much as 2s. each.

I think, Mr. Chairman, we should take most energetic steps to bring this question before the Government in order to prevent this junk coming into the country.

**Mr. Halle:** I would like very much to bring up the question of the electric battery-vehicles as I feel this is a very interesting point and one that should be considered. In Sweden, the Municipalities go to the encouraging length of hiring batteries out for use with vehicles. I would like to see more electric vehicles going about the streets and more favourable tariffs for battery charging supplies.

I think that manufacturers of electrical battery vehicles should consider the possibility of regenerative charging as it would be of great assistance in the practical trip length per charge for these vehicles.

**Mr. Eastman:** I would say that electric battery vehicles are not suitable for all services and they are certainly not suitable in areas where there are hills.

Many years ago we endeavoured to bring these vehicles into use in the Cape but it did not turn out very successfully for the reason, Mr. Chairman, that batteries were unfortunately being used on vehicles for which they were not suitable. They are more suitable for domestic delivery purposes, such as for carrying milk round to houses.

We offered a tariff for battery charging and that tariff is now used for the charging of batteries for motor cars.

**Mr. Gripper:** I consider it essential to adopt a safety code and system of branding approved apparatus. Mains-operated radio sets should be included. Care must be taken, however, not to overdo this. The prime aim should be simplicity in operation and maintenance with a degree of standardisation calculated to provide reasonable immunity from failure. The safety-razor, for instance, is fairly universal to-day but the cut-throat type has not been prohibited.

I think this Conference should definitely express its views on whether or not all portable appliances of every sort are to be provided with fool-proof earthing arrangements for connecting by means of adaptors or otherwise with an earth lead in single or three-phase flexible cables.

In regard to modern battery-driven vehicles, I think that these must certainly be encouraged for local delivery work. The first steps necessary to be taken are with the licensing authorities who do not, at present, permit such vehicles to be taxed on their nett weight, excluding battery, and also require a special driving licence to be taken out by the driver.

I look upon this item as falling also under the heading of national fuel economy and the abatement of traffic fumes and noise rather more even than as a very useful load builder.

With reference to the question of load building and propaganda, I would like to advance the suggestion that:

- (1) An energetic South African counterpart of the British Electrical Development Association should be formed (or revived) and should make an immediate start so as to be well in its stride before post-war schemes are under way. Brochures, posters and slides will not be sufficient, but sound films should also be planned and produced all in both languages.
- (2) Wherever a supplier is in a position to provide the services, publicity will be needed to encourage the development of controlled off-peak supplies to water heaters, refrigerators, space heating and air conditioning equipments.
- (3) It must be urged upon housing authorities, architects, builders and consumers alike that the electricity installation in a house is as essential as the doors and windows, and should be adequate for future requirements. Moreover, it should never be pre-

sented by the architect or builder as an extra which would inevitably be cut down at the start, to be regretted when it is too late.

**Mr. G. J. Muller:** Mr. Chairman, Ladies and Gentlemen, — In rising to say a few words on the subject of the sale of appliances and load building, I am speaking mainly to the unconverted and I can almost hear the non-engineer members asking what all this load building is about. Is it a form of megalomania at the expense of the public; is it a cloak for hiding more burdens on the taxpayers; or can it be a move to help the public? In formulating a reply to these unspoken questions, I would like to say that no engineer will admit the first possibility, although I have, in introspective moments, been inclined to think that there are some grounds for the thought. Engineers as a rule do not seek the limelight, and making the most of their jobs seems a natural protection against an inferiority complex. I hasten to say that the only reasons we admit are economic and social, and the economic aspect is essential for the social ends.

To engineers engaged in the generation and distribution of electricity, this commodity is looked upon as an essential one, which must be brought to as many as possible at as low a price as possible as a contribution to the general happiness of the community. Electricity is perhaps best appreciated to-day as the nerve system of all destructive machines, but it can also be a power for good which can hardly be over-estimated.

With these introductory remarks I hope to have dispelled all thoughts of selfish motives and the more mundane aspects of the matter can be investigated. It is a fortunate fact that in pursuing our first object, the second is automatically promoted. By increasing the number of consumers, and the different ways in which they use electricity, we arrive at two results which both tend to reduce costs. In the first place the greater number of consumers obviously increases the load which, as could have been expected, tends to lower the cost to the consumer. Secondly, the great variety of uses for electricity spreads the incidence of individual loads, and tends to flatten the load curve. This makes it possible to supply a greater amount of energy to consumers with the same capital, management and maintenance costs, to their obvious advantage. These favourable conditions can be promoted by:—

- (a) Favourable tariffs.
- (b) Suitable appliances at the right prices.
- (c) Reasonable installation costs.
- (d) Good service, which includes good advice before, and good treatment after trouble.

Having made up one's mind on what are the essentials of load building, let us see in how far these can be reached by control of the sale of electrical appliances.

A disgruntled consumer is in most cases a consumer with inferior or wrongly applied appliances. Even fatal accidents can be put down to these causes, which must be placed among the chief obstacles to

the achievement of the objects in view. It is therefore most essential that reliable appliances and sound advice on their efficient application be placed at the disposal of the public. No business can exist for long without the confidence of the public, and confidence only comes from experience of happy transactions. There should be no suspicion in the public mind that the article for sale is a fraud, or that the advice given is only sales talk to palm off the article. Everything sold should be of proved value, and it should never be sold unless it is capable of completely satisfying the consumer's requirements. For example, no water heater should be sold to any consumer unless it is not only of the right type and size, but also installed in such a way that it can be reasonably expected to give complete satisfaction, and the running costs gone into and the consumer advised. Propaganda can then make him happy to pay for the service he is going to get, but there should be no disillusionment afterwards.

There may be many ways of arriving at the desired results, but basically the article must be right and the sales channels must be right. With these ideals in view, the following measures deserve the whole-hearted support of this Association:—

- (1) The establishment of a South African Proving Authority as the local market draws its supplies from different overseas sources, as well as from local manufacturers to an ever increasing extent.
- (2) The removal from the market of any appliances not bearing the mark of the Proving Authority.
- (3) The discouragement of the sale of appliances by concerns not in a position to service or install the materials they sell.
- (4) The sale, installation and servicing of appliances either departmentally or on contract, but controlled by the Local Authority, on a basis of co-operation with the contractors and manufacturers.

These measures may appear to be a perpetuation of the control system, the demise of which would not be unduly mourned by many. But they must be seen in the light of social necessities, such as the Pharmacy Act and other measures for the protection of society against the actions of unscrupulous people. The Democratic system guarantees the freedom of the individual, but only in so far as this does not interfere with the rights and liberties of others. Every pedlar may claim it as his right to buy and sell arsenic, but would it not interfere with the right of every other person to live his normal span of life? Why then should it be possible in the first place to sell to the public dangerous appliances disguised as perfectly reliable appliances? And secondly why should it be possible for anyone to sell such articles, even if they have not the slightest notion of the potentialities of the material they sell? Some of the articles sold to an unsuspecting public would, for modern up-to-date murder, not be beaten by the poison of the Borgias!

Not the engineers, but the public should demand that every electrical appliance sold to them should be of proved quality, and installed so that it will give the best possible service in safety, at a figure which is a fair representation of the value of the service rendered.

A Proving Authority and a law to ban rubbish could look after the quality of the material sold, but costs of installation and servicing cannot be so conveniently controlled by legislation, as conditions vary so much from one place to the other. This is where the Local Authority can fill the gap. There are many contractors who have built up a flourishing trade on the principle of good service, but there are probably others who have preferred a big profit on a small turnover, and did not have the courage to try the system of small profits on a large turnover, which entails service. Such people not only do not make the most of their own business, but are a millstone to electrical development in their neighbourhood. The Local Authority, by acting as link between the public and the trade, can not only keep prices on a fair basis, but can also ensure prompt and efficient service at all times. And there is no better propaganda than a satisfied consumer. The system as applied in Cape Town for instance has proved very successful as evidenced by figures given by Mr. Swingler in 1938. His paper after over four years of war is most refreshing reading.

These remarks are not intended as an attack on private enterprise; in fact there is no reason why private enterprise should not benefit by it. There is no end of scope for the first-class contractor who renders good service at fair rates. But there is no room for the hit and run contractor, nor for the business concern which sells appliances which it knows nothing about, cannot service, and does not care two hoots what becomes of either the article or the new owner, once they have collected their money.

There is nothing to sell, and practically no possibility of permanent load development. It may therefore seem absurd to discuss these things to-day, but it takes time to get general support, and even after full support has been obtained from the Association as a whole, some considerable time must elapse before the necessary legislative measures can be put on the Statute Book.

We all expect a better world after the war. We want more and happier homes, more employment and more business. The electrical industry and also this Association has a part to play. We do not want others to fail us; let us not therefore fail them!

**The Chairman:** Before we close this section of our discussions is it the wish of this meeting that clauses 4, 5 and 14 as laid down in the draft motion before you be included in the functions of the proposed Joint National Electric Power Board? (Agreed.)

## SECTION A: 9.30 A.M. WEDNESDAY MORNING, 26th APRIL

### 2.00 ACQUISITION OF MATERIAL AND EQUIPMENT REQUIRED BY ELECTRICITY UNDERTAKINGS.

Chairman: Mr. H. A. Eastman (Cape Town).

#### 2.10 Present and Future Difficulties.

Existing and probable future difficulties facing the Electricity Supply Industry in securing materials and equipment:—

- 2.11 Load capacity in most cases already fully taken up by present demand increases.
- 2.12 Extent of increased growth in demand as building programmes are put in hand.
- 2.13 Difficulties in securing ordinary maintenance and operating stores.
- 2.14 The permit system.
- 2.15 Willingness of overseas manufacturers to supply and availability of shipping.

#### 2.20 Co-ordination and Acquisition of Requirements.

The urgent need for establishing a form of Central Organisation to co-ordinate and secure the requirements of Electricity Undertakings and to consider:—

- 2.21 Returns of heavy plant requirements called for by the Electricity Commissioners, London.
- 2.22 Possibility of pooled bulk purchasing, standardisation of specifications and spares and consequent saving in time cost.
- 2.23 Manufacturer's capacity to supply post-war requirements and possible quota systems.
- 2.24 Improved procedure in securing materials ex local stocks and ex import.
- 2.25 Functions of proposed S.A. Bureau of Standards in executing acceptance for materials and equipment.

#### 2.30 Nature of Central Purchasing Organisation.

- 2.31 Constitution, method of functioning and personnel suggested for Central Purchasing Organisation.
- 2.32 The establishment of local panels.
- 2.33 Co-ordination with commercial enterprise.
- 2.34 Co-ordination with Director General of Supplies, and the A.M.E.U.'s letter to the D.G.S.

**The Chairman:** In introducing this subject, it is my first duty and pleasure to welcome not only our members but also Commodity Controllers and the representatives of other Government Departments and to invite them to take part in these discussions.

All of us who are engaged in the power supply industry know that troubles have been experienced in our obtaining supplies of essential materials and equipment. I want to let you know what your Executive Council has been endeavouring to do towards facilitating the allocation of supplies at the present time and towards inducing the Government to recognise that the acquisition of supplies of equipment and materials for the electricity supply industry in the future is an essential prerequisite for the carrying out of the post-war planning schemes of which we hear such a lot. In these connections the Government has appointed many Advisory Committees, on none of which is our Association represented officially or, as far as I know, by any of its members in an individual capacity.

I need not flog the question that the supply of electricity is of high national importance. We know it, and every Controller with whom we ordinarily make contact subscribe privately to the view that the supply of electricity is important. I was particularly interested, and I think we all were, in Dr. van Eck's comment in his address to us a few days ago to the effect that the electricity supply industry in this

country had played a vital part in the prosecution of the war. He passed other comments on the importance of the electricity supply in such a way as to give me personally the hope that at last our voice is going to be heard more clearly in the future than it has been in the past.

We have met to ensure that the national service which we represent is not left to struggle with each individual Controller for its existence and development. I submit that the Government itself, whilst admitting the importance of the supply industry, has not done anything to recognise its importance officially in the various War Measures which relate to the Control of Materials. On that matter I would refer, for example, to our lack of representation on the Public Utilities Building Advisory Committee which acts in an advisory capacity to the Controller of Buildings in matters relating to the extensions and additions to all Municipal services, including electricity services. It came as a great surprise to me recently to find that we were not able to alter the layout of certain plant in one of our Cape Town Power Stations without the permission of this body and unless that permission had been forthcoming we would have been faced with very great difficulties and, perhaps, impossibility in maintaining electricity supply under the conditions which the alterations were designed to prevent. At that time it was found also that we were not even able, without the Controller's permission, to repair the plant if those repairs would cost more than £1,000. In short, the Public Utilities Advisory Committee has complete power of control over the supply of electricity. But that body reports to the Controller of Buildings who has no control whatever over the Controller of Building Materials. It has happened within my knowledge that, while the Controller of Building has sanctioned a project, the Controller of Building Materials has refused to allow it to be put in hand because of the difficulty in obtaining materials.

Everyone is fully convinced of the importance of the electricity supply industry and our discussions of this matter should be aimed at how best to establish some line of co-operation and get our voices heard in official circles. If we succeed in this our meeting will not have been unavailing.

In these introductory remarks I want to say that so far no insuperable difficulty has arisen, as far as I know. I want to say too that I think our personal relations as Engineers with Commodity Controllers are in every case on a friendly basis and perhaps I am speaking for the meeting when I say we have no personal quarrel with controllers. We are animated by a sense of duty towards the national effort which we serve, but it may so happen that it is not within the power of a controller individually to grant a specific request. If in our discussions here we can suggest some workable arrangements whereby for the present and future our difficulties will be eased in securing materials, we will have served a useful purpose.

Some while ago I realised that there is little evidence of co-ordination of efforts for post-war planning in so far as electricity services are concerned. We have heard a great deal about transport lately and I hold that our service is just as important a national service as transport. Machinery already exists to provide the requirements of

the post office and other Government Departments and also for the Gold Mining Industry whereby they all forward their requirements for materials through a certain channel provided for them, but there is no such opening for us. We deal with the individual controller concerned and mainly with the Controller of Building Materials.

Reverting to the question of the acquisition of our requirements for future development, most electricity undertakings in this country are beginning to see that if any considerable expansion materialises, such as may be anticipated from giving effect to the Government proposals for housing developments, all municipalities will be short of electric power. The Executive Council of your Association, realising this a little while ago, took up the line that, as extension of generating and distribution plants in most of the municipal undertakings would be required to meet these increases and also those arising out of private enterprise, representation should be made to the Director General of Supplies that he should sponsor a form of central organisation for directing and facilitating development of electricity undertakings by facilitating their acquisition of supplies both from imports and local stocks. Such representations were made and a reply has been received declining to accede to the proposal. The letter from the Director General of Supplies concludes by recommending that members of this Association be advised that any specific problems with which they may be confronted from time to time in obtaining their essential requirements should be referred to the Directorate of Supplies who will be only too glad to render all possible assistance. The Directorate of Supplies has hitherto given all possible assistance, but the difficulties have remained and those of the future are not being provided for. These Directorates change their personnel from time to time. The controllers who we know now may not always be controllers and the Government policy may change with them.

Accordingly the Executive Council of your Association thought it important to make at this Convention an endeavour to get our voices heard more clearly. The suggestion which we have already made has not been accepted and if we are prepared to take "no" for an answer then I suggest that we must make some other recommendation having the same effect. The matter is open for discussion.

**Mr. Angus:** Mr. Chairman, on the subject of acquisition of material I must confess that I am very satisfied with the means the Government has set up to assist us. At no time have we in Port Elizabeth experienced anything more than a reasonable delay. It may be that we have never yet submitted a frivolous demand. If we go to the controllers and ask for this, that and the next thing, which we can easily do without, we can expect to be turned down, but I must confess that we have had no difficulties so far. The control organisations that have been set up have been of great help. I think that what this Association as a body really needs to remember is the fact that the difficulties which we discuss this morning arise not from development at all; they arise directly from the results of the war. The material is wanted for far more important jobs for the war. We at Port Elizabeth want a new 20,000 kW turbo-alternator, but I am not prepared to tell any Board of Engineers that I am absolutely dependent on that for the war effort. I really think we must sit back



and ask ourselves whether we are not being a little selfish in demanding that our requirements are met. Where they are necessary let us go to the controllers and I am sure they will give us every help.

I wholeheartedly agree with our Chairman that this Association, or we Municipal Engineers, are not represented on those bodies which are responsible for the control and allocation of materials and equipment. We should be represented on these bodies, whatever they are and should take our place in the general organisation. We should for instance be represented on the Public Utilities Advisory Council.

**Mr. Clinton:** Coming from Rhodesia I feel somewhat diffident about offering an opinion on this matter as it appears to be mainly concerned with the conditions in South Africa. I think, however, that the last speaker somewhat missed the point about the position after the war. What we are concerned about is that after the war, when we commence demobilising wartime controls, we do not want a state of grabbing to commence. I think it has been admitted both by the last speaker and the Chairman that there are certain drawbacks in the system in the Union of South Africa and I think it is wise to take stock of these drawbacks and see if we cannot devise some scheme to ensure that materials are allocated to the sources where it can serve the best purpose.

I think that difficulties will arise not only in the case of durable goods, but also in consumable goods which can be distributed fairly easily. In the case of durable goods, such as turbo-alternators, etc., obviously these will have to be allocated where the need is greatest, and I think that fair play has possibly not been given to all electricity undertakings in the past. Some of us think that others are not fair in their demands and various charges are made against each other in this connection. It is best that a central body be established to investigate our requirements and we should make representation to the Government accordingly adding the rider that this Association is adequately represented thereon.

**Mr. Bevington:** I quite agree with Mr. Angus that the Control Authorities are doing excellent work. However, they are situated in certain principal cities and the outside towns some distance from these centres find great difficulty in getting the controller to understand their requirements. Some of our more fortunate members can go and see the controller personally or someone associated with the control. Those further away cannot go. Some Town Councils cannot afford to send representatives on a day's travel to the Control centre. The Controllers do not understand our requirements both because misunderstandings arise in correspondence and because often Controllers are not sufficiently qualified for this work.

Another point that I have been asked to raise by various members here is that the railage cost on coal is too high. As an instance of what we are faced with in putting a reasoned case for a reduction in railway tariffs, a few years back I approached the Minister personally in connection with the tariff on Diesel oil. He was very nice about it but stated that if a concession was made 137 tariffs would have to be altered to comply with our requirements. That is probably the answer we are likely to get about the railage of coal. Nevertheless I think the tariff should be reduced.

**The Chairman:** Whilst the question of freight rates on coal is a matter of interest to us I must rule it out of order for consideration at this meeting. Possibly an opportunity of discussing the matter will arise later in the Convention.

**Mr. Head:** I spoke to Mr. Borckenhagen, the Controller of Building Materials, about this meeting suggesting that he be present, but he is snowed under with work and could not get to the meeting this week and tenders his apologies.

As one who has spent the greater part of a lifetime dealing with electrical cables and wires, I think I am in the position to explain to you how things stand to-day. Last October the Controller of Building Materials issued a document in the October 22nd Government Gazette, Notice No. 3257 explaining how the Electrical Conductors Imports Control would be organised in this country. We commercial men who have had so much to do with the Controller of Building Materials can say that, so far as the Insulated Conductors Industry is concerned, we are satisfied with the Controller; he has been very helpful and has accepted most of our advice. The Chairman has stated that there is no Advisory Committee for dealing with the electric power industry and that this Association has not been consulted. When I was appointed unofficial Advisor to the Controller of Building Materials, for Electrical Conductors, last April I realised the difficulties and I suggested an Advisory Committee comprising Mr. Borckenhagen as chairman, with Mr. C. H. Torrance (G.P.O.), Mr. Wells (D.G.S.), Mr. Weed, representing the Railways, Mr. E. T. Price, of the E.S.C., who represents the municipalities, Mr. Woods, of African Cables and the Deputy Controllers as alternatives together with Mr. Russell and myself. You will see that the committee is fairly comprehensive. Nevertheless, if you gentlemen feel that you also would like to have a representative on the Electrical Conductors Advisory Committee I think it is up to you to discuss the matter to-day, as we are having a meeting within the next few days, when I will bring this matter forward to the Advisory Committee.

The position, gentlemen, is much more difficult than you can possibly understand. As you may be aware any exports from Great Britain or the United States are controlled by a Non-Munitions Materials Committee which sits alternatively in London and Washington. It is laid down that exports to other countries are to be based on a quota and I can assure you this, that we have fought strenuously to obtain a larger quota both from Great Britain and America for this country. The quota is also supposed to be based on copper content. You can appreciate the difficulties that we have had to co-ordinate our cable requirements and this could only be done when all the facts were in front of us. Prior to that, certificates of essentiality had been issued indiscriminately from this country and we had to go through these certificates to try and bring down their number. Instructions were issued that where material of any description could be manufactured in this country, no export certificate would be granted from Great Britain as from 1st January last year. This year that has been tightened up very much and it is no use anyone applying to Great Britain, even with a certificate of essentiality, for electrical cables unless the sponsorship has come through the

Controller of Building Materials. We have instances of people going behind our backs, obtaining certificates from other controls and submitting these certificates overseas. The first thing we know about these certificates is when we are advised from London that these are not on our lists to the High Commissioner. If you follow the instructions in the Government Gazette when making your application you will receive permission to import any cables rated at over 11 kV. Any cables up to and including 11 kV can be manufactured in this country.

If you, Gentlemen, will only write, before inviting public tenders, to the Controller of Building Materials, asking for the necessary permission he will explain in a letter whether you can obtain the import permit or not; it will save us a lot of work and expedite matters generally. I have explained briefly the position as it is to-day and if there is any question you would like to ask me I shall be only too pleased to answer.

**The Chairman:** I must thank Mr. Head for his explanation of the position and the Controller's difficulty. I have already expressed our appreciation of his troubles and also of the assistance which has always been given by all the Controllers that we have so far had to deal with. We further appreciate the difficulties experienced in the small municipalities where they do not so easily learn the Controller's requirements due to their less fortunate position arising from lack of personal contact.

What we still have to consider is how are we going to deal with post-war affairs. You will find that every manufacturer will be trying to deal with huge orders for plant and equipment and consequently some form of control will be necessary. When this Association drew the attention of the Government to the need of establishing some central authority for dealing with that matter the reply was "no." The reply in fact was against the inauguration of the proposed form of central organisation which we put up for consideration after it had been carefully thought out. It is desirable to point out that this proposed body would sit in an advisory capacity to the Supply Directorate on matters relating only to the acquisition of supplies generally, whether by import or ex local stocks.

It is probable that the Municipal Electricity Supply Industry comes mainly within the purview of the two Controllers, namely, Iron and Steel, and Building Materials, and your attention is particularly invited to the Electrical Engineering Section of the latter in which your Association is interested. The Controller of Building Materials is responsible for controlling electric cables. The reply from the Director General of Supplies to our proposals states that the Controller or Directorate of Supplies is the organisation which will ultimately deal with the matter. We have offered a suggestion whereby we might assist these bodies.

Your Executive Council felt that it was necessary to draw the attention of the Director General of Supplies to the need for introducing right away some form of central co-ordinating organisation representative of our members who will be able to play their part in planning for the future of the electricity supply industry. That

object is very necessary in my mind and we should formulate some means of achieving it.

**Mr. Gregor:** I must agree with what Mr. Angus said. I also agree with what Mr. Head has to say in regard to how our needs of electric cables in this country can be met. We are working under war-time conditions and accordingly have to meet wartime conditions. To give you an instance; within the past three weeks I had occasion to buy some 4-core low tension cable for replacement and I had no difficulty having supplied the precise information required. The greatest trouble is experienced when the parties do not explain their needs fully. If you explain the position fully to Controllers there is no trouble.

We are building war-time houses to meet the shortages due to present abnormal conditions. Transformers can be bought to-day in almost any size up to 500 kVA. I think that the time is ripe for the whole country to be organised so as to use a few standard sizes only. A definite system of standardisation should be put into effect. I think that in this connection work by any one body of engineers to-day is useless. I think that if every engineering body in this country formed a joint committee and interviewed the appropriate Minister, then we should have some results. If all the engineers formed one body they could also petition for a Purchasing Committee. We should co-operate wholeheartedly to ensure that all the machinery imported into this country immediately after the war is standardised. Experience gained overseas gives us a definite standard on which to base our plans for the future in this country.

**Mr. Foden:** I agree with many of the remarks of Mr. Angus. If we are not careful we are inclined to be a little frivolous in our demands. We have to bear in mind that Great Britain who supplies most of our heavy power plant is fighting for her very life on her own behalf and, in addition, on our behalf. It is up to us to have patience and to help as much as possible even though indirectly.

Coming back to systems of Controllers, it is very difficult to keep up with the succession of Government Gazettes. Promulgations come through every day and we on the Electricity Undertakings are puzzled to know under what category we apply for permits. To give an example, in East London we are putting in at the moment a foundation block for a new generator which is a replica of an existing machine. We had kept the shuttering from the previous job, but we did not have some 4½ in. x 3 in. timber for shoring up the shuttering. We had difficulty in getting this timber as we found that the Controllers did not understand that our requirements were for a temporary structure for a machine; they thought it was for a building. Many of the Controllers are staffed with people who do not understand our requirements. I would like to definitely move that this Association approaches the Director General of Supplies to give us direct representation so as to place us in a position to make recommendations for any material required by the power supply industry and for this Association to form a committee having as one of its objects the assistance of members of this Association by formulating a code laying down the manner in which applications for permits are to be made.

I concur with Mr. Angus regarding Controllers. So far as we are concerned we have had very little trouble but there is one thing we must appreciate and that is, we cannot expect the Government or these Controllers to give us immediate service. We should definitely anticipate our requirements well in advance and that is a thing which we are not inclined to do. We must look twelve months ahead and plan our programme. Whatever we do we must anticipate our post-war requirements if this country is to get those requirements fulfilled. That is why I definitely move that we get another body who would understand our requirements and who would understand us better than the local District Controllers. We should have one central body in so far as the electricity supply is concerned. That body should be representative of this Association and have an intimate knowledge of the requirements of Electricity Undertakings.

There are many points other than those Mr. Head has referred to, for instance, the buildings for Substations. One Gazette states that if we have to spend more than £100 we cannot build without permits. A substation can be built with locally available material. For example, we probably have the necessary bricks and wood, etc., but we still have to get a permit for that building. Delays occur in that we do not anticipate building requirements far enough ahead.

I definitely move that this Association make representations to the Director General of Supplies for the establishment of a body to which the Electricity Supply Undertakings could make representations for their requirements and that the personnel should be experts to deal with those many items other than electric cable.

**Mr. Mail:** Seconded.

**Councillor Olley:** What I would like to say is that this discussion about the acquisition of materials brings us back to what we talked about yesterday. Here we have again those troubles which arise from small committees running tiny plants. I maintain that if we are to have a new order and a new system let us begin at the top (or bottom if you like) and have some kind of foundation on which the Electricity Supply Commission should undertake all the supplies for the whole country. Large and small municipalities take the view that their plants are their especial charges. I can realise that places like Cape Town, Port Elizabeth, Bloemfontein, etc., may be reluctant to hand over to the Commission; they are all reluctant to part with their own responsibility but, on the other hand, you are going to have the same old order of things with everyone trying to do something individually on the cheap and then you get inefficiency. Any municipality that cannot afford the expense of sending a member of their municipality to see a Controller should not be allowed to run anything. I cannot see why the Electricity Supply Commission does not take over and make a point of extending in a big way and go all out for large-scale development rather than having small places everywhere. The whole trend of the discussion this morning seems to be trying to refer to post-war planning. If we want to plan the expansion of the supply of heat, power, light, we should all get together as a body and not trust to chance in allowing all these little shows to run plants all over the place.

**Mr. Mahon:** Mr. Gregor mentioned the unduly large range of sizes in which it was possible to buy transformers. It may not be known to you that the British Government has, through the British Board of Trade, limited the number of sizes of standard transformers and their permissible fittings which can be manufactured in Britain. Unfortunately I have not this data with me at the moment, but I will be pleased to send it to members who are interested.

**Mr. Angus:** As far as I am aware, gentlemen, the Controllers are not open to interview. There was an occasion three years ago when I was up here in Pretoria that I badly wanted to see the Controller of Buildings, but I was told that interviews were barred. Mr. Bevington is wrong in saying that our applications get special consideration as his application gets the same treatment as mine. No preferential treatment is given for the small or bigger municipalities.

**Mr. Sparks:** I feel that we do too much by correspondence with the Controllers. I think a deputation to a Controller can get much more done by discussion and that we should persuade the Government and our Town Councillors to adopt this principle.

I join with several of the previous speakers in saying that we should not start our discussion as to how to present our requirements until we agree on the question of post-war planning. The whole crux of the question is the subject of future planning.

**Mr. Powell:** Even if municipalities are not to operate their own electricity undertaking or to possess them in any way, only to control them, an attempt should be made to bring about measures of standardisation in which they could co-operate. We each tend to come forward with our complaints and say that these are the most important in the Union, and do the same when applying overseas. We each tend to feel that if we do not get our requirements that quite possibly South Africa will be going off the map. I do think that a central authority should be established to put forward a planned and co-ordinated scheme to submit to the overseas authorities so that they can arrange with manufacturers to give priorities to the most important schemes.

I noticed the other day in the Technical Press that both in Australia and New Zealand they are experiencing a shortage in the supply of power. I understand that in New Zealand they are now in the process of formulating a plan for the post-war plant required for the two islands. They are anticipating that they will probably want 5,000,000 kVA for each island. That sort of thing will be taking place all over the British Commonwealth. How can we ever hope to obtain our ends by sending separate letters concerning priorities? I feel that the case should be represented by some one central authority in this country to represent the whole of the electricity supply industry.

**Mr. Head:** I am afraid that I may have misled you in stating previously that if any material could be manufactured in this country no export licence would be granted. The issue of an export licence in Great Britain or America is controlled by a consideration of the grounds on which the certificate of essentiality from this country has been issued.

**Mr. Clinton:** I feel that everything Mr. Head has said reinforces our argument that the central authority should be representative of



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this Association. It does appear that the Electrical Conductors Advisory Committee represents commerce very well, but surely it should be more representative of the purchasers.

In regard to the purchase of power plant, as you are aware, the matter was discussed by our Executive Council some time ago. At that meeting it was decided that we should endeavour to get the Government to establish a body that could co-ordinate the requirements of all members of this Association which it would appear were now being submitted by each municipality direct to the Government or through the Electricity Supply Commission. I may mention that Sir John Kennedy, chairman of the British Government Committee on Heavy Electrical Plant, is already going into the question of the heavy plant requirements (especially turbo-alternators and boilers) which will be required for use in 1947 and 1948. A copy of his letter dated 16th July, 1943, has reached this Association and all other parties in Britain, the Dominions and Colonies who will be wanting plant of British manufacture after the war. This Committee is not only co-ordinating all these requirements, making due allowance for the needs of other European countries, and allocating work as between the various manufacturers, but is also advocating the adoption of one of two standard sizes as far as practicable, viz., 10,000 kW. (400 lbs./sq. in. and 800° F.) or 30,000 kW. (600 lbs. and 825° F.). We are most strongly urged not to undertake negotiations with contractors until this programme has been completed. This committee, gentlemen, means business and is a fine example of the type of central authority which we lack in this country. Such an arrangement should be adopted here otherwise we are going to put a lot of separate schemes forward which some committee five or six thousand miles away will have to assess. Therefore I would like to move an amendment to Mr. Olley's suggestion. First of all we should ask for representation upon all the controls which deal with consumable goods required for the Electricity Supply Undertakings. Secondly we should ask the Director General of Supplies to appoint a panel to deal with the Purchase of Heavy Industrial plant in post-war Europe. Thirdly we should suggest to the Government that they appoint a Joint National Electric Power Board, comprising all bodies associated with the supply industry. In this connection I now also move the adoption of two more relevant portions of the draft motion we have before us in our agenda sheets—namely, item (d) of the preamble on Page 4, viz.: “. . . that measures should be initiated by the appropriate Government Department to:—

(d) ensure the co-ordination and acquisition of materials and equipment for such development schemes;” and item 9 on Page 5 which deals with one of the functions of such Joint National Electric Power Board, viz.:—

“9. the co-ordination, standardisation and acquisition of material, equipment and spares required by electricity undertakings in the prosecution of their functions, and making recommendations to the Director General of Supplies;”

This provisional motion will deal with the ultimate problem.

**The Chairman:** Before we adjourn for tea I think we should dispose of one item which is outstanding. I think that if this Association

feels that it is not sufficiently represented on the Public Utilities Advisory Committee then we should make representation that we should have an A.M.E.U. representative on that committee. I would like to have a specific resolution put before the meeting to that effect if this is your wish.

**Mr. Head:** In my original advice to the Controller of Building Materials I stressed that there should be on the committee a representative on behalf of the Municipal Electricity Undertakings in South Africa. The Controller considered that Mr. Price of the Electricity Supply Commission could represent everybody in the electric supply industry, but I have never been satisfied with that arrangement.

Moreover, I am certain that if you would like somebody representing the whole of the Municipal Undertakings on the Electrical Conductors Advisory Committee the proposal would be welcomed by the committee.

**The Chairman:** I want to say that there is nobody more respected in this Association on any of the Control Panels that we have heard of, than our friend Mr. Price. (Applause.) He is a long-standing past member of this Association and he has, in his present capacity with the Electricity Supply Commission, a very close knowledge of all the problems of the Supply Commission. Nevertheless, I make so bold as to say that he does not have sufficient contact with municipal undertakings to represent our Association on a committee concerned with their electrical requirements. While I personally feel sorry that the Association should suggest to the Government that it should be separately represented, I do at the same time appreciate the valuable services which Mr. Price has rendered.

**Mr. Halle:** It should not be left to this late date, at a conference like this, for us to find out what material is being made in this country. If we had a representative on these committees to know how the position changes from time to time he could keep us informed. Very often work is held up owing to lack of supplies, but subsequently the position is changed. Our Controllers are usually very busy with other matters, so how can we, the smaller people, know how the position is changing from day to day and when things are becoming available and when we can get supplies? I think that if we had a representative to see that circulars are sent out to let us know what the position is, whether more stuff is coming into the country, or what is being made locally, it would be to our advantage.

I move that a representative of this Association be appointed to serve on the Electrical Conductors Advisory Committee.

Seconded by Mr. Gregor.

Unanimously carried.

**Mr. Foden:** I move that a representative of this Association be appointed to serve on the Public Utilities Advisory Committee.

Seconded by Mr. Angus.

**Mr. Berry:** The Chamber of Commerce has seen so many various forms of trouble with Controllers that any suggestion of representing yourself on an Advisory Committee would, I feel, not help you very much.

It is in connection with the immediate post-war position, when there will be a scramble for material and equipment, that I make the suggestion that you agree amongst yourselves to a voluntary method of control. I suggest that you appoint a committee of your own and all agree that your capital requirements will be lodged through that body and get that body recognised by the Government to deal with all your needs, whatever they are.

**Mr. Price:** Mr. Chairman, I would like to thank you very much indeed for your very warm welcome and remarks. I feel it my duty to point out to you that your suggestion to have a representative on the Public Utilities Advisory Committee will not meet the point. Our recommendation, when it leaves our hands, is still in the hands of the Controller of Building Materials, who has to say whether the requisite material can be supplied or not. We are not in a position to supply you with monthly accounts of what material is available. If you put your case up fully to my committee then it will be dealt with on its merits. However, I cannot too strongly impress upon you the necessity of complying with the Government regulations, namely, to give full reasons with applications as to the essentiality for the materials which you require for a scheme at any time.

I think that what you are after is some means of dealing with the question of priorities in the rush which is going to follow the war. It is not the duty of my committee to deal with priorities; we simply say whether projected work is considered to be a necessity. I feel it my duty to point out these facts to you.

**The Chairman:** We are indebted to Mr. Price for his comments. He was not present when it was pointed out that an approach had already been made to the Director General of Supplies on the very lines now suggested by him, and had been turned down. We asked the Government to organise a central body to control and co-ordinate post-war supplies. This was refused. Whether the point can be raised again or not, I do not know; that will be for the Government to decide. I therefore recommend that the Government be asked to establish, as soon as possible, the Joint National Electrical Power Board which we have under consideration to deal with the matter of co-ordination for the present and future.

These other items we have been discussing were brought up as stop-gaps to be used until such time as this body is constituted. I think we are still perfectly in order to proceed in getting what we can in the way of representation on such bodies as may be prepared to accept us, but we must not lose sight of the fact that what Mr. Price has referred to has been turned down once in the recent past.

#### TEA INTERVAL.

**The Chairman:** It has been proposed that representations be made that this Association be permitted to appoint a representative on the Public Utilities Advisory Committee. Since our discussion of this matter before the interval, I have met Colonel Ewer, a member of that committee who is also an old and distinguished member of this Association whom we welcome very heartily to our meeting. I am sure his voice has often been heard in sympathetic support of every reasonable request for permission to extend electricity undertakings

which are necessary in the National interests. He was at one time President of our Association and knows all the trials and difficulties which are experienced in electricity undertakings.

I put the proposal that representation be made that this Association be represented on the Public Utilities Advisory Council.

Unanimously carried.

**Mr. Angus:** Is it your intention that Colonel Ewer represents the Association?

**The Chairman:** That is a matter for the Convention to decide. The question of such representation is one with which we might deal after our provisionally adopted proposal has been approved by the Convention as a whole when we report to the combined session to-morrow. (Agreed.)

Gentlemen, we will now proceed to the further motion which we have before us which I would ask Mr. Foden to read again.

**Mr. Foden:** After listening to the various discussions, I think I prefer the idea suggested by Mr. Berry to the original proposal. I move that "this Association appoint a Committee with power to investigate and co-ordinate the requirements of plant and materials required by Municipal Electricity Undertakings and to advise the appropriate authority appointed by the Government to regulate the supply of materials required for the operation, maintenance and extension of electricity supply undertakings."

**Councillor Olley:** I would like to second that proposal. I think it is a very fine suggestion, and it seems to me that you are going to get further by doing this. You will never get anywhere unless you help yourselves and it honestly seems that you would otherwise be tending to go into the same old rut. I think you will do right to pass this resolution. It may be a wise step to allow your Executive Council to nominate a committee; this might be a better idea than to nominate it from here. One point I would ask is how are you going to finance that committee?

**The Chairman:** I do not know how the question of finance will be met. What certainly is wanted is the co-ordinated immediate and post-war requirements for the next 5 years. The proposal appears to me to contemplate that the Council of the Association itself, with its powers of co-option, might very well form that committee, if they thought this to be fitting.

**Mr. Foden:** I am afraid I do not know, on second thoughts, whether that would be suitable. It appears to me that this work is going to be a very definite full-time job and that must be seriously borne in mind. I definitely think that as this work would be in the interests of the various electricity undertakings throughout the country who are members of this Association, they will assist with the finances necessary to get this body formed. The committee would have to assess and co-ordinate all the work contemplated at the present moment and also the post-war requirements. Serious consideration must be given to the matter because I do think that the committee will have a full-time job and they will have to be paid.

**The Chairman:** Apparently the proposal is to have an additional committee which would be a voluntary one, in addition, I presume,

Mr. Foden, to the Joint National Electric Power Board, I would like Mr. Foden to make it clear if that is the intention.

**Mr. Foden:** That is the intention, Mr. Chairman.

**Mr. Angus:** May I ask whether any of our Councillor friends will express an opinion on what recommendations they will make to their Councils for the release of the services of the Engineers for this committee for the 10 days at a time which they will have to put in?

**Councillor Olley:** If I may speak again, in reply to Mr. Angus, as far as Salisbury is concerned we would always release our Electrical Engineer. Any Council which will not release their Engineer for this purpose has something wrong with them. It is for the benefit of the Town Council; they would be trying to do the Town Council a good turn.

**Councillor Dickinson:** The draft resolution on Page 5 of our agenda concerning the Joint Power Board seems to cover the whole of Mr. Foden's proposition.

**The Chairman:** My understanding of the intention is that the Joint National Electric Power Board would be constituted under some Ministry, and naturally it would report to the appropriate section of the Government.

**Mr. Angus:** Surely, Mr. Chairman, the correct procedure would be to report to the Minister of Economic Development.

**Mr. Foden:** Would it not report to the Director General of Supplies as far as immediate requirements are concerned?

**The Chairman:** The motion that we have before us appears to be to the effect that this Association appoints a committee which will investigate the requirements of plant and materials of all municipal electricity undertakings and report to the Joint National Electric Power Board which is suggested in our draft resolution.

It occurs to me, Gentlemen, that we may still have to alter the wording of this slightly according to the powers which are given to the National Joint Electric Power Board if and when it is established, so that this Association's views now expressed may be recorded as final and bearing our authority to make these representations and reports. I take it that the intention of this meeting is to adopt this proposal in principle leaving your Executive Council to deal with the details of it as and when it is possible.

**Mr. Angus:** May I suggest that we substitute the last few words referring to the Joint Power Board and put in "Appropriate Government Authority." Alternatively would the Convention consider, before we discuss this at to-morrow's combined session with Section B, the possibility of the Electricity Control Board handling this. Perhaps if the E.C.B. had its powers extended to cover our requirements it would do away with the necessity for creating one more authority.

**The Chairman:** At the present time I rather doubt if the Electricity Act could be amended within a reasonable time to make this possible.

**Mr. Ritson:** Mr. Chairman, I think we are getting far too many controls. I think we have got enough boards and now we are forming another committee. As stated just now we have got to get our representatives together from all over the country, which takes time. What I was wondering was whether a representation could be made

for the Joint Power Board to extend their number sufficiently to take up all the work which you suggest our voluntary committee should do.

**The Chairman:** I now will put to the vote Mr. Clinton's motion that we adopt Item (d) on Page 4 and Item 9 on Page 5 of the agenda. These are in extension of the proposals which have already been adopted by this section under another chairmanship, namely, that the proposed Joint National Electric Power Board should be appointed with executive and advisory powers for, inter alia, the co-ordination, standardisation and acquisition of material, equipment and spares required by electricity undertakings in the prosecution of their functions.

Motion carried.

In our previous discussion it was made clear that the A.M.E.U. Committee which we are proposing to constitute will be an advisory body to the Joint National Electric Power Board which would be "an appropriate authority appointed by the Government" which is included in Mr. Foden's motion. Accordingly I will put Mr. Foden's motion to the vote.

Motion carried.

## SECTION A.

### WEDNESDAY AFTERNOON, 2.30 P.M., 26th APRIL.

#### 3.00 THE PERSONNEL OF ELECTRICITY UNDERTAKINGS AND POST-WAR REHABILITATION.

Chairman: Mr. J. H. Angus (Port Elizabeth).

#### 3.10 National Salary Scales.

3.11 The desirability of establishing minimum salary scales throughout the Union of South Africa, graded according to the output of an electricity undertaking and other relevant factors, for:

(a) Senior executives.

(b) Power station superintendents downwards.

3.12 The case of undertakings which do not generate their own power requirements.

3.13 Experience in Britain and elsewhere.

#### 3.20 National Pension Schemes.

The desirability of establishing, on a national scale, provisions within existing pension schemes which do not vitiate the security of an individual transferring from one electricity undertaking to another.

#### 3.30 Apprentices.

3.31 The effect of the war in disturbing the flow of skilled artisans.

3.32 The intensive training of youths who joined the armed forces before completion of their apprenticeship and the financing of such schemes.

3.33 Extension of the Apprenticeship Act to Electricity Undertakings only in areas not at present covered by the Act.

3.34 The possibility of training "Power Station Apprentices" as a future source of shift engineers and other operating staff.

#### 3.40 Rehabilitation Plans.

3.41 The draft "Volunteers Employment Bill" published for general information and suggestions in Government Gazette Extraordinary, 3rd November, 1943.

- 3.42 Powers and constitution of Volunteers' Employment Board and Committees.
- 3.43 Provisions concerning apprentices.
- 3.44 Provisions covering credit for experience in the technical branches of armed forces and facilities for technical training.
- 3.45 The extent to which electricity undertakings can assist in the rehabilitation plans and the nature of their representation on Volunteers' Employment Committees.
- 3.46 Any comments and suggestions which should be forwarded to the Secretary for Labour.

### 3.10—NATIONAL SALARY SCALES.

**The Chairman:** I will call on Mr. Powell to give a resumé of the M.E.E.A. salary scales for chief executives and also the E.P.E.A. scales for power station personnel.

**Mr. Powell:** Mr. Chairman, Gentlemen, — First of all, I am not too sure whether we ought to discuss the subject of salary scales at this conference. I feel this is not one of the subjects we are competent to consider. This is an Association of Municipal Electricity Undertakings, not an Association of Municipal Electrical Engineers, and I am just wondering what the feelings of our Councillor friends will be, as they provide the money for us to attend these conferences, and we discuss how we are going to increase salaries at their expense.

Before I give you any detailed information about the various schedules of salaries, I would like to express my uncertainty as to whether the Association is capable of giving a clue to the solution of the problem in this country. We have several difficulties to contend with—the small number of large undertakings, the large number of small undertakings where dual duties are performed, and the widely diverse conditions and differences of cost of living in the towns.

**Councillor Gearing:** Mr. Chairman, I consider this a most appropriate body to discuss this question, because you have present representatives of both points of view. Even acknowledging that certain Councillor Members may be non-technical, nevertheless I think it better for a body such as this, consisting of Councillors and executive heads of departments, to discuss the question fully and freely.

**Mr. Foden:** I quite agree that a Councillor should know all the details regarding salary scales, and certainly should discuss all pros and cons, so that he can put a concrete case before his Executive Committee.

**Mr. Powell:** I do not know if you are aware, gentlemen, that in Britain the salaries of all the technical staff and officials from the chief engineer down to switchboard attendant level are controlled by schedules of salaries framed by joint bodies representing the employers and employees. For matters of diplomacy, there are actually two Associations. For chief officials there is the Municipal Electrical Engineers Association (which must not be confused with this Association, which is an Association of Municipal Electricity Undertakings, and has its counterpart in England in the I.M.E.A., or the Incorporated Municipal Engineers Association). The M.E.E.A. is a body which has framed the salaries schedule applicable to

all chief executives. For all grades from deputy chief electrical engineer down through power station engineers, distribution engineers, technical assistants, etc., we have the Electrical Power Engineers' Association, known as the E.P.E.A. The major difference between the two bodies is in the method of applying salary schedules. In the case of the M.E.E.A., salaries are based on units sold, whereas in the case of the E.P.E.A., they are based on kilowatts installed or, alternatively, generated, in the latter case based on the half-hourly peak loads plus 75 per cent. This is materially how the two bodies are operating on the salary side.

The two protective associations are affiliated, and each publish notices in the technical press, drawing attention to any advertisements inviting applications for posts where the salaries offered do not conform with the applicable schedule of salaries.

The first Association to be formed was the E.P.E.A. in 1913, in the days when shift engineers in England were getting 30/- per week. In 1917 the Association, which up to that time had had a stormy passage and had been handicapped due to the Great War, applied itself to remedying the state of affairs then existing. As a result of the Great War, the cost of living increased by leaps and bounds, but no corresponding increase in salaries (except in a very few cases) had accrued in respect of engineers in electricity undertakings, although the manual workers, who were organised, received regular increases as the cost of living rose.

Following strong and persistent representations and protracted negotiations, the Association was successful in 1919 in securing the once famous but now almost forgotten 9281 Award, resulting in the grant of increases of 20 per cent. of salary plus £90 per annum to members of technical staffs. This award was adopted by the great majority of electricity undertakings.

In 1920 this Award was merged into and succeeded by what is now commonly known as the National Joint Board Conditions of Employment and Schedule of Salaries. This schedule is recognised as the standard of remuneration for the technical staffs of electricity supply undertakings. These conditions and schedules have been put into operation by almost every electricity undertaking in the United Kingdom to which they are applicable.

## MAIN OBJECTS.

Among the objects of the Association are the following:

- (1) To promote the general advancement and efficiency of the means of production, transmission, distribution and utilisation of electricity.
- (2) To raise and maintain the efficiency and general status of engineers engaged in the electrical industry.
- (3) To act as a protective organisation and to obtain for its members the best possible conditions of employment and remuneration for their services.
- (4) To provide legal assistance for its members in matters relating to their professional occupation.
- (5) To promote educational and social intercourse among its members.



(6) To institute an unemployment fund for the general assistance of its members.

(7) To maintain a benevolent fund for the benefit of members or their dependants.

It is worthy of mention that all of the above objects have been either wholly or partially attained in England as a result of the activities of the Association.

### HOW IT IS CONSTITUTED.

The organisation of the Association is on a democratic basis and the system of government, in brief, is as follows:

There are some 34 branches grouped into seven divisions, each divisional area being governed by a Divisional Executive Council constituted from the sections which comprise the area covered. The supreme government of the Association is vested in a National Executive Council which is composed of members elected annually from the Divisional Executive Councils.

### MEMBERSHIP.

Membership of the Association is open to:

- (1) Any engineer who holds, or is qualified to hold, a responsible position requiring skill, training and technical knowledge of engineering directly concerned with the production, transmission, distribution or utilisation of electrical energy.
- (2) Any engineer, whether civil, mechanical or electrical, in charge of plant in works engaged on industrial production, providing he is qualified to hold a responsible position in the engineering profession.
- (3) Any person employed in the sales and commercial department of an electricity undertaking provided that:
  - (a) he has had an approved training both theoretical and practical, as an electrical engineer, or
  - (b) he has held, for at least five years, a responsible position on the sales or utilisation side of an electricity undertaking.

In addition to these functions, the Association also runs a very commendable tuition scheme. Several qualified members of national and local technical groups and technical lecturers have undertaken Association correspondence courses; they also have science courses, sales courses, etc., and they have established an unemployment bureau, consultation, medical, dentist ophthalmic services, library services, motor car insurance, relief schemes and group pension scheme. In short, therefore, they are completely organised to cater for the welfare of the electrical power engineer.

The M.E.E.A. was established on more or less similar lines as a result of the E.P.E.A., because it was felt that it would not be politic for the chief electric engineer to be a member of the latter. The reasons for this will be fairly obvious to you. The main difference between the two is that the E.P.E.A. schedule of salaries is based on kilowatts installed, while that of the M.E.E.A. is based on units sold.

So, therefore, gentlemen, that is briefly the position in England. Two bodies exist, each with their respective methods of working.

Whether it is practicable to form such a body in this country, and whether you have the strength to put it into force or not, I do not know. The E.P.E.A. has a membership of just over 4,000, and the conditions of salaries have been accepted by the great majority of undertakings — 654, I believe — in England. I might mention that in 1910, when I became a member of the Association, in the case of the undertaking where I was employed, we came to the point of threatening to shut down the power station at ten o'clock in the evening and walk out. Such was the case in those days when people did not appreciate organisation.

Therefore I leave it to you to discuss whether you will form such a body with a view to establishing salary scales in this country. It appears to me that your chief weakness lies in the small number of large undertakings in this country. I do not think you will ever be able to do much for the small dorps.

**The Chairman:** Might I ask you, Mr. Powell, to give the meeting an outline of the basis of national salary scales in M.E.E.A. schedules for undertakings which generate their own electricity on the one hand, and undertakings which purchase their power, on the other hand? You have already indicated that the salaries above are based on capacity. The chief engineer's salary is based on various factors, which change with the undertaking. Several factors are involved, such as bulk supply and generator capacity.

**Mr. Powell:** That would be rather complicated, Mr. Chairman.

**Mr. Foden:** I think I know what Mr. Powell means. I would suggest, with your concurrence, that he gives a shift engineer's salary for a station of, say, 5,000 kilowatts, and a chief engineer's salary for a station of, say, 4,000,000 units output or units sold per annum.

**The Chairman:** The chief engineer's salary, in the case of an undertaking which generates its own power supply, is based on units sold by the Undertaking. In the case of undertakings which do not generate their own power, but buy their requirements (in particular, from the Electricity Commission), it is based on a percentage of the purchased current. Also, where an undertaking is fortunate enough to have a consumer who takes half of the generated output, no credit is due to the "generator," and therefore his salary is governed by a graded down percentage of the bulk supply. Because of these gradings down, he finishes up with a salary which is adequate for the undertaking he controls; this is a fair method of assessing it.

**Mr. Turner:** Mr. Chairman, in dealing with the personnel of electricity undertakings not generating their own power but taking what we term a "bulk supply," I feel a lot may be done by this Association to improve the status and, in many cases, the salary scale of those executives who guide the destinies of undertakings bereft of their power stations. These executives to-day are variously styled town electricians, foremen or chief electricians, town and electrical engineers, distribution foremen and a variety of other names totally incorrectly applied. Coupled with this is the most extraordinary fact, the reason for which I have never been able to fathom, that these electrical executives in many of the larger towns, particularly on the Reef, are subservient to the Town Engineer.

To-day we live in an age of experts or, better still, in an age of specialists. The electrical engineer, whose technical training and experience covers the whole field of electrical engineering from the power station to the front door electric bell, would to-day find it difficult to find full scope for his talents, in South Africa at any rate. The number of large, municipally-owned power stations in the Union to-day may be counted on one's right hand. What Municipal stations there are are one-eyed shows, and will eventually be absorbed into the large centrally-situated undertakings.

Now, the larger the power undertaking, the more specialised are its operatives. This point was strongly brought home to me yesterday when we visited Orlando—a station pushing out 40,000 kW with a staff, I think, of about a dozen skilled artisans and a shift engineer. No doubt the skilled mechanical fitter working on the steam end of a turbo-generator has not the remotest interest in the activities of the electrical fitter on the generator end of the set. This is rightly so where each section of the faculty of electrical engineering has grown and developed into its own specialised branch in recent years.

I submit that the electrical engineer in charge of an undertaking purchasing a bulk supply is a specialist. Distribution of electricity is to-day a subject as intricate and as important as the generation of this energy in the power station. The old-time collection of poles and wire leading out of a power house, and connected to a number of lighting consumers, and thereby termed a distribution scheme, are past. The advent of domestic electricity consuming devices of every conceivable kind, power apparatus, medical equipment, radio apparatus, etc., have made it important and imperative that the distribution of electrical energy at correct pressure, constantly and efficiently, shall be one of the prime considerations and the duty of the supply authority. To carry out this work requires the services of a skilled and technically qualified electrical engineer. If it is done by any other we invite inefficiency, incompetence and unsatisfactory service to the consumer.

Coupled with a sound technical ability, it is necessary for the bulk supply operative to be a businessman in the fullest sense of the word, dealing as he does with consumers of electricity of great variety, paying for energy under a number of tariffs, all designed to meet the best interests of both the consumer and the supply authority. A study then of the science of economic or business ability is essential to the requirements of the engineer in charge of the distribution. He would require to be a business-manager cum electrical engineer or, to follow the practice in Great Britain, manager of the electricity undertaking.

That the manager of an electricity undertaking, particularly a municipal undertaking, bringing in probably the greatest single amount of municipal revenue, should be subservient to the town engineer or mechanical engineer is to be deplored, and tends to lower the status of the electrical profession.

Furthermore, the salary paid to the manager of the greatest revenue-producing department should be amply commensurate with

his qualifications and ability — a matter, I am sorry to say, is not the case in South Africa.

In conclusion, Mr. Chairman, I suggest that this Association considers the following:

- (a) That an endeavour be made to set out the technical requirements of an executive operating a bulk-supply necessary to bring up the status of such individual to that of "manager," in preference to the many unfortunate and misleading names now in existence.
- (b) That electrical engineers now subservient to civil, mechanical or town engineers take steps through this Association to become established as heads of their own departments, or managers of the electricity undertaking.
- (c) That salary scales be laid down and submitted to each bulk supply authority for their comments.

**Mr. Foden:** I have little to add to the discussion, gentlemen, as the ground has already been covered to a greater degree than I have done in the notes that I have prepared.

There is no question about the fact that it is desirable to establish a minimum salary scale throughout the Union of South Africa for all members of the staffs apart from artisans and unskilled workers engaged in the power supply industry, including senior executives, power station superintendents and shift engineers; the grading to be in accordance with the output of the undertaking or any other relevant factor, such as maximum demand.

If we had had a salary scale for shift engineers and upwards, I do not think that the Factories Act would have operated quite so harshly against municipal undertakings, because we could have said: "We have a definite salary scale, therefore we are catered for," and I do not think the Factories Act would have been applicable to us. This is borne out by Cape Town.

This principle has been recognised in Great Britain for very many years and, dealing with the chief electrical engineers, the salary scale for those officials in Great Britain is based upon the unit assessment per annum; briefly, this means the units sold. The method of arriving at the units sold is defined in an arrangement made between the National Joint Board of employers and members of staff for the electricity supply industry after consultation with the various District Joint Committees operating under its jurisdiction. It is very clear that the method of assessing chief electrical engineers' salaries under that system is most desirable inasmuch that there is a direct incentive to increase the number of units sold, and consequently that official will make every endeavour to popularise the use of electricity in the town to which he is attached.

Regarding the salaries of other officials below the chief electrical engineer, such as the deputy city electrical engineer, superintendents, and so on, these are catered for by the salary schedule formulated by the Electrical Power Engineers' Association and adopted by the National Joint Board of employers and members of staff for the electricity supply industry. This salary schedule is based on the capacity of the power station or the maximum demand. It is very clear to see how this operates in all equity to every member of

the technical staff employed in the undertaking, as their salaries are increased in proportion to the capacity of the power station. This method assessing salaries has also been in operation in Great Britain, to my knowledge, for at least 26 years and has given comparatively little trouble in its application.

In so far as the salaries attaching to employees engaged in electricity undertakings which do not generate their own power, the Electrical Power Engineers' Association's salary schedule, to which I have previously referred, caters for these conditions also.

**The Chairman:** I am glad that Mr. Foden has brought out the point that an increase in the engineer's salary and the staff salaries is dependent on an increase in capacity by growth of industry. If that incentive is there, then the engineer is going out for an increase in salary while he is also going out for your business: I would like to have some comments from our Councillor friends on this point.

**Mr. Powell:** May I mention, just before we go into the question, that these schedules of salaries as regards the E.P.E.A. work on a sliding scale.

**Mr. Foden:** With regard to Councillor Members, I am just a little doubtful whether we should ask them to give their opinion before they have had an opportunity of discussing the matter with their Councils in its entirety. I would suggest, and I am quite prepared to put a motion to that effect, that this Association form a sub-committee to investigate the salaries of chief electrical engineers and downward on the basis of scales which we have, and that we refer these salary schedules to the Councils of Municipalities for their acceptance or otherwise. It puts the Councillors in a very invidious position to say whether they will agree to it; one Councillor might agree, but the Council as a whole might not.

**The Chairman:** I agree, but it may be of interest to the engineers to know what the Councillors' reactions would be. If a Councillor agrees that a national salary scale is a good thing, he might be able to convince the majority. If any Councillor does not wish to subscribe to this principle, he can indicate so.

**Councillor van Wyk:** Menere, dat daar nie 'n groter aantal verteenwoordigers van die munisipaliteite van die kleiner soort hier aanwesig is, traak my baie.

Onder daardie munisipaliteite is daar verskillendes, b.v. ons eie Piet Retief en daarby Standerton, Volksrust, Bethel, Bloemhof, ens., wat leiding deur die groter sentrums graag verwag.

Piet Retief se ingenieur behandel elke moeilikheid wat in verband met enige tak van die ingeniëweskus daar te voorskyn kom. Hy kan nie volkome beskrywe word as die ingenieur wat die elektriese toevoer behandel nie, want hy is selfs ook dorpsingenieur. Sulke beaemptes werk liewers uit die voorspoed van die gemeente, en nie met die oog vas op hul loon gemik nie.

Ook word hulle salarisse tans bereken teen wat in elke saak bekortig kan word. Miskien betaal een sentrum £50 per maand en 'n ander so min of meer £70, afhanklik aan die geld wat beskikbaar is. Om bepaling van wat vir hierdie mense skynbaar 'n regverdige salaris is, moet ons hierdie by-eenkoms raadpleeg.

Daar dit ongetwyfeld vir ons so baie sal help, sal ek bly wees

indien dit moontlik blyk om 'n definitiewe skaal vas te stel. By ons klein gemeente is die ingenieur die dorp se belangrikste amptenaar, en wat hy verdien wil ons ook graag vir hom gee.

**The Chairman:** The difficulty I foresee will be this: the small Councils pay what they can afford, which means that they might not be able to work to a national scale. This means that a separate scale will have to be formulated for small centres by our Association. East London, Cape Town, Port Elizabeth are big centres and, naturally, their salaries will be higher than small centres. So we cannot lay down a scale that would be as applicable for an engineer in East London as for Middelburg or other small towns. Therefore, I think that we should consider the advisability of a separate scale, and if this comes as a motion from this Association, then our Executive Council can consider the matter in detail.

**Councillor Kelly:** As it happens, besides being superintendent of the Randfontein Mine power station, I am a member of the Town Council. I think the fact that we have mine power stations and other power stations in this country, which are not municipal undertakings, should be borne in mind when the salary scale is discussed. Even at the present moment there is a great deal of difficulty arising from the fact that the municipal electricity undertakings come under the Factories Act and our power stations come under the Mines and Works Act. It must be borne in mind that conditions are not similar in Great Britain, as there are no mine power stations.

**Councillor Gibb:** I have listened to the discussion very carefully and the engineers of this Association are putting up a very fine case from their point of view. I might give the other point of view as a Councillor.

I put the case to you, Mr. Chairman, that it is very premature to ask for a national scale at the present time. It is premature for this reason: that, until you have something definite as to where the national undertaking ends and the municipal undertaking begins — until the demarcation line between the national and local authority is established — you are "flogging a dead horse"; you have nothing to build on. You, sir, put the case very ably. You say an engineer must look for further customers to increase his salary. I agree with your methods; but where is he going to stop? You may have your Port Elizabeth engineer wishing to supply juice to East London, Johannesburg wishing to supply the Victoria Falls Power Company, and so on. You have no demarcation lines in your programme.

To establish your case of going out to look for more salary, I might cite our local body in Salisbury. First of all, you may have figures from Great Britain, and figures from Australia, Singapore and Shanghai up on the blackboard for discussion. But there are no parallel conditions. Conditions in South Africa are conditions that appertain in no other country in the world to-day — not even electrically. We have the native problem that wants solving, and to quote figures from Britain as Mr. Powell has done (despite the fact that I would like such a principle established) is, in my opinion, writing on a blank wall. When we were discussing an extension to our electricity undertaking, and we had all these figures before us, we limited ourselves, by a majority in Council, to a certain area. We are

a very limited community as everyone knows, but to supply the mines and to supply every other body outside Salisbury, half of our supply is given to the E.S.C. To base salaries on a unit output basis would be very dangerous in our case, and also in the case of Bulawayo. We cannot accept a scale where units sent out is the determining factor when we are supplying half our output to other parties who reticulate outside our area.

I submit it should be the first duty of this Convention to define, if possible, a demarcation line to establish the outside authority on one side, and the Municipal body's authority on the other. Once you have that, and we know our limits as Councillors, then I have not the slightest doubt that all Councils would support this scheme heartily.

**The Chairman:** One point arising from Councillor Gibb's remarks is that we should consider, if this matter became a case to submit to our employers, whether it would have to include all electricity supply undertakings, both municipal and mine. In Britain, these scales are applicable to all power undertakings. Each local authority has a clearly defined area beyond which the engineer cannot expand.

The point about large consumers is a case in itself. I sell twelve out of twenty million units to a cement company. That would not be credited to me and, therefore, in assessing my salary, that twenty million would be graded down by 80 per cent. and I would only get the benefit of 20 per cent.

In regard to the desirability of nationalisation of salaries at this stage, anomalies have arisen from Wage Determinations and Ivan Walker Awards. There are men in industry to-day who are promoted by virtue of ability and who are on a salary scale where the Factories Act does not apply to them. The men working under them are earning more by virtue of these Acts and Awards. These anomalies could be removed by a national scale.

**Councillor Dickinson:** Speaking from a Councillor's point of view, I agree that to ask a Councillor to vote on this particular proposition places him in a very invidious position. Anything I might agree to here not only places me in an invidious position, but also my Council, who may not be prepared to accept any schedule.

**The Chairman:** It is not my intention to put such a resolution before the meeting, but secure your support in so far as considering the possibility of establishing such a scale and that the Executive Council of this Association be asked to submit the matters to a sub-committee for investigation and report.

**Councillor Whirrell:** So, whatever resolution is passed, it will be referred back to the respective Municipal Councils?

**The Chairman:** Mr. Foden has moved that the Executive Council of this Association be asked to form a sub-committee to investigate the principle of establishing a schedule of salary scales and that they be asked to submit to Municipal Councils a proposed basis for the scales.

**Mr. Ritson:** I second this proposal.

**Councillor Gearing:** An opinion from each centre is called for—from Cape Town, for instance, and, although I have no mandate, I can express my opinion. I would heartily support such a scheme

as you suggest. Far from thinking that the matter is premature, I think it is very timely; in fact, it is overdue. It does not affect large centres very materially, but it does affect the smaller centres very materially indeed. I have the personal opinion that executives in small power stations throughout the Union are inadequately paid. Small towns do not seem to realise the importance of having technically trained men. Their main idea (I do not mean to be critical) appears to be to get the cheapest men. That is wrong in my opinion. Nationalisation of salaries or wages is before us every day of the week, and I think that, if only for the fact that you will be removing many injustices if you get such a scheme through, it is high time you did so now. I have, in my experience of small stations throughout the Cape Province, found men in charge of what you up here would call very small plants. They are styled electrical engineer or town engineer and receive £20 per month. The station superintendent is generally a man on night duty at the maximum remuneration of £7 10s. per month. It is time this sort of thing was stopped; it is wrong. If this method, which seems to be equitable, were adopted throughout the country, it would be entirely to the benefit of the electricity supply industry.

Motion carried.

### 3.20.—NATIONAL PENSION SCHEMES.

**The Chairman:** The next item, gentlemen, is the desirability of establishing on a national scale provisions within existing pension schemes which do not affect the security of an individual transferring from one undertaking to another.

I previously suggested something on these lines myself, but since that time I find that the Transvaal, O.F.S. and Natal already have what is known as the "Transfer of Pension Fund Values." I was not aware that on the 8th August, 1943, a Cape Provincial Ordinance No. 15/1943 was promulgated, which deals with the whole matter of pension schemes. It also sets out a joint pension scheme that small undertakings can ask for. The Administrator is empowered to grant these schemes, and if two or more small Municipalities can get together, they can apply. The whole of the position is set out for your information. Because of this, and the fact that all the ground appears to be covered, we may be wasting time if we go too far with this item, as it is on a reasonably sound footing and can be left there. There is, however, no provision in the Ordinance for enforcing a Village Management Board to agree. This is a weakness, but it can be cleared up later.

**Mr. Bevington:** Can an engineer transferring from the Cape Province to the Transvaal transfer his pension?

**The Chairman:** You must get the authority of two-thirds of your membership before you can do that, i.e., a two-thirds majority of subscribing members. I suggest you go back to your centres and ask the secretary of the local pension scheme what the methods are. I also suggest that you get a copy of the Ordinance and go into this matter.

**Mr. Powell:** Mr. Chairman, there is a slight misunderstanding about



this scheme. Joint pension schemes are only provincial schemes at the present time. It might be termed, if you like, a national pension scheme, but there is no machinery compelling any Municipality to join in. In consequence, you may be associated with a Municipality in which their own local pension fund rules do not permit of transfer. This is the case in Bloemfontein and many other large towns. At Kroonstad, when new employees enter the service, it is a condition, I believe, that they join the O.F.S. pension fund.

**Mr. Rossler:** That is correct, the Kroonstad Municipality is a member of the O.F.S. Joint Pension Fund and, as such, each and every new employee of the staff enters the service under that condition and, in consequence makes his monthly contribution to the Joint Pension Fund. If such a scheme were envisaged here, I foresee certain difficulties; that is, the occasion would arise where members of the electricity undertaking would, of necessity, already be members of the Joint Pension Fund, and it is questionable whether the local authority would entertain two pension funds.

**Mr. Foden:** In so far as the Cape is concerned, Ordinance No. 15 of 1943 empowers local authorities to make provision as to retiring pensions or other financial benefits payable to persons employed by local authorities. Amongst the benefits of the Ordinance are: retirement at the age of 55 for both males and females; provision for males to go on to 60 under certain conditions; and a gratuity on retiring.

In Chapter III of the Ordinance, provisions are made for the transfer of employees from the service of one local authority to another, both within the Cape Province and outside, provided the other authority has adopted similar reciprocal provisions. Arrangements have also been made for the inter-change of employees and the seconding of employees between local authorities.

The Ordinance in effect provides the machinery whereby all local authorities in the Cape can provide pension and allied benefits for their employees, and is the stepping stone towards the ultimate establishment of a Joint Cape Pension Fund, upon similar lines to the other three Provinces.

There is, however, one thing particularly I would like to sound a warning on — the financial aspect. We in East London have our own pension scheme. Certain existing Pension Funds, however, may not be in a financial position immediately to adopt the Ordinance, because such funds must first be certified by an Actuary as being sound, and the period which must elapse from now until the next quinquennial valuation of these funds no doubt varies from say, one to three years. In the case of East London, where an increased scale of contributions was introduced at the beginning of 1943, the Actuary has advised that no increased benefits of any description can be entertained until the next ordinary valuation of the fund on the 31st December 1945. The benefits enumerated in the Ordinance are somewhat considerable and, before some local authorities with an established pension fund will be able to adopt the Ordinance, complete reorganisation of the scale of pension contributions by employees would appear to be necessary.

**Mr. Gripper:** Mr. Chairman, in the first place I understand the

Ordinance which you have quoted concerning the Cape Province, is an enabling Ordinance, in that there is no compulsion. Of course, Municipalities must get together and apply for the joint scheme. Even then, possibly it may mean the transfer of pensions only applies within the Province, and only among those who have taken part in the joint scheme. In adopting this measure, the Municipal Council will be affected, in so far that it is even felt that the Pension scheme is a scheme whereby they hold, to some extent, the young men trained within their organisation.

It might be as well, at this stage, to bring to the fore the question of national salary scales. Once there is a scale, then the question of the man leaving to better himself would not apply, because he is already fairly treated, and it may weigh in the decision of the Council in taking that matter up. We have referred the question of a national salary scale to apply to electricity undertakings generally, not only Municipal Undertakings. On the other hand, it means that, within the Municipality, only the Electricity Undertaking is affected, and there is no suggestion that the scale be applied to other Departments of the Municipality. But the pension scheme definitely affects the other Departments, unless this is taken up in respect of the Municipal Electricity Department only. The trouble is that we, as electricity undertakings, are hampered by Provincial and Local Authority in our development as a national movement.

**The Chairman:** In listening to the discussions that have taken place, it appears that we have tackled something bigger than we anticipated. I do not see why we cannot discuss the problem through the electricity undertakings as concerning ourselves. We realise that a national pension scheme would be applicable to all Municipal Departments, and as such it does not affect our deliberations in pressing for a nationalisation of the provisions of that scheme. It would appear that the transfer of pension fund values takes place, in the case of the Cape, only between the people who take part in it. Values can be transferred between the Transvaal and Orange Free State, I do know that; and in some cases between the O.F.S. and Natal. There is no possibility of any transfer between the Cape and other Provinces at present. This enabling Ordinance does provide for the transfer of pension values of undertakings taking up the joint scheme, and it up to those undertakings with established pension schemes to utilise the provisions of the Ordinance to join in for the benefit of all.

**Councillor Van Wyk:** It costs the small town too much to go over to the scheme.

**The Chairman:** The benefits at a later date are sufficient to persuade people to make the change.

I do not feel that I can suggest any resolution from the Chair. The draft motion in our agenda provides under Item 10 for the investigation of pension funds. If we adopt that, may I suggest that we add the rider that an A.M.E.U. Sub-committee be appointed to investigate transfer between the various provinces. That would cover the point.

**Mr. Bevington:** I second that.

Motion carried.

### 3.30 Apprentices:

**The Chairman:** The question of training youths who have gone straight from school on active service and, on active service, have acquired a certain amount of manual dexterity, is going to be difficult to solve. I have a number of apprentices working under me, and I find that the effect of the war on these lads has been, to say the least of it, unfortunate. They are to a certain extent bound down by the Controller of Manpower, but the reaction on their training has necessitated watching them closely. Other lads have got away. Their first duty was to learn a trade and, if they could be released, they would be allowed to go.

The personnel of an electricity undertaking is divided into various sections, such as technical, administrative, running, maintenance and so on. All these sections are closely inter-related, although there is a tendency in many quarters to regard each section entirely on its own, and to consider, when vacancies occur, that the only suitable people are individuals trained by their own particular branch and not by any other sections of the undertaking.

The first consideration is to ensure that there are sufficient executives and senior operatives, skilled and unskilled labour for the efficient maintenance and running of the plant. The senior appointments can offer promotion to suitable lads on the staff, always provided such promotion is made on merit and merit alone. The proof of merit has been regarded as the possession of a certificate or some documentary evidence. It is difficult to know what we can substitute. Now, a very big difficulty arises in this connection. There are people to whom examinations are easy; others to whom they are anathema. For instance, there may be an Engineer who is perfectly sound theoretically and technically, but he will never pass an examination; he has an examination complex. There should be an opportunity for lads with this complex. Under the Apprenticeship Act (which is under consideration in Parliament to-day) provision is being made for youngsters who are unable to sit their examinations, provided their employer is fully satisfied that they have fulfilled the five years training adequately, and they can be vouched for.

I submit that provision be made in this respect for those many cases of men coming back from war unsuited for writing examinations. Take for example the lad of 16 leaving school, joining the Youth Training Brigade and being transferred to an active service unit, and returning at the age of 23. He is not fit to sit an examination. The provision should be made applicable to returned soldiers. One of the difficulties that will face us in rehabilitation planning is the fact that there will be no jobs into which we can fit these people unless the Government finds it possible to provide work for them within a very short period.

This war will not last very much longer, particularly as regards South Africa. There is no doubt that people in the Army are going to require to be demobilised at an early date. I understand that an official from the Sixth Armoured Division has been in Cape Town going into the question of the provisions for demobilised men, and, from statements made in the Press, it would appear that he is satisfied

that something is being done. I am not satisfied that the provisions being made are adequate at all. Gentlemen, I am going to suggest to you that it would be far better if the Government established, as they have established in the past, schools of commerce, schools of industry, schools of science, or use existing institutions for these purposes. There must be in the Union Defence Force a vast number of men who are experts in their particular line, whose health is such that they are no longer able to take part in active service and, by this, I mean field service. These people could be transferred to schools and other training centres, and every man in the army service can be asked now: "Have you a job to go back to? Do you want to go back to your old job? Is there something you want to pursue?" Then it should be possible for him to have reserved to him a course at a suitable school to train him for a return to a planned life, the planning of which is still in progress.

The Government will not be able to get everything done unless it starts planning now. Plans must not be left till demobilisation has begun. I do see distinct advantages in an intervening period of training between demobilisation and the return to civil life. These lads are taken away from the temptations of unemployment, and are made useful citizens.

Another point is this: We have had touring the country Commissions whose duties are to probe the possibilities of employment. The National Health Commission recently made a report. The Union Defence Force is full of doctors. Many of these will be going into private practice, but there are others who will be looking for something less lucrative. These might be transferred to national health service. Welfare services are necessary, and if we are going to have these on the scale envisaged by the Government, there are not sufficient people available in South Africa. I submit that those people in the armed forces who have no training, but who can express a desire for civil service work, would welcome the opportunity of attending a school for suitable training.

That principle can be applied to all walks of life. I am afraid that, unless such a scheme is not only planned, but all the details that go to the functioning of that scheme are settled promptly, and the complete programme is put into operation before demobilisation, there are going to be very serious consequences.

We are faced with the native problem as well. We cannot turn our backs on them. They have done their bit, and if this country is to have an industrial future, we have to regard our native as something more than unskilled labour. That is the opinion I have formed over the past few years. I submit it for your treatment.

Tea interval.

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**The Chairman:** We had invited Dr. Eybers of the Union Education Department to be present to-day. Dr. Eybers has just arrived back in Johannesburg this morning and it was hoped that he could come and give us the benefit of his findings to date concerning training

and rehabilitation. However, it is unfortunate that he has not found it possible to attend.

We had also asked Mr. Welsh, Chief Defence Force Liaison Officer, to be present, but he has not found it possible to come either.

I will call on Mr. Foden to deliver some notes he has prepared concerning the training of apprentices and power station personnel.

**Mr. Foden:** Under Item 3.31 of our agenda I think it is not necessary for me to enlarge upon the effects of the war in disturbing the flow of skilled artisans. This condition naturally has been brought about by the necessity of concentrating on the manufacture of munitions of war. To allow artisans to move from place to place, enticed as they may be by higher salaries, would not be in the best interests of the war effort and, presumably, it was with that object that skilled artisans were controlled by legislation, and therefore the free flow of such employees such as we understand in peace-time was eliminated.

Of course, the other interpretation of this item would deal with the fact that the flow of oncoming journeymen artisans has been disrupted by virtue of the decrease in the number of youths serving apprenticeship during the war period. This I will deal with later.

The intensive training of youths who have joined the armed forces before completing their apprenticeship is being considered by many bodies such as trade unions, technical college councils and so on. This is a matter which should receive the attention of a sub-committee of this Association, particularly with regard to the financing of such a scheme, as I do consider the cost of this should not be borne by the local authority but by the central government. Although the local authority could undertake the intensive training of youths and men for the electricity supply industry, I consider that the local authorities should receive a subsidy from the central government.

While on the subject of apprentices who have joined the armed forces before the completion of their apprenticeship, and for the information of those present who are not aware of the requirements of the law, I would inform the meeting that a boy who has joined the armed forces after serving four years of his apprenticeship and has served in the armed forces for twelve months, that twelve months would count as a year of apprenticeship. Briefly, the position then is that when he returns from the fighting forces he would be credited with having served the five years' apprenticeship.

I am informed that another consideration is given to apprentices who may be serving in a technical unit, and that is, for instance, after he has served three years of his apprenticeship with his normal employer and has served two years with the armed forces, of which one year was with a technical unit, the apprentice may appeal to the Apprenticeship Committee, and it is in its power to decide whether the apprentice's period of service in the technical unit of the armed forces is equivalent to the same period served at his trade. Therefore, in this instance, a boy need serve only three years with his employer and two years with the armed forces, then the Apprenticeship Committee can decide whether he will be deemed to have served his full five years' apprenticeship.

In regard to the extension of the Apprenticeship Act to electricity

undertakings only in areas not at present covered by the Act (see Item 3.33 of our agenda), I think action in bringing this about, fully operative in all areas in the Union, is most desirable to ensure that an apprentice obtains the requisite thorough training, both practical and theoretical.

At present the Apprenticeship Committees that are required in terms of the Act are non-existent in many areas, and I understand that a boy may be indentured under the Master and Servants Act. By having an Apprenticeship Committee or delegating the requisite powers to a Government official such as a Factory Inspector or, alternatively, by creating a new post and appointing an Apprenticeship Inspector, this would probably ensure the youth obtaining the desired training necessary to enable him, at the end of his apprenticeship, to come on to the labour market a better trained person than he would have been under the existing system.

Under Item 3.34 I have prepared the following notes:

### **THE STAFFING AND TRAINING OF POWER STATION PERSONNEL.**

It is very opportune that this subject has been placed on the agenda for discussion, and I hope that any subsequent remarks I make will form a basis for serious consideration and perhaps necessary action by power supply authorities and this Association.

#### **Second World War and Shortage of Power Station Personnel.**

Our Prime Minister's call for skilled engineers resulted in many electricity undertaking staffs becoming depleted and electricity supply authorities were faced with two conditions, namely, (1) continuing to run with a depleted staff, or (2) endeavouring to temporarily fill certain posts with skilled and unskilled staff that were either too old or unfit for active service.

Advertising revealed that there were comparatively few men available trained to fill vacancies in an electricity undertaking, particularly those sections responsible for overhead and underground distributing systems and installation, maintenance and operation of power station plant.

Is it, therefore, not desirable that the training of power station operatives becomes a matter equally as vital as the training of electricians and fitters?

#### **Suggested Procedure for Training Power Station Personnel. (Maintenance and Operating.)**

If it is accepted that power station personnel be trained as such, then it may be asked what are the particular characteristics required? In my opinion the training requisite for power station personnel must of necessity include many subjects that are not embraced in the training curriculum of the average fitter and electrician trained in a factory in the Union. For power station practice the average training in these two trades must be augmented, as it is very evident that specialised knowledge is required. The power station fitter and electrician are called upon to repair and maintain plant invariably manufactured overseas and consequently these tradesmen

have not had the opportunity of seeing the plant manufactured, although later they are called upon to repair and maintain this plant. I therefore consider that a training or apprenticeship system should be devised for the training of personnel on the maintenance of power station plant.

I have dealt briefly with the maintenance electrician and fitter, but of equal importance is the training of the shift or operating staff. Analysing the training of this section of the staff, in many instances it is evident that the haphazard training of many power station operatives in the past will not suffice for the exacting conditions required to-day in large power stations. Generally speaking, the power station staff comprises the superintendent, technical assistants, foremen, charge hands, shift engineers, boiler and switchboard attendants in addition to unskilled labour and the supervising staff thereof. Practically all these positions are such that the requisite training to fill these posts successfully can only be obtained in a power station. Is it, therefore, not necessary to devise a system of apprenticeship for those boys who desire to become power station operatives and from these positions qualify for the higher administrative posts in an electricity undertaking?

I am sure many of us here have had apprentices who will make first-class artisans and others who will make first-class technicians. If the youth with no aptitude for the technical post and the youth with no aptitude for manual work is called upon to carry out the duties for which he has no aptitude, the result will be disappointment and failure for all concerned. In this direction it has been my experience to receive excellent reports from the technical college on boys who show aptitude for the technical side of the profession, yet reports from the department's superintendents and foremen indicate that the same boys are most unsuitable for carrying out work involving the use of the hands or using their intellect to complete a practical job of work. The opposite also obtains where a boy is a first-class manual worker and very practical but yet the reports on his technical studies and progress are most disappointing.

I have had boys who are apprentice electricians with a particular flair for the technical side of power station practice, but as power station operatives are not designated trades, these boys cannot be trained in power station operation only without violating the strict letter of the apprenticeship indenture.

I therefore consider that a training or apprenticeship system should be devised for the training of personnel in power station operation and running, apart from the maintenance of plant.

I consider that the trades of power station maintenance electrician or fitter and power station operators are equally as important as radio technicians and office appliance mechanics which have recently been designated as trades by the Minister of Labour. There is a growing necessity for developing and recognising apprenticeship training in the various branches of an electricity supply undertaking on a national basis.

In the foregoing I state that I consider apprenticeship systems should be devised for the training of power station maintenance

and operating staff and it may not be out of place to give my reasons therefor.

All present will appreciate the conditions that are peculiar to electricity undertakings and in many ways different from ordinary workshop practice. For instance, there exist the following sections in an electricity undertaking, each one requiring a specialist or specialists:

Meter test.

Consumers' department involving installation inspection and advice to consumers on technical matters.

Electrical and mechanical maintenance in the power station.

Power station operation and maintenance, also planning extensions and installation of plant.

Mains department, O.H. and U.G. transmission, sub-station operation and maintenance, and planning of extensions.

Drawing office for planning extensions to power station and distribution sections.

I could deal with the subject of an electricity undertaking's staff and their desirable attributes at great length, but time will not permit, so I will confine my remarks to power station personnel.

#### **Shift Charge Engineers.**

This position requires to be filled by a man trained in the technicalities of power station operation and possessing a mind capable of clear and logical reasoning, as in a crisis the operating staff looks to the shift engineer for correct and concise instructions. The shift engineer should be suitably trained to carry out efficiency tests and to realise that upon him devolves the responsibility for obtaining the maximum efficient operation of the plant under his control. A shift engineer's training in this direction can only be obtained in a power station.

Reverting to the subject of efficiency, the shift engineer should be thoroughly au fait with methods and formulae for obtaining boiler and turbine efficiency, and general overall thermal efficiency of the power station. All these matters are quite apart from his general duties in the supervision of the plant and his ability to draw attention to any falling off in efficiency or undesirable symptoms developing in the plant.

#### **Boiler and Switchboard Attendants and Turbine Attendants.**

Although these employees are under the control of the shift engineer, they can very easily cause a decline in efficiency. Dealing with boiler attendants, they are called upon to burn coal costing anything up to 25s. or 26s. per ton, and during a shift the boilers under his control will burn anything from a ton to hundreds of tons of coal. It does not require any involved calculation to ascertain how money spent on coal can easily be wasted by inefficient combustion. Yet how many boiler attendants are thoroughly trained in the principles of coal combustion and efficient boiler operation generally?

Switchboard and turbine attendants can easily bring about inefficient operation by incorrectly loading the generators, incorrect



vacuum control, feed heater control and other factors.

From the above it will be seen that co-operation between all members of the power station staff is most necessary to obtain and maintain efficiency and yet there is no recognised system of training for the personnel mentioned in the foregoing. Should one engage a driver for a lorry or car valued at, say, £500, he must be in possession of a licence and proven knowledge of his ability to handle and perhaps carry out running repairs to the vehicle. How much more so is it necessary to have trained men handling plant valued at hundreds of thousands of pounds, which, by maloperation, can cause financial loss to the value of thousands of pounds per annum.

### General Conclusion.

As previously mentioned, co-operation between all power station personnel is essential to obtain the maximum efficiency. Therefore a comprehensive technical and practical training scheme for power station personnel should be initiated. It falls upon the officials occupying the higher administrative positions to foster co-operation and this cannot be done unless they have been trained accordingly. Each employee should be thoroughly trained for his present position and prepare himself for promotion. Plant operation cannot be learned from reading a book.

In addition to engineering knowledge, senior officials must be conversant with the requirements of the law as promulgated from time to time, and industrial hygiene, safety and comfort of the employees are of paramount importance.

Wise men build with the raw material termed knowledge which can be found in textbooks, but true education is the art of developing intelligence and the power to reason clearly and logically. Professor Cramp said many years ago to the L.E.E.: "All education is of three kinds, of the hand, the head, and the heart. Great attention is paid to the first two in the workshop and laboratory, but the third can only be imparted by personal influence." Booker Washington said: "I am convinced that there is no education which one can get from books and costly apparatus that is equal to that which can be gotten from contact with great men and women."

Electricity is the very life blood of our domestic and industrial activities, and there is no necessity for me to labour this point to a gathering such as this. This being so, it rests upon us to see that we obtain the correctly trained personnel for the electricity supply industry; in fact, it is a matter of national importance that proper recruitment and training is secured for all ranks in the electricity supply undertaking from the operating and maintenance staff to the higher professional administrative positions. Whatever the work the individual is engaged upon it should be a fundamental principle that the individual is so thoroughly trained that whatever duties he is engaged upon he can give service in the most efficient manner, so enhancing the reputation of our country and helping it to become an important factor in the economic life of a post-war world which we sincerely hope will be a world worthy of the sacrifices that all freedom-loving nations have made and are making.

I hope that the discussion that emerges will bring to light other and more important factors on this subject which I have omitted in my endeavour to be brief.

I formally move that the A.M.E.U. Executive Council be requested to investigate ways and means of bringing about a national training scheme for power station and electricity department personnel generally, and that such occupation or occupations be recognised as distinct trades or professions.

**Mr. Gripper:** I would like to raise one small point which possibly members here who are members of trades unions may be able to answer. A question was put to me by an authority who is very actively concerned with the re-employment of volunteers at the present time. He asked me: "Could you at your conference ascertain whether trades unions are genuinely concerned and interested in offering and providing opportunities for volunteers to become apprentices to learn trades such as electricians, etc.?" This party is experiencing difficulty and not getting assistance from some trades unions. Apparently this doubt is fairly widespread, and it would appear from discussions there is a possibility that trades unions may be endeavouring to isolate their trade and reduce the number of operatives. If this is so, it is not giving youth a fair chance.

**Mr. Sibson:** I was very interested in Mr. Foden's address on the subject of training power station personnel. One or two difficulties have to be overcome before such a scheme can be brought into action. We are likely to have great difficulty in obtaining apprentices who are willing to undertake training in such a specialised field. We realise the necessity for such training, but the youth does not. In Bulawayo we advertised for youths to undertake such training and had very poor response. On no occasion have we been able to make an appointment from answers to advertisements. Other trades had a good response to advertisements. The reason for this is that, whereas apprentices in ordinary trades serve their five years' apprenticeship and can then commence work as a fully-fledged artisan earning, in Rhodesia, 4s. 4½d. an hour, the rate of pay for power station operatives who have completed five years is very much lower. The main difficulty lies in the lack of interest shown by youth. We have to take them on as electricians or fitters and during the course of training try and suggest to them the advantages of power station operative work and give them a certain amount of training. Such men, when they have completed their training, can then conform to the requirements of the Act as artisans, so qualifying for the high rates of pay, or take a more junior position in a power station and work up to a position of responsibility. We are faced with serious difficulties which are tied up with rates of pay differentiation between power station personnel and trade artisans.

One more point is that the usual procedure in appointing apprentices, as far as Municipalities are concerned, has been to advertise in the local press when a vacancy occurs and obtain such applicants as are available. I suggest that a considerable improvement might result if, instead of advertising a job when it falls vacant, we advertise a year before it falls open and give a period of six months for applicants to apply. The most satisfactory applicant

may then be booked to take the job six months later. I suggest that this scheme might be adopted to give parents a longer time to look ahead and put in applications for their sons to be taken into the power station industry, which seems to have great difficulty in getting boys of adequate standard. Banks seem to manage without any difficulty, mainly because these boys are booked well in advance. We might help to solve our problem this way.

**The Chairman:** In regard to training arrangements in Port Elizabeth, an examination is held late in the year (about the time of the Matriculation examination) for which we advertise for applicants. We require a higher standard than the Junior Certificate and prefer something about Matriculation standard. The nett result is that we find that out of 130 applicants we have picked about twelve. These twelve are brought before a sub-committee and we talk to them about their likes and dislikes, ambitions, etc. It becomes easy to find which of the twelve are likely to make competent engineers. We ignore the side-issues and train our youngsters for power station operation, in which they get a very good training.

There may be a difference in the mental capacity of an operative's work and that of a craftsman. I have an idea there is something to be said for the lower rates of pay of operative staff. Mr. Foden, for instance, quotes the case of boiler attendants; they should be under the supervision of a competent man.

In regard to taking on pupil engineers we have only one at the moment; he is indentured to me personally under the Master and Servants Act. His training of five years does not invalidate him from sitting for his Government Certificate of Competency. It is my intention that that boy should go through every stage of power station operation. When he has finished his shifts he takes some course at the technical college, as do other apprentices. The results so far have been satisfactory. He is trained for a job as an executive engineer. I want to start some system whereby we train our boys as engineers, not as artisans, and put them out into the labour markets of the Union as engineers. Of course, we appreciate that they cannot take their Certificate of Competency until they are 25.

**Mr. Lotter:** I agree that a pupil should go right through every branch of a power station and learn in a practical manner all sections of the work. For example, he should get right inside a boiler and then he knows exactly what he is doing. He should start right from the base.

**Councillor Whirrell:** Dealing with training of apprentices who have been at the war three years and served a year with a technical unit, are they to come back as fully qualified artisans, but know nothing? The Government insists that we must take them back in their old jobs.

**The Chairman:** The point at issue is that these men who have gone away on active service have gone to fight for us and it is up to us to reabsorb them with least inconvenience to themselves. These lads coming back at the age of 23, having served one year in a technical unit, possess an ability to lead. The fact that they have missed one year of their technical training is largely offset by this fact. This is my personal opinion and I feel there is nothing we cannot

do for these youngsters. We must spend money to train and equip them for civilian life.

**Mr. Kinsman:** In regard to the attitude of organised labour in Natal, we are having a most heartening response from artisans. We have to look to the future as otherwise the time will come when the white man will only rate as a semi-skilled operative on jobs for which our natives will compete. We are finding the utmost support from trades unions. We are getting men back from Up North and a joint committee of Councillors and employees has been established to deal with these men.

The following three schemes are being developed in Durban:

#### **Full time Training of Apprentices:**

Under this scheme a very careful selection based on educational attainment, personality and general intelligence is made of prospective apprentices.

Six electrical apprentices are engaged each year and for the first nine months they are placed in a special bay of the workshops under the charge of one of our older and more experienced fitters, who is paid a special allowance of 2s. per day. During this nine months the apprentices are intensively trained on lines generally similar to those adopted in the C.O.T.T. scheme. In addition they are given periodical instruction in artificial respiration and first-aid, covering electric shock, burns and pressure points to arrest bleeding.

On completion of this initial intensive training, the lads are engaged for twelve months in each of the following sections in the order given:

- (1) Overhead mains (including three months' street lighting).
- (2) Underground mains (including three months on mains records, jointers' sketches, etc.).
- (3) Sub-stations (including three months in test room).
- (4) Electrical repairs and re-winds (including three months on maintenance of Corporation motors and other installations).

The final three months are spent in the section to which the youth is likely to be appointed on completion of his five year apprenticeship.

The scheme of progress in the sections, as detailed above, is designed with a view to the practical work being related to their technical progress. In other words, the apprentices are not engaged on the re-winding of transformers, motors, etc., until their technical studies have progressed to a stage which should enable them to appreciate the main features of design.

#### **Proposed Intensive Training of Young Men now on Service who return at an Age Unsuitable for Normal Apprenticeship;**

In consultation with organised labour, the City Council has made available 20 three-year returned soldier apprenticeships for youths who return from service and are over 21 years of age.

The idea underlying this is that it is possible in three years to train a man in certain restricted branches of the various crafts, e.g., linesman, cable joiner, telephone joiner, pipe fitter, etc.

It is proposed to offer these young men the following rates of pay:  
1st year . . . . 25 per cent. of artisans' wages.

2nd year . . . . 50 per cent. of artisans' wages.  
3rd year . . . . 75 per cent. of artisans' wages.  
After 3 years . 100 per cent. of artisans' wages.

#### **Re-habilitation of Disabled Men:**

The Durban City Council, feeling that it is insufficient to afford so-called "sympathy jobs" to men who have been physically incapacitated, has set up a joint committee of Councillors and employees to work on the following lines:

Heads of departments are asked to investigate every operation in his department which could be carried out by men who have been physically incapacitated, even if it means modifying the conditions under which a particular operation is being carried out at present.

When these schedules are completed, the joint committee will interview each disabled man and, after questioning him as to his bent and aptitude, will try and fit him into one of the particular jobs in which it might be possible, after a period of training at present undetermined, for him to earn and receive the full salary or wages applying to that job.

I may say that in this department I am prepared to train any suitable men, who have lost the use of one or both legs, as meter repairers and meter calibrators. Further, I see no reason why a man who has lost the use of one arm should not be trained as a switch-board attendant.

At the present moment I am dealing with a case of a young policeman who is suffering from paralysis of his legs. He is very intelligent and very eager to learn and I see no reason why he should not, after two or three years' training, qualify for higher wages than he was likely to earn as a policeman.

I trust these notes adequately cover the policy in Durban and may be of assistance to other Municipalities.

It would assist the scheme if after a little experience various Municipalities were to make available their particular experience in the matter.

**The Chairman:** On page 5, Item 11, of our agenda we have as one of the objectives of the Joint National Electric Power Board "to advise on questions arising from the training of apprentices and other personnel to be employed in the electricity supply industry."

I put it to the meeting that this portion of our draft motion be adopted.

Motion carried.

I will ask Mr. Gripper to open the discussion on the next item of our agenda.

#### **3.40.—REHABILITATION PLANS.**

**Mr. Gripper:** The "Volunteers Employment Bill" that is now in draft form before Parliament is presumably before all Municipalities. I hope I am voicing the opinion of all when I say that the Bill should be carefully considered by all Municipalities with a view to seeing clearly in advance what our position will be. We have had the occasion of the Factories Act in its present form, and look at us to-day; we are in a hopeless mess. That is about all that I can

say on the draft Volunteers Employment Bill since I have only just read it through. It is up to us to try and study that Bill thoroughly and put some constructive work into it even at this very late hour. We have had some experience of the tendency for legislative measures to become law before we have had the chance, or taken the chance, of advancing constructive suggestions for the smoother application of such measures.

I would like to draw attention to what appears to be some influence preventing the young man from sitting for his Government Ticket. I think the fault lies in our Apprenticeship Act which seems to have overlooked the prospect of an apprentice eventually sitting this examination. The late hour prevents my discussing this further at present but I feel that something is wrong and I intend to ferret it out myself when this Conference is over.

In regard to Item 3.45 we can assist greatly in rehabilitation plans and we must be interested in these schemes. I would urge all those present, when they return to their centres, to give this matter serious thought and to urge it on their Councils.

**The Chairman:** I think I ought to explain to you that the weakness of that suggestion is that we are urging on someone else the necessity of doing something. We should get something done ourselves.

Item 3.46 of our agenda definitely lays upon this Section of the Conference the necessity of forwarding comments and suggestions to the Secretary for Labour. Are any suggestions or comments forthcoming?

**Mr. Foden:** I wish to correct an apparent misapprehension re the "Volunteers Employment Bill"; it is no longer before the House of Parliament. They are investigating a new Bill. It is desirable for us to consider the various sections of the original Bill in case they are included in the new Bill.

I have with me, Mr. Chairman, some fairly detailed notes I have prepared on this subject, but the subject is too wide to deal with at this late hour.

**The Chairman:** I suggest that Mr. Foden's comments be submitted to the full Conference at the combined meeting of Sections A and B to-morrow.

We have so far adopted Items 10 and 11 of our draft motion on page 5. We still have before us Item 12 and I now submit that this item be included. Accordingly I put the adoption of this motion to the vote.

Motion carried.

## SECTION B.

### EXISTING LEGISLATION AS AFFECTING ELECTRICITY UNDERTAKINGS.

Monday, 24th April, 1944, at 2.30 p.m.

#### 4.00 REGISTRATION OF ELECTRICAL WIREMEN.

Chairman: Mr. W. R. E. Wright (Benoni).

#### 4.10 Electrical Wiremen's Board.

#### 4.11 Review of Board's activities and possible future developments.

#### 4.12 The viewpoint of respective interests represented by the Board.

#### 4.20 The Application of Registration

#### 4.21 Experience in determined areas.

#### 4.22 Extent to which new areas should be determined, taking into account the repercussions on unlicensed wiremen and the pending building programmes.

#### 4.23 Necessity or otherwise for electricians installing or repairing stoves, refrigerators, etc., to be licensed

(a) under present conditions.

(b) taking into account Clauses 1.51, 1.52 and 1.53 of this agenda.

#### 4.24 The necessity or otherwise of local wiring inspectors being licensed wiremen.

The Chairman, in giving a resumé of the discussions which would arise from the agenda before the meeting, explained that the Electrical Wiremen's Act gave the Minister power to determine different areas in which licensing of wiremen should operate and that those areas were at present limited to four, namely, Johannesburg, Cape Town, Durban and Port Elizabeth. The time has arrived when these areas should be extended. He was afraid that the Board had got in in advance of our agenda since steps were at present being taken to extend these areas of determination to include almost the whole of the Witwatersrand area together with Pretoria, Bloemfontein, East London, Maritzburg, Klerksdorp, Potchefstroom and Vereeniging. In order that there could be some discussion on this point which is set down as an item on the agenda, the Chairman welcomed Mr. Clutterbuck who would give us his opinion from an official point of view, as Chairman of the Board.

**Mr. Clutterbuck:** I have been requested by the Secretary for Commerce and Industries to express his regret that Dr. De Villiers who should have represented the Department is unable to attend owing to indisposition.

With reference to your Agenda — Item 4.10 — Electrical Wiremen's Board: Review of Board's Activities and Possible Future Developments, I have, for the information of the meeting prepared a more or less brief review of the Board's activities to date.

There is no need to discuss the history of the movement which led up to the framing of the Act since it is well known to you. Although I did a little spade work in connection with the Act before retiring in 1939 I understand that it was completed in collaboration with interested bodies such as yourselves.

The Act was passed in 1939 and came into operation on the 1st January 1940. The Treasury agreed to its becoming operative

only on the condition that it was administered without extra cost to the State and would be self-supporting; in other words, the expenditure should be covered by the fees received for registration, examinations, etc. It was also stipulated that no additional staff should be employed. This imposed a handicap on the Board's activities which still exists.

In addition to this, progress toward the enforcement of the prohibitive provisions of the Act has been somewhat retarded owing to the abnormal conditions created by the war. The Minister is naturally anxious that there should be no interference with the war effort and the employment of a larger number of men, many of whom are unqualified, on essential war work throughout the Union has introduced a complication and necessitated the adoption of special measures.

The Electrical Wiremen's Registration Board established under the Act commenced its sittings in February, 1940, and the early meetings were devoted to arriving at decisions regarding the general policy of the Board. Applications for registration as wiremen were received in large numbers and reached a total of 2,668 in the first year.

The number of applications for registration received to date is approximately 3,340 and the figures for each district are as under:—

Johannesburg area . . . . .	1256
Pretoria area . . . . .	278
Cape Town area . . . . .	691
Natal (including Durban) area . . . . .	528
Port Elizabeth area . . . . .	113
O.F.S. area . . . . .	138
Kimberley area . . . . .	100
	<hr/>
	3340
	<hr/>

These have been dealt with as follows:—

Number of Applications registered . . . . .	1900
Number of Applicants Accepted for Examination . . . . .	740
Number of Applicants refused . . . . .	350
	<hr/>
	2990
	<hr/>

In addition to the applicants who have been accepted for, but have not yet passed, the examination, there is a comparatively large number whose applications have not been finally disposed of for various reasons. Many have been unable or unwilling to submit the required evidence of their practical experiences, a number are on active service, and others have failed to remit the prescribed registration fee.

Applications from persons who were in possession of licences issued by local authorities were dealt with first, as they presented the least difficulty and the progress made in registering qualified applicants in the early stages of the work was more rapid than became possible later.



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At present applications are being received at the rate of approximately 25 per month.

#### **Practical Experience:**

The Act provides that an essential qualification for registration is that an applicant must satisfy the Board in terms of Section 12(1) of the Act. In regard to the qualifications under Section 12(1) (d) viz. the applicant's training and experience, careful consideration was given by the Board to the determination of a reasonable standard of training and experience which would satisfy its requirements with respect to the qualification for registration laid down under this Section.

After a number of the earlier applications had been examined it became evident that it would be difficult to fix a hard and fast rule which could be applied to all cases. Some applicants had been employed more or less continuously on wiring work while others had spent a proportion of time on wiring in the course of their all round experience in electrical work. The class of work upon which an applicant had been engaged and the standing of his employer were also factors to be taken into consideration.

It was therefore decided that while it would be undesirable to insist on the serving of an apprenticeship in all cases, as a general rule the minimum qualification which would satisfy the Board is that an applicant shall have been employed on electrical work for a period of not less than five years, a reasonable portion of which has been on wiring work as defined in the Act.

The policy of the Board in dealing with applications from persons other than those who hold local licenses, is that applicants of mature age who produce satisfactory evidence that they have had a satisfactory training and subsequent experience in wiring work are granted exemption from the examinations and registered.

In some cases applicants up to the age of 40 have been required to pass that portion of the examination which deals with the Standard Wiring Regulations, a knowledge of which is considered by the Board to be a necessary qualification. Younger men are required to pass the full examination or such parts of it as the Board at its discretion may decide having regard to the applicant's record. Apprentices who have served five years under a recognised contract are required to pass the full examination and are permitted to enter for the examination during the last six months of their apprenticeship.

An applicant in a determined area who has been accepted for examination may be granted a provisional certificate of registration valid for a limited period to afford him a reasonable time within which to qualify.

#### **Qualifying diplomas or certificates acceptable under Section 10(1).**

A large number of applications were accompanied by diplomas or certificates of various kinds from colleges and other institutions and it became necessary for the Board to determine what documents of this character should be accepted as exempting the holders from passing its examination or any part thereof. The diplomas and certificates submitted included many issued by authorities in European countries of which the Board had no definite knowledge.

After full consideration it was agreed that owing to the difficulty in assessing the value of these as evidence of the holder's ability as an electrical wireman, they should not be accepted.

Subsequently discussions took place with the examination officers of the Union Education Department and it was decided that, for the present, the Board would only grant exemption from its Part A examination to accepted applicants who were in possession of the National Technical Certificate which included the subject Electric Wiring II.

#### **Examinations.**

The subjects included in the syllabus are similar to those upon which the examinations formerly held by local authorities were based.

The Board's examination is divided into two parts, Part A a written examination and Part B a practical test of workmanship. Part A is sub-divided into two sections the first dealing with the Wiring Regulations and the second a set of technical questions covering wiring work.

Candidates are not eligible for Part B until they have passed or been exempted from Part A.

An examiner (and moderator) appointed by the Board sets the questions and examines and marks the work of candidates; both questions and results are, however, reviewed by the Board.

So far the examinations have been held at the Technical Colleges in the larger centres of the Union. The first examination was held in August 1941.

The following figures reflect the progress made:—

#### **Written Examinations:—**

No. of candidates who passed both Sections . . . . .	152
No. of candidates who passed Section I only . . . . .	99
No. of candidates who passed Section II only . . . . .	111

#### **Practical Tests:—**

No. of candidates examined to date . . . . .	123
No. of candidates who passed . . . . .	116

A written examination was held on 16th of April at which 160 candidates presented themselves, but the results are not yet available. The Practical Test is to be held during May.

#### **Determination of Areas:**

Sections 19 and 20 of the Act, which contain its most important prohibitive provisions, do not apply to any area until the Minister of Labour has made a determination under Section 18 with respect to that area.

From the commencement of the Act numerous requests were received from Municipal supply undertakings to have their particular areas determined under this Section.

After considering the position the Board decided not to recommend the determination of any area until all applications from that area had been dealt with and persons engaged in wiring work were given a reasonable time within which to present their claims for registration.

Even when this stage was reached so far as the larger centres were concerned, the unsettled conditions of employment in the electri-

cal trade owing to requirements incidental to the war effort, rendered it desirable that the enforcement of the prohibitive Sections of the Act should be further delayed.

Toward the end of 1942 however, the Minister accepted a recommendation of the Board and determinations were made to take effect as from 1st January 1943 with respect to the Magisterial Districts of Johannesburg, Cape Town, Durban and Port Elizabeth and certain areas adjacent to these Districts.

It is now proposed to recommend to the Minister that the following additional areas be determined at an early date:—

The Magisterial Districts of Pretoria, East London, Pietermaritzburg, Bloemfontein, Klerksdorp, Potchefstroom, Germiston, Brakpan, Benoni, Springs, Boksburg, Nigel, Vereeniging, Roodepoort and Krugersdorp.

#### **Possible Future Developments:—**

The following are possible amendments to the Act which the Board has in mind:—

- (i) Amendment to the definition of "Wiring Work."
- (ii) Provision for powers to grant certificates endorsed for a particular area or class of work.
- (iii) Amendments to obtain greater control over electrical contractors.

**The Chairman:** I would like to thank Mr. Clutterbuck for his comprehensive report of the Board's work. This should clear the air regarding issue of licences and determination of areas. I had felt there was something lacking in the small number of areas determined but we have now heard of proposals which will greatly increase the area of application of this Act.

**Mr. Rodwell.** As you know, I have a seat on the Wiremen's Board and cannot speak too highly of the keenness and the splendid work done by all members of the Board. There are representatives on the Board from most parties concerned not excluding the Wiremen themselves. They are represented by two members from the Trade Union movement and their help has been of enormous value. Whilst paying tribute to the Board I would like to pay a special tribute to our Chairman. His energy and interest in the matter is tremendous. He spends a lot of time in the work of going around the country making arrangements for examinations and preparing matters requiring the attention of the Board. Every individual application is gone into thoroughly by the Board and I suspect that our Chairman spends more time than he can afford on the Board's work.

I do not know the points likely to develop in our discussions and so will wait for members to express their views.

**Mr. Muller:** I would like to ask Mr. Clutterbuck if there is any specific reason for omitting Randfontein, our neighbouring town, from the areas now proposed for determination.

**Mr. Clutterbuck:** Randfontein is in the magisterial area of Krugersdorp and is therefore included.

**Mr. Muller:** The registration of wiremen has not perhaps progressed as it should have, on account of the outbreak of war. In the initial stages, it will be remembered, the war hardly affected the industrial life of our country, and a start was made, with great

hopes of putting the trade, employers and employees, on a better footing in a short time.

It was not long however, before we had things to think about. If we did sometimes worry about the wiremen and contractors, it was no longer in terms of control methods, but where to get men to give some sort of service to the public. Trying to control the trade seemed like curling the mane and tail of a dying horse. Even to-day, speaking for myself, I cannot suppress a wistful smile when I speak of the "Electrical Trade" in our future Metropolis of Krugersdorp with practically nothing to buy, and wiring up till recently, £5 a point in "open wiring." When it came to the inspections of existing installations, my conscience worried me every time I had to sign a notice condemning an installation, because it felt like pushing the unfortunate owner out for the wolves.

Although the future is by no means crystal clear, most of us are convinced that we have seen the first flush of dawn and we are already making plans for the new day. Do not get the impression that I would not like to see anything further done till after the war. I still feel that our enthusiasm should not oust our sense of the practical needs of the moment, but on the other hand we have the signs, and we must not wait any more to put our house in order.

The electrical industry, in all its ramifications provides employment for so many different classes of labour, and its products are so conducive to better living conditions, that it must necessarily play an important part in the new economic structure that will be built up after the war; it is too important to have the wheels of commerce and industry clogged up with waste material in the form of either wiremen or contractors who do not fit into the structure and are not capable of contributing anything to the general welfare, in either capacity.

Mr. Chairman, Charity begins at home, and so should Criticism; we freely admit that there is much room for improvement. Our tariff policy should be revised and service improved, but when we have done this we cannot afford to have our work undone by irresponsible people, or those who have no interest in electrical development. In tuning up our industrial machine, we should, however, never lose sight of the fact that we are not weeding out undesirables who can be satisfactorily disposed of on the market. We are dealing with fellow men who have also looked forward to a better day, and in many cases fought for it. They may be millstones to electrical development but their human needs are the same as our own, and what is more they may be able to contribute something really worthwhile with proper training in another walk of life.

We must in other words, do our share in helping to provide general adult vocational training, without any age limit whatsoever in any occupation. Teachers have become lawyers and lawyers have become farmers, without any adverse effects to any individual or profession. Why then, in the trades, must a man who has made a wrong decision, or for whom it has been made in his youth, be condemned for life by the pernicious age rule in the trade?

The case, as I see it, is merely a matter of service on which I feel strongly. The public must have service and provision must be made for these people who will be put out of a living.

**Councillor Dickinson:** In connection with the granting of certificates to wiremen from the back of beyond, I would like to know whether these men can take certificates by correspondence or whether it means a direct examination? Do these men have to be personally examined? I am asking that question because we have just had an application for a wireman's certificate and I want to be on sure grounds as to whether that applicant should now submit himself for examination by the Board.

**Mr. Clutterbuck:** I will reply later when dealing with other questions.

**Councillor Traub:** The following point has arisen in our Municipality, namely, Worcester. We have 1,500 consumers and only one Electrical Contractor. His Foreman holds the Wireman's Licence. This prevents other small men from attempting to get the certificate required. The Municipality at Worcester spoils the consumers by always being available to do some of the wiring themselves. That is why it has not been found possible to have an area like Worcester put on the list for determination. There may be a lack of suitable men due to their being away on active service. It should be possible for the Board to determine a place like Worcester with the proviso that for a certain period of time that can be stipulated an extension can be granted. By being given time men could be made eligible to qualify themselves.

I have been led to believe that there are some of our leading technical men at this Convention who are not the proud possessors of this Wireman's Certificate. There is also the class of people who do repairs to wireless installations, refrigerators, etc. I think that they should also be provided for by the Licensing Board.

I am sorry to hear that, of the other smaller towns the Board proposes to recommend to the Minister for determination, Worcester has not been included. While I am not stressing the point too rigidly, Worcester Municipality does expect to be considered for determination by the Board very soon. The Board does not particularly recommend that an area should be determined until applications have been dealt with. Are the applications from individuals or contractors, or applications from local authorities? I would like that point cleared up for lay members.

**Mr. Clutterbuck:** The member from Port Alfred asks whether examinations can be taken by correspondence. The Board's examinations are divided into two parts, Part A — written examinations and Part B — practical tests of workmanship. Part A is sub-divided into two sections, the first dealing with the Wiring Regulations and the second, a set of technical questions covering wiring work. The Board makes arrangements with the Technical Colleges for accommodation for these examinations. The Board has an examiner who sets the questions and examinations have been held in the larger centres of the Union, that is those that have Technical Colleges. The papers of candidates are examined by the examiner and afterwards reviewed by a moderator and by the Board. It is clear, therefore, that exami-

nations by correspondence, even the written portion, are impossible. Since you have mentioned Port Alfred we held an examination a week ago and two candidates sat from Port Alfred. The Board desired, having regard to the difficulties of travelling, accommodation, etc., to meet candidates in every possible way and where there are one or two candidates, arrangements have been made for the Local Magistrate to supervise the examination and that was done in the case of Port Alfred a week ago.

The examinations on the electrical papers are uniform throughout the country, and must be held at the same time and date.

In reply to the gentleman who asked for reasons why Worcester has not been determined, I have already stated the various reasons why some of the small Municipalities have not been determined. The Board is anxious not to impose a hardship on anyone, either the men in any particular locality or the consumers. Application for **determination** is not made by individuals or local authorities. Applications for **registration**, of course, are made by individuals and in the early stages of this work the Board received applications from Worcester submitted by nine or ten men who had long experience — anything from 3 to 10 years on wiring work in Worcester. Although there are no restrictions in the Act so far as colour is concerned all the men were natives. For that reason the Board hesitated to consider them. In fact the only action that could be taken was to accept them for the Board's examination which was tantamount to a refusal.

When the determination is made regarding a particular area it does not take effect until three months have elapsed. Three months should be sufficient for any contractor or wiremen in that area to make their applications. The Regulations provide that the Board may issue certificates valid for 12 months to members who have been accepted for examination so that after determination is made the man continues his wiring work for 15 months giving him an opportunity to qualify.

**Mr. Rodwell:** I endorse Mr. Clutterbuck's remarks. In the beginning of the work of this Board we had many applications from small towns and areas, begging and insisting that we determine their areas. Some of them were pressing for determination in those areas where no applicants seemed likely to secure a licence, which meant no work could have been carried on there and they would have had to import men to carry out a job. We felt it was not justified to include such areas in a determination and had to protect the inhabitants in small areas from being without anybody who was licensed to carry out their work. These conditions arose largely due to the Act not being understood.

**Mr. Sellar:** We as Supply Authorities know the danger of unqualified persons attempting to undertake wiring work. It was rarely satisfactory.

**The Chairman:** There are certain areas which have already been determined. If we could get the experience of these areas it would help. It is the duty of the Local Authority Inspector to pass the work done by a Licensed Wireman; what is their position if a job is done by a person who is not a licensed man but the work is



quite all right? Must such work be passed or endorsed by a certified Licensed Wireman?

**Mr. Clutterbuck:** In regard to these queries these appear as separate items on the agenda, for example the necessity or otherwise for electricians installing or repairing stoves, refrigerators, etc. or for Local Wiring Inspectors to be licensed. In that connection we are bound by the Act by the definition of wiring work which means "the installation, alteration, repair or testing of any wire fitting or apparatus in or connected to any building and used or intended to be used for purposes incidental to the supply of electricity from a distribution line of any supplier to a point of consumption in or connected to such building, but does not include any such work on.....

(c) any wire or fitting for the supply of current to any electrical appliance from a point of outlet at which the fixed wiring in or upon any premises terminates."

Hence the position is that the wiring work comprises all the work up to and including a socket outlet but does not include any plug-in appliance. It does, however, include any built-in appliance not fed by a plug and socket. Hence work on any built-in appliance may only be done by a Licensed Wireman but plug-in appliances may be attended to by a non-licensed man.

This point is receiving consideration by the Board and it is proposed to introduce, at as early a date as possible, an amendment to this definition which will render it inapplicable to stoves and appliances that are built in or connected to the fixed wiring but at present we are bound by the definition in this Act.

The same applies to the other question raised, namely the necessity or otherwise of Wiring Inspectors being licensed wiremen. Turning again to the Act we find in Clause 20 that in a determined area no person shall permit the execution of wiring work (which by definition includes the testing of any wire fitting or apparatus intended to be used for purposes incidental to the supply of electricity from a distribution line of a supplier) except by a licensed wireman or certain defined persons under his continuous supervision. The position is that under the Act as it stands at present the operation of testing is wiring work and wiring work can only be done by a registered wireman in a determined area. It is an open question whether this section should be amended or not and it is necessary to hear opinions on the subject.

**The Chairman:** May I ask whose duty it is to see that wiremen are licensed in determined areas and if work is found to be done by unlicensed wiremen who was to accept the responsibility of passing that work?

**Mr. Clutterbuck:** The procedure in such cases is largely a matter for the Local Authority. Most of the Local Authorities have electrical regulations which insist that installations shall be inspected and tested before being connected to the source of supply. If an Inspector in the employ of a Local Authority finds that work is being done by an unlicensed man the procedure should be to report the matter to the Board and the Board would then institute a prosecution. At this stage I do not think it would be wise to rush into a prosecution but the man who did the work should certainly be

warned and given an opportunity to qualify. When a contravention of the Act is disclosed by an Installation Inspector the procedure is to report to the Board and the Board will take action.

**Mr. E. R. Smith (C.M.A.):** There is no material obtainable to-day except on the black market, or through the Controllers. Would it not be a means of stopping unlicensed wiremen if the Controller issued cable only to a licensed contractor?

**Mr. Rodwell:** Mr. Chairman, I would like to point out to the meeting that clause 19 of the Act clearly lays down the duty of all Supply Authorities in determined areas throughout the Union. Sub-clause (1) states:—

"No person shall in any area in respect of which a determination has been made under section eighteen, connect any wire, fitting or apparatus in respect of which wiring work has been done with a source of electricity controlled by a supplier, unless such wire, fitting or apparatus has been inspected, tested and approved by a person in the employ of and nominated for the purpose by the supplier, and permission to make such connection has been given by the supplier."

Sub-clause (2) of Clause 19 goes on:—

"If at any such inspection or test any fault or defect in such work or any contravention of any by-law made by the supplier is detected, the person making the inspection or test shall submit to the supplier a report setting forth the name of the wireman (if his name is known) who is responsible for such wiring work, and full particulars as to such fault, defect or contravention."

Succeeding sub-clauses lay down in a very clear fashion the steps which a Supply Authority shall take in reporting any contravention of the Act to the Board and also the manner in which the Board shall deal with the case. I think, Mr. Chairman, that the Supplier's duties under the Act have been particularly clearly set out in Clause 19.

**Mr. Ellis:** I want to thank those responsible for inviting me here today both as a Trades' Union representative and a member of the Wiremen's Board. Getting back to Item 4.12 of the agenda, namely, the viewpoint of the various interests represented on the Electrical Wiremen's Registration Board, I may say that the steps taken were welcomed by my Association. Difficulty was being experienced in preventing unqualified wiremen from undertaking wiring work. In many instances dangerous conditions were found due to bad workmanship and lack of knowledge of wiring work and some sort of control appeared to be necessary. Control was the only solution to the problem and the Act has gone a long way to attack the problem. One gratifying result of the Act from our viewpoint has been the considerable interest displayed by the apprentices themselves in their keenness to absorb all the knowledge they can, both practical and theoretical. The standard required by the Board is within the scope of all apprentices.

One thing impressed me considerably, namely, the spirit of co-operation in this work shown by all members of the Board and I must second Mr. Rodwell's remarks regarding his compliments to our Chairman in respect of the amount of work put in by him.

We also should thank the staff which in so short a time have made a good job of the large amount of work which has arisen from the Board's activities.

**Mr. Theron:** I would like to have clarity on the point of licensing of municipal electricians. I always read the Act with the understanding that a municipal electrician need not be licensed under the Act. Could I have a ruling on this point?

**Mr. Clutterbuck:** This question is also covered in the definition of wiring work previously referred to. The fact of the man being a municipal electrician does not enter into it at all but the Municipality being the supplier, wiring work on any premises owned or occupied by a supplier is exempt. If a municipal electrician is doing work on a municipality owned or occupied building it is not necessary for him to be registered. If on other buildings it is necessary. An Inspector who inspects an installation under regulation 19 undertakes work involving testing which by definition is "wiring work" necessitating that he is licensed if the area has been determined.

**Mr. Rodwell:** I would like to say, in connection with Mr. Clutterbuck's reply, that I feel that no Supplier in a determined area should advocate that their employees employed on their own work should not be licensed wiremen. I want to emphasise that, in my opinion, any Local Authority or Supplier who takes advantage of the fact that the Act does not lay down that he shall have licensed men doing his work should be ashamed. Johannesburg will not allow men to do municipal wiring work unless they are licensed men.

My own view about men inspecting other men's work is that they should at least be as qualified as the men whose work they are inspecting. I strongly support that Wiring Inspectors should be licensed wiremen. Any Municipality or Supplier should insist that any wiremen doing wiring work on Municipal premises are licensed although this is not laid down in the Act.

**Councillor Traub:** The position at Worcester was that, when the power station was completed, there arose the necessity of selling electricity, but there was not always an electrical contractor qualified to do the installations. The Municipality advertised the fact that they were willing to do the work themselves. Possibly this accounted for the applications for registration from the eight coloured men. These were men trained in wiring work under the supervision of the former Municipal Electrical Engineer, who probably thought the Act would be put into force as far as Worcester was concerned and that it was his duty to see that these 8 or 9 Municipal artisans were licensed. We only have one contractor in the town who holds a licence and several others who suggest they can do electrical work. I think the time has arrived when, with a certain amount of modification, towns like Worcester should fall into determined areas.

Our Municipality is presently engaged in framing our new Municipal regulations concerning electricity supply. One of them reads as follows:—

"Licensing of Wiremen.

- (a) No person shall perform or carry out any work whatsoever upon the making of any installation or of any portion of any

installation or upon the making of any addition, alteration or repair to any installation other than such minor adjustments to Consumer's fuses, fittings, lamps or appliances as may be permitted by the Engineer unless he is the lawful holder of a Wiremen's Licence as set forth under the provisions of the Electrical Wiremen and Contractors Act 1939 (Act No. 20 of 1939).

- (b) Nothing in these Regulations shall be held to exclude the employment of an improver, apprentice, learner, minor or wireman's assistant provided that such person is under the supervision of a Licensed Wireman engaged upon the same installation."

We will thus be in the position of having passed these regulations and finding that we have not got the qualified men licensed under the Act to do wiring work. Even now our officials are obliged to work along with unqualified contractors. This takes up our official's time and the consumer is not always satisfied with the work of unqualified wiremen. On the other hand the determination of our area will lead to welcome competition between these unqualified men in their efforts to prove themselves. These features could be cleared up by allowing periods of exemption from time to time and affording time wherein our small area could also weed out the people who are not qualified to undertake wiring work.

**Mr. Ellis:** Non-determination of any areas would be an inducement to doing unfair work. The position would be that the responsible person concerned would find it difficult to explain why it was necessary to employ only licensed wiremen. I feel that the whole of the Union should be determined so that a high standard of work could be maintained. The position is difficult at the moment because of the high wages paid to men on shift work but the moment hostilities cease the position will be eased considerably. If Worcester feels that it would like to be determined I do not think they would have any difficulty. The Act does make allowance for application being made.

**Mr. Theron:** The position in Klerksdorp is that only one contractor is licensed and should the area be determined it would practically result in a monopoly for this contractor since there is little hope of any of the other men doing wiring work in Klerksdorp qualifying themselves before the expiration of the 15 months allowed by the Board. In an endeavour to obtain the services of a licensed man the position was advertised six times but only one application from a member of the S.A. Electrical Wiremen's Union was received. We labour under the difficulty in Klerksdorp of not being able to pay wages comparable with the high levels ruling in the towns of the Witwatersrand which are so close at hand.

As the Engineer I would welcome the determination of Klerksdorp but what will be the position of the public?

**Mr. Eastman:** The Cape Town district was determined in accordance with the Electrical Wiremen and Contractors Act some time in 1943 but by arrangement with the Board the Act was not brought into operation until early this year. This was because of difficult experiences in Cape Town with certain contractors who made repre-

sentations that a large number of their employees did not qualify for one reason or other, probably mainly due to not having applied for registration, or if they did apply, not sitting and passing their examinations. Therefore, the Act did not come into operation until January this year and immediately it was put in operation the Electricity Department of the City Council endeavoured to express the provisions of the Act, particularly in regard to the wiring work of persons who were not qualified wiremen. These men were unqualified to the extent that they had not become registered even up to that date.

I have with me a selection of 20 letters which had been sent by the Department between the beginning of January and the middle of April to contractors and individuals drawing attention to the fact that the Act exists and is going to be enforced. A number of contractors in Cape Town appear even now not to understand that the Act has the force of Law in our area. We have not as yet prosecuted but we are in communication with the Board with a view to prosecuting one who continually ignores the existence of the Act. Once one case has been made and carried through successfully then the others will take things more seriously.

I have had the pleasure of discussing our difficulties with the Chairman of the Board and would like to know whether our difficulties are different from those of other undertakings. We seem to have in Cape Town a very large proportion of persons who are not well trained in wiring work nor yet trained in any electrical trade but have been doing wiring work for a long time in small jobs and are a source of considerable trouble to me and doubtless to the Board. We do seem to have a particularly difficult type of person to deal with in Cape Town.

Another point came to my notice some months ago when I attended a meeting of the South African Electrical Workers Union in Cape Town to explain the working of the Act. In the course of discussion they themselves said there was a section of their Union who seem to be ruled out from obtaining a licence because they were not trained as wiremen but trained as electrical fitters. They felt they should be given an opportunity at least of satisfying the Examination Board that they were capable of doing electrical wiring work, and I gather had not had the opportunity of making application because difficulties had arisen. I suggested that when that section of their Union was to meet next they give me an opportunity of attending their meeting. There appears to be some difficulty in this direction. Even persons who are qualified electricians have not always done sufficient electrical wiring work to qualify and their applications for registration as wiremen are refused on these grounds though they are perfectly good electricians.

**Mr. Clutterbuck:** With regard to the remarks passed by Mr. Eastman to the effect that the Board had found Cape Town a most difficult district to deal with, it is remarkable in this respect that it indicates general apathy towards the Act by wiremen who have done work in the City of Cape Town for many years. The Act came into force on the 1st January, 1940, and a great many of them never gave a thought to making application with the result that, when

the determination was made and the Act enforced, they became alarmed. However, I met a number of the Cape Town contractors who promised to impress upon their men the necessity of becoming registered. One employer who employed 12 wiremen made every effort to persuade his men to submit applications but failed with the exception of two.

Some contention exists in the minds of some electrical men as to what class of men require registration. As explained in the definition, wiring work includes wiring in and about buildings and does not only include the wiring for lighting purposes in a building but also includes any wiring used for operating motors or wiring between the consumer's switchboard and appliances used in factories or buildings. Many wiremen who were employed on that class of work were under the impression that they were not required to register and when told to register the number of applications received was very small.

Another factor is that many men who have made application since the determination was made have been asked to submit evidence of their experience. As I have already said, an applicant must submit documentary evidence that his experience over 5 years includes a reasonable proportion of wiring work. The difficult position in Cape Town is largely due to the men themselves who deserve that action should be taken against them. The objects of the Act as you all know are to secure safety for the public by eliminating incompetent and inexperienced workmen. The enforcement of this, particularly in the larger centres, cannot be postponed indefinitely. As Mr. Eastman has already remarked prosecutions are being instituted against men for performing wiring work without registration.

Another factor is that in the Cape Town area there is a large amount of wiring work being done for defence purposes. I have already stated that it is the policy of the Board to avoid interference with the war effort and to meet the position it has agreed to issue special provisional certificates to men unqualified for registration but required by the Controller of Manpower or Defence Authorities to continue with their work as a matter of urgency. The Board issued provisional certificates to these men permitting them to continue wiring work on condition that they did that work under the supervision of registered wiremen. A great many at the conclusion of war will naturally fall out of wiring work. Quite a large number of these men graduated from labourers. They spent 4 or 5 years as labourers and later were employed as electricians and expect the Board to accept that experience as wiring experience. This the Board is unable to do. One function of the Board is to uphold the status of wiremen and to establish the certificate as a hallmark of competence. Although there are probably many instances where the decisions of the Board have made themselves felt, you as Electrical Engineers would have little fault to find with that.

**Mr. Rodwell:** In Johannesburg we also have our difficulties. We also have half-trained electricians trying to get a wireman's licence. Mr. Eastman's experience is not dissimilar to ours. At the same time, while we do try to get a reasonable standard of efficiency, it is not necessary for a man to have spent the whole of his appren-

ticeship on wiring. He must have had 5 years experience which includes a reasonable amount of wiring. If he finds any difficulty in establishing this we ask him to pass some sort of practical test.

There are many cases where we have failed a number of men who have had a very good training and who could do quite well as wiremen but had no knowledge of the Supply Regulations and were required to take on that part of the examination. Every case is discussed fully on its merits by the Board. It would surprise you to see that Board, representative of all interests throughout the Union, deliberating for a long period on one man to see that he gets a fair deal. It is also surprising to see people not having done anything connected with wiring applying for a wireman's licence. It is right that the Board should give a licence to say that they are fit to perform wiring work? In turn Electrical Engineers have made representation on behalf of such men and found that they have to furnish the proof that these men have definitely had sufficient experience. We would not like them let loose in a building to do wiring work. We are apt to be misled many a time and find that men whom we thought first class wiremen have had no experience of the business at all.

**The Chairman:** Gentlemen, the time is getting on and I would like definite proposals or resolutions on these questions. The item we have dealt with are as follows:—

4.11—heard from Mr. Clutterbuck.

4.12—heard from our A.M.E.U. representative, Mr. Rodwell, and also the representative of the Trade Unions on the Wiring Board, Mr. Ellosio.

4.21—Mr. Eastman and Mr. Rodwell have given some of their experiences.

4.22—There I think we must be guided largely by the Board. The Chairman gave the Board's reasons for not determining certain areas and I think if applications are made for an extension of determined areas the Board will duly consider such applications. As stated there are certain areas which feel they should be determined. In the case of Worcester, originally no applications had been received from wiremen for registration and it would then have been a definite hardship on Worcester if it had been declared a determined area without any registered men. But things have now changed and it might be of some advantage for the Board to have Worcester declared a determined area.

4.23—Mr. Clutterbuck has mentioned that the regulations are to be amended to make this point clear.

4.24—Apparently from reading and interpretation of the Act by the Chairman, it is necessary for a Wiring Inspector to be a licensed wireman. If someone will move that we support the Board in its viewpoint on the registration of wiring inspectors in determined areas it will be something to work on at the moment.

**Mr. Eastman:** I understand that I should confine myself to comments on the experience of the Cape Town determined area but

there is another item which I am interested in, namely Item 4.24. I am in unqualified assent that Wiring Inspectors should be duly licensed. It is very necessary, in my opinion, that no Inspector should be appointed as such unless he is in possession of a licence.

There are certain employers of a municipal supply undertaking who are not Inspectors but are engineers; they are far better qualified than ordinary Inspectors to carry out highly technical tests on an installation. We had in Cape Town, for instance, men on installations testing them for power factors, etc. May be we carry out tests also of other kinds involving the handling of connections to installations. It frequently happens that certain faults appear on installations or on our system in the neighbourhood of installations which make it necessary for our engineering assistants to go into the premises and handle connections there. Under the Council's Supply Regulations any one of our employees could go to a consumer's premises and do disconnection work in the interests of safety. I think that applies in general throughout the country. We have certain engineering assistants whose duty it is to carry out these tests and I feel that it is even permissible under the Wiremen's Act for such engineering assistants to carry out such tests, checking even the work done by ordinary Inspectors. These people should be exempted from the Act and if it is not permissible to exempt such people from the Act as it now stands, the Act should be amended. This seems to have been overlooked. It did not occur to me that such an interpretation could be placed on the Act that these fully qualified engineers would have to be accompanied by a licensed wireman. If that is the intention of the Act I submit that it be amended.

**Mr. Ellis:** In connection with Item 4.22, as a member of the Witwatersrand Apprenticeship Committee I noticed, particularly in the last year, that the ratio of apprentices granted to electrical contracting firms is very high compared to other trades. Some firms were granted as many as one apprentice to one journeyman. One of the points I would like to make is that we need not be very concerned about a shortage of labour. In the last year the Electrical Worker's Association, taking into consideration the Witwatersrand, Pretoria and Natal, found that they have 500 members who are in the army and at the cessation of hostilities they will assist tremendously in the alleviation of the position. Some sections of building trades, such as plasterers, have a very low ratio of apprentices to journeymen, which is not the case with the electrical trade where the position is very much better.

Another aspect, Mr. Chairman, is that the New Apprenticeship Act is going to assist the position materially. Men in the army who have had a certain amount of training will, under the New Act, be permitted to be indentured because the age limit has been withdrawn.

**The Chairman:** Mr. Clutterbuck, are you in a position to answer Mr. Eastman's questions regarding the necessity of licensing Inspectors and Electrical Engineers?

**Mr. Clutterbuck:** The necessity of licensing Inspectors has already been discussed in Mr. Eastman's absence. One thing I might point out to him is that the reason that a person making a test should



be a licensed wireman is that testing is included in the definition of wiring work. At the same time it should be noted that this only applies to an installation before being connected to the source of supply. No departmental tests are under control in any way but simply the testing of any installation before connecting to the source of supply. The opinions expressed earlier in the proceedings were to the effect that the person or inspector making the test should hold an equal qualification to the man who did the job.

**Mr. Eastman:** (read the definition of wiring work under the Act.) My criticism on the point is that "wiring work" means the testing of any wire, fitting or apparatus used as well as intended to be used for the purpose of supplying electricity.

**Mr. Clutterbuck:** If you go further, in section 19, it will be clearly seen that no person shall connect any wire, fitting, or apparatus with the source of supply of electricity unless such wire, fitting or apparatus has been inspected, tested and approved by a person in the employ of and nominated for the purpose by the supplier. The important work there is "tested" and applies to installations before they are connected to the source of supply. Take that view and a lot of difficulty will be removed.

**Mr. Eastman:** I am pleased to hear your explanation, Mr. Clutterbuck, as I was rather perplexed at the reply I received from the Board in regard to the application I made some time ago for an interpretation. I am happy to accept this explanation of the Act as now given by the Chairman of the Board.

**Mr. Rodwell:** I had the same difficulty as Mr. Eastman has alluded to. In Johannesburg we have engineers holding Government Certificates of Competency who test out high tension apparatus and equipment, used by ourselves as suppliers, right up to the point of the service connection and I do not read the Act as requiring that they should be licensed men. I subscribe to the view that a person who inspects the work of a licensed man should himself be licensed if he is to exercise competent judgement against the background of proper experience. As, however, the High Tension Mains of a Supply Authority are excluded from the definition of wiring work and are inspected by an Electrical Engineer and not by the Wiring Inspector, I do not think it necessary for the Supply Authority to employ licensed men on work which entails the high tension side of the job in so far as the Supply Authority's part of the equipment is concerned. It is necessary, however, in my opinion to insist that the man doing such inspection work should be an electrical engineer of standing who would come into contact with the Factories Inspector himself in getting an installation passed. I see no difficulty in so far as it is necessary for a licensed man to inspect under the Act.

**Mr. Eastman:** As I understand this matter from the comments of our representative on the Board there is nothing to stop an engineering assistant, who has not been qualified as an electrical wireman, from carrying out his duties as an engineering assistant, even if it means that he has to carry out certain work on Municipal installations and make tests, etc., in the interests of the service to a consumer's installation. Furthermore, there appears to be no objection to him doing that work without a licence. Incidentally, if he

supervises the work of other men, such as inspectors, then my suggestion falls away entirely.

**Councillor Traub:** Is this an interpretation or ruling of the present Board? What will be the attitude adopted by subsequent Boards?

**Mr. Rodwell:** Nothing we do or say can bind subsequent Boards working under the Act. A ruling can be given by law when it is necessary.

**Councillor Traub:** Would it not strengthen the hand of the Board if the Act be amended in accordance with the views put forward by Mr. Eastman?

**Mr. Eastman:** If the word "testing" was left out I would be satisfied.

**Mr. Rodwell:** If the decision as to whether an Inspector need be licensed is going to be left with the Municipalities again, we are going to head once more for chaos. Before the law and the Government were on our side everything was declared ultra vires by the Courts. I would strongly urge that you ask for this decision to be incorporated in the Act. My bitter experience has been that far too many of our By-laws were declared ultra vires and we could do nothing to enforce our By-laws.

**The Chairman:** Do you concur with Mr. Eastman's interpretation of your explanation, Mr. Clutterbuck?

**Mr. Clutterbuck:** I understand Mr. Eastman has accepted my explanation.

**Mr. Eastman:** Mr. Rodwell amplified it and I merely accepted the explanation.

**Mr. Rodwell:** I said that, in so far as the Supply Authority is concerned, they have the right not to insist on a licensed man for wiring right up to the point of supply to a consumer. This is laid down in the Act. Beyond this point of supply is the consumer's side of the installation which requires inspection by a Licensed Inspector and execution by a Licensed Wireman. This is obviously inferred by the Act but I see no reason why a licensed man should not be capable of carrying out any test required.

**Mr. Eastman:** I do not agree with Mr. Rodwell. In Cape Town and doubtless in Johannesburg we have switchgear and transformers in high tension chambers installed on consumers' premises and will not allow the consumers to install that gear at all. We look upon it as part of our transmission system although on the consumer's property and we relegate to ourselves the right to install that equipment. The electrical fitting work arising on a high tension installation is not necessarily electrical wiring work. I do not suppose that men so engaged would be qualified to obtain a wireman's licence. Generally, the standard among many electrical fitters is pretty low and I do not suppose there are many who are capable as high tension jointers. There are not very many low tension jointers among licensed wiremen. We must work with qualified men. The testing of protective mechanisms is outside the scope of new wiring work in installations and yet we are suggesting having a licensed wireman to do the testing of our high tension work, etc.

I ask for an interpretation of the Act to allow the word "testing"

in the Act to be struck out. Trade Unions will look after the interests of their own people and see that inspectors should be at least as well qualified as the people whose work they are supposed to pass.

**The Chairman:** Mr. Eastman, the Act lays down that Municipal Authorities are exempted from the provision of the Act in so far as the Supplier's distribution, transmission and service lines are concerned. A reasonable interpretation would be that if the work were done by the Municipality it would be a Municipal installation on the consumer's property and therefore be exempted.

**Mr. Rodwell:** The Johannesburg Council does inspect and pass the work in high tension chambers. I do not know that I insist on licensed electricians testing that work. We carry out high tension work in high tension chambers and it is all tested, but whether entirely by licensed men or not it is more than I am able to say. I understand that our testing is carried out by qualified men but not necessarily licensed men. I understand you were talking of consumers putting in a high-tension installation as does occur among large consumers who reticulate their supply at high tension.

**Mr. Theron:** We in the small municipalities are not so fortunately placed. It very often happens that a municipality may have a licensed wireman as one of its electricians. A wireman may have had experience in house-wiring but very little in wiring big blocks of flats with the result that the Municipal man may have to go and help when he finds himself in difficulties. Must he then ask the Municipal electrician to be present when he tries to find a fault?

**Mr. Moeke:** In small municipalities we do contracting work and it becomes very difficult to apply the Act. In such cases could the Engineer not be exempted?

**Mr. Rodwell:** The Act tries to protect the trade and consumers concerned against that sort of thing. Consider the definition of an engineer; anyone can call themselves an engineer. Who is going to lay down the line of demarcation and, so far as the Board is concerned, to interpret the Act? When asking for amendments to that Act one has seriously to consider what the repercussions will be. Qualifications are laid down in the Act and after fighting for years to get such an Act do we want to lower the standard?

**The Chairman:** Apparently the general discussion boils down to the contention as to the necessity or otherwise of those whose duty it is to inspect the Supplier's installation being licensed wiremen. If we are satisfied that they should not be licensed nothing further need be done. Mr. Eastman is quite happy about the interpretation given and it may be as well to make a recommendation to our Executive Council to go into this matter, and, if found necessary, to make representation to the Board to amend or otherwise alter the Act to cover that point.

I think we all agree on the point that it is necessary for the Municipal Wiring Inspector to be a qualified wireman. The main difficulty arises in connection with the point of entry and point of separation between the Consumer's side and the Supply Authority's side; that is whether Inspector or the Engineer who may be

called upon to inspect the Supply Authority's side of the installation should be a licensed wireman or not. Is there anybody who has a resolution to put forward on these lines or are you prepared to let it go to the A.M.E.U. Executive Council for them to draft a resolution if necessary and submit it to the Conference in due course?

**Mr. Muller:** I propose that this meeting expresses itself in favour of the extension of determined areas bearing in mind that electrical development must not be unnecessarily impeded and that the employment of men must also be borne in mind with a view to post-war conditions. The resolution should mention that we have the support of the Board.

**Mr. Rodwell:** I quite understand the interpretation of the Act and therefore suggested that the Council go into the matter and put forward some resolution if necessary regarding the interpretation of the Act.

**Mr. Muller:** The point is that we have no resolution. In supporting the Board we have merely crystallised our views. If the Act has got to be altered we cannot do it this afternoon. Practically, the resolution boils down to what is suggested.

**The Chairman:** I take it your resolution Mr. Muller is that this meeting resolves to support the action of the Board in extending the determined areas.

**Mr. Muller:** Yes, that is so.

**Mr. Downie:** Seconded.

**Mr. Sellar:** I would like to move that it be a recommendation to the A.M.E.U. Executive Council to propose to the Board that a licensed wireman be the only official capable of passing any installation prior to the supply being connected up. That will clear the whole matter. I formally move that.

**Mr. Rodwell:** I am not able to support that. Undertakings today and large undertakings of the future will do heavy work which the Supplier may carry out on behalf of the consumers such as large switchboards and operating plants. In this town alone we have one concern with a demand equal to the output of a small generator. There are many electrical installations carried out by the Municipality which go beyond the ordinary licensed wireman and I feel that if the resolution is put through it could be extremely dangerous. Numbers of relays, delicate instruments, etc., want someone in the nature of a Certificated Engineer to pass them. The resolution is of a sweeping nature and goes far beyond that which the Act ever intended for a licensed wireman.

**Mr. Clutterbuck:** I think that the motion really confirms the interpretation placed upon Section 19 by the Board, viz. that it is necessary for the person who tests and inspects the new installation to be a registered wireman. There is no mention of high or low tension work but simply the wiring. I think it best to confirm the interpretation given to that section.

**The Chairman:** Apparently there is sufficient material in the last subject to form a separate discussion on its own. I think it might be wise to leave it to the Executive Council to go into this matter and bring it up again before the joint meeting of the two

Sections on Thursday as to whether section 19 of the Act should be amended or otherwise.

**Councillor Traub:** For the purpose of bringing an agreed resolution to the Council, may I propose as follows:—

"This meeting recommends that the A.M.E.U. Executive Council considers suggesting that the Act be amended to provide that wiring inspectors be appointed under the hand of the Electrical Engineer or person in charge of the Electricity Undertaking or nominated by such Supplier."

**Mr. Mocke:** I second this motion.

**The Chairman:** I am sure that this is today in operation. The Wiring Inspector is appointed under the hand of the Electrical Engineer so that I do not think this resolution would serve any good purpose as it stands.

**Councillor Traub:** The Electrical Engineer would then have to appoint an inspector who is a licensed wireman. There are Engineers who have not got the wireman's licence. Does it not mean that the man who is in charge of the Power Station is not qualified and cannot appoint anyone? Perhaps the assistant may not have the qualifications. Would that assistant be in a position to inspect that installation?

**Councillor Dickinson:** What would be the position of a Municipality if the Electrical Engineer was not in possession of a wireman's certificate? If the Engineer inspects or appoints anyone else who is unlicensed to inspect any installations, would that Municipality be liable for prosecution?

**The Chairman:** Apparently the question has boiled down to this:— if on the staff of any Municipality there is no qualified wireman to inspect work, the work cannot be inspected or passed. It is up to them to appoint a qualified wireman. The Act does not apply to areas which have not been determined.

**Councillor Traub:** We will be reaching the stage very soon where no Municipality can appoint an Electrical Engineer if not approved by the Board, as the holder of a wireman's licence.

**Mr. Rodwell:** Mr. Traub's resolution means in effect that a supplier can appoint anyone. No qualification at all is mentioned and it appears to be dead against what I thought this meeting had agreed to previously, that is, inspection of wiring had to be carried out by a licensed electrician qualified as laid down in the Act.

**Councillor Traub:** Then the Act must define what an electrical engineer is. Even Municipalities have engineers in charge who have carried out installations in the area but who are not in possession of the wiring licence. What will their position be?

**Mr. Rodwell:** The point I brought up was what is the definition of an engineer? We do know what a licensed wireman is.

**Mr. Harvey:** I move that we accept the interpretation given by the Chairman of the Licensing Board concerning the points raised by Mr. Eastman. Seconded Mr. Inglis. Carried 17 for, 3 against.

**The Chairman:** This terminates the discussion.

**Mr. Clutterbuck:** I would like to express on behalf of the Board my appreciation of the assistance received from Municipal Electrical Engineers throughout the country in these matters. They may appeal

to the Board in any difficulties they might encounter and would receive a suitable reply. The Board would very much appreciate such collaboration.

**The Chairman:** On behalf of the members of this Association, I would like to convey to the Board our sincere appreciation of the prodigious amount of work undertaken on our behalf and for their assistance in our difficulties.

The meeting adjourned at 5.30 p.m.

## SECTION B.

9.30 A.M., TUESDAY, 25th APRIL, 1944.

- 5.00 **THE FACTORIES MACHINERY AND BUILDING WORKS ACT, 1941.**  
Chairman: Mr. D. J. Hugo (Pretoria).
- 5.10 Scope of the Act.
- 5.11 Purposes and intents of the Act
- 5.12 Essential differences between electricity undertakings and factories generally.
- 5.13 The power of the Governor-General to make regulations.
- 5.20 Administrative difficulties arising from the Act.
- 5.21 Clauses of the Act with which it is impracticable or difficult for the electricity supply authority to comply.
- 5.22 The added burden of cost to the supply authority in complying with the Act and consequent repercussions.
- 5.23 Discriminative consequences arising from the incidence of the Factories Act on one supply authority and the Mines and Works Act on another supply authority operating in the same or an adjacent area.
- 5.24 The desirability or otherwise of adhering to the Mines, Works and Machinery regulations for all electricity supply authorities.
- 5.30 Machinery Regulations (Chapter III of Factories Act).
- 5.31 Difficulties arising in connection with the safety precautions set down in Clauses 70 (a), 75 and 76 (1).
- 5.32 Difficulties in providing satisfactory "earths" and procedure in such cases.
- 5.33 The application of miniature protective circuit-breakers and the possibility and desirability of manufacturing these locally.
- 5.34 Sundry: (a) Definitions of "user" and "supplier."

**The Chairman:** It is unfortunate, through force of circumstances, that this Association is only now in a position to hold a full discussion on the Factories Act which came into effect on the 1st September, 1941.

On the other hand, after 2½ years' experience of the operation of the Act, we are now more conversant with the practical difficulties which the application of the Act has introduced.

In discussing the action to be taken or representations to be made by this Association, we must not lose sight of the fact, **firstly**, that representations have already been made to the Minister of Labour by local authorities acting either individually or collectively through their various Provincial Associations, for exemption either in whole or in part from the provisions of the Act. The Minister has shown himself very reluctant to grant such exemptions except where it

has been possible to satisfy him that the conditions in operation are more favourable than required by the Act.

Secondly, we must bear in mind that this Association only represents one section of Municipal enterprise. It would be of no advantage to our respective Councils, for example, if, as the result of representations made by us, control of electricity undertakings were re-instated under the Mines and Works Act, whilst another Municipal activity such as the waterworks remained under the Factories Act.

The Factories Act figured on the agenda of the United Municipal Executive of South Africa as sessions held in Cape Town in February, 1943, and March, 1944. As a result, a comprehensive memorandum reflecting the views of the United Municipal Executive and embracing particulars of anomalies encountered by Municipalities arising from the application of the Act to their various undertakings is, I understand, now in the hands of the Minister of Labour.

It seems clear to me, therefore, that whatever resolutions are adopted by this conference, these should take the form of recommendations to the United Municipal Executive of South Africa.

I propose adhering rigidly to the agenda and in order to make the best use of the time at our disposal suggest that we first discuss the motion before you suggesting that electricity supply undertakings throughout the Union of South Africa be reinstated to control under the Mines and Works Act. Having disposed of this, we can proceed to discuss the difficulties arising from the Act and lastly deal with the Machinery Regulations. I now call on Mr. Eastman of Cape Town, who since 1931, when the Factories Act became law, has pressed for electricity undertakings to be reinstated under the control of the Mines and Works Act.

**Mr. Eastman:** As you have said, I have taken a keen interest in this matter for many years and have had the opportunity of discussing in correspondence with the Council of our Association the provisions of this Act when it was in the form of a Bill. I would like now to express, on behalf of the Association, our indebtedness to the relevant Government Department for allowing us to have that Bill in its approved form and to assist in so far as our advice was of use in avoiding many anomalies. I am glad to see with us to-day the Chief Inspector of Factories who does know my personal views and will be of great assistance to us. He will, I am sure, understand that whatever I may say in this matter is not directed against him or his administration of the Act in any way. My criticism is of the Act as a whole in its application to Municipal activities.

The criticisms of the Act which have hitherto formed the basis of correspondence is that a Municipal activity is not a factory in the ordinary sense of the term and I claim the Act was devised to regulate the activities of concerns making money for themselves out of the use of labour and out of the use of materials in changing them from one form to another for their own benefit. A Municipal activity is a service. If, in rendering that service, you happen to make something, and very few Municipalities do, it is to the benefit of the community as a whole. Moreover, it is generally well understood that the conditions of employment in

Municipalities are certainly as good as, if not better than, employment in any private enterprise. Therefore, I could see that no useful purpose would be served by applying the Act to Municipal enterprise and when later the Act acquired the force of law it was evident that it was entirely unworkable in certain respects in Municipalities. Even though it may have been considered that it was too late I still persisted in ventilating these views, viz., that Municipal undertakings should revert to control under the Mines and Works Act. I refer not only to power stations but also to Municipal laundries and other places where machinery is used and services rendered.

The fact is, if we confine ourselves to electricity, that no undertaking in this country, irrespective of its size, if supplying more than 50 per cent. for mining purposes is subject to the Factories Act. The important part of that statement is "irrespective of its size." Why should a Municipal undertaking be singled out to come under the Act. I can see the possibility of irksome Government control for electricity undertakings and wide powers of interference by the Labour Department. Few Inspectors of Machinery are qualified to deal with electricity generation and these inspectors are in a position to shut us down even, if we were, in their opinion, not complying with a regulation.

Under the Mines and Works Act, there were no regulations whatever relating to the internal economy of a works; no regulations governing occupations of persons; no social implications such as arise from the social welfare provisions in the Factories Act. These latter provisions, combined with other technical considerations, are complicating the Act in such a way as to make it unworkable.

Might I for a moment point out the difficulty which we also met in the interpretation of the scope of the Act. As I understand it, and have been informed by competent local authorities, the Act governs both the generation and distribution of electricity. You will find that apparently no extension of electricity supply can be made without the approval of an inspector. If that is so, then no extension whatever can be made to our distribution system except with the consent of the inspector, who is not necessarily a qualified man. We have had a ruling by the Trades Committees in the Cape to say that linesmen and jointers working in public streets are not subject to the provision of the Act. We also have other correspondence to the effect that the Labour Department does not ask these Trade Committees to interpret the Act since it is the function of the Government to do so. You will all appreciate, of course, that the only way to get an interpretation is for a malefactor to be taken before the Courts. If the ruling we have had in Cape Town that those who are linesmen, cable jointers, etc., employed on cabling are exempted, then those undertakings which do not generate electricity for others are not subject to the provisions of the Act.

None of these difficulties cropped up under the Mines and Works Act. They did not crop up when we were controlled by the Factories Act of 1931 for the reason that the 1931 Act did not interfere with out internal economies. The 1941 Act does, and I



submit that, on the grounds that a Municipal activity is not a factory but a service, we should still be exempted from the provisions of the Act. I could go on for a long time to show various anomalies which will arise from the strict application of the Act to a Municipal electricity undertaking because, I repeat, it concerns itself with internal affairs and provides for the shutting down of an electricity undertaking, an essential service, for possibly a minor matter of ruling by an inspector. The Act provides for this, although it may not be applied in that way.

I formally move the adoption of the draft motion appearing on page 7 of the agenda, amended as follows:

“That having regard to the distinction which exists between publicly-owned electricity supply undertakings rendering an essential service, already subject to control by Provincial legislation, and privately-owned manufacturing concerns operating for the pecuniary benefit of the private owners thereof, and the desirability of all electricity supply authorities being subject to the same statutes, it be a recommendation from this Convention to the Municipal Executive of South Africa.

- (a) That representations be made to the Government for the reinstatement of the control of electricity supply authorities throughout the Union under the Mines, Works and Machinery Act.
- (b) Failing acceptance of (a), that application be made to the Minister of Labour to exempt electricity supply authorities from the provisions of Sections 9 to 22 inclusive and Sections 25 and 26 of the Factories Act.
- (c) That a deputation comprising representatives from the United Municipal Executive of South Africa and from this Association interview the Minister of Labour to make representations accordingly.

**Mr. Bevington:** I second that motion, Mr. Chairman.

**The Chairman:** I have much pleasure in welcoming Mr. Joubert, Chief Inspector of Factories, who has kindly attended this morning with a view to assisting us in our discussions on this matter.

**Mr. Foden:** The Act became law in 1941 and was applicable to all electricity undertakings, apart from those exempted under the Mines and Works Act. Therefore, many have been obliged to adopt it although they may have considered that they were entitled to exemption from the provisions of the Act. In my opinion, I am afraid it is too late to have any serious amendments made to the Act. Mr. Eastman has touched on anomalies and we in East London have had a lot of trouble with the Act. These have been helped by meetings to discuss the matter with various parties and generally, as far as East London is concerned, the Act has worked fairly well. As I have been invited, Mr. Chairman, to support the introductory discussions to the agenda before us I have prepared the following notes:

#### 5.10—Scope of the Act.

Essentially the Act consists of provisions for the safety of men working in factories and on machinery and building works, together with a chapter dealing particularly with working conditions, i.e.

hours of work per week, overtime rates, payment for public holidays, paid leave, etc. Procedure is also laid down for the registration of factories, control by inspection, notification of an enquiry into the causes of accidents.

### 5.11—Purposes and Intents of the Act.

The main purpose of the Act appears to be the laying down of minimum working conditions for employees insofar as safety and health are concerned. In my opinion, this is a step in the right direction and the Mines, Works and Machinery Acts do not go quite as far as that; they do not look after the health and general welfare of the employees. These conditions should be uniform throughout the Union, the detailed provision for safety being included in the regulations with the health considerations embodied in Chapter III of the Act. An innovation was the fixing of 46 hours as a maximum working week. By implication it will be possible for Parliament to reduce or increase this figure. Another important feature was the fixing of the time and one-third rate as a minimum overtime rate applicable not only to hourly-paid workers but also monthly-paid workers up to £540 per annum. Another important provision of the Act is that any non-shift employee called to work on Sunday shall be paid not less than two days' pay for any time worked, or, alternatively, be paid not less than time and one-third and be granted within seven days one day paid holiday.

### 5.12—Essential Differences between Electricity Undertakings and Factories generally.

A factory consists essentially of a building housing machinery in which building all the employees operating the machinery work during normal working hours.

An electricity undertaking consists of three separate branches co-ordinated for working purposes:

- (a) Generation of electricity.
- (b) Distribution of electricity.
- (c) Administration of (a) and (b).

The generation of electricity clearly comes under the definition of a factory both in the accepted sense and in the definitions laid down in Chapter I of the Act. In regard to the distribution of electricity, workshop employees come under the Act but the outside workers engaged in working in the streets or underground cables or overhead lines or in sub-station buildings do not appear to work under conditions such as in a factory.

In regard to administration, if the office is associated with the generation of electricity, then it clearly becomes part of the factory, but if associated with the distribution of electricity only, the point is arguable.

However, it should be remembered that the Governor-General is empowered to add to the definitions laid down in the Act provided the Minister publishes a notice in the Gazette and one or more newspapers to this effect. It is conceivable that the definition of "generation of electricity" could be amended to "generation, transmission and distribution of electricity" or more simply "electricity undertakings."

**5.13.—The Power of the Governor-General to Make Regulations.**

The regulations under the Act as published are in line with the regulations published under the Mines and Works Act, and are designed to provide for the safety of the persons working in factories, the regulations particularly covering boilers, lifts, ropes and electrical works. It will appear desirable, if it is the intention of the Governor-General to make further regulations, that consultation take place with the recognised representatives of the users of machinery and other equipment in order that the best requirements for safety may be evolved.

**5.14.—Power of the Minister to make Determinations.**

Under the Act a great deal of responsibility for the Administration of the Act falls upon the Minister, who presumably is advised by his own technical staff. Here again a measure of consultation with the recognised users of machinery and particularly electrical equipment, would be of the greatest value in achieving the objects of the Act.

**5.20.—Administration Difficulties arising from the Act.**

The main difficulties appear to be centred on the overtime provisions of the Act together with the reduced working hours. Although, presumably, the intention of the Act is to make uniform conditions this does not always apply if a large number of workers will be on non-shift work at 46 hours a week, whereas the remaining portion, the shift workers, will be required to be on 48 hours a week. This difference immediately starts up the difficulty in which one employee will receive more for a week's work than another due to the fact that he is entitled to work for two hours longer a week and at overtime rates.

**5.21.—Clauses of the Act with which it is impracticable or difficult for the Electricity Supply Authorities to Comply.**

Generally the Act is workable insofar as electricity supply is concerned, provided the distinction is made between non-shift workers and the shift workers.

**5.22.—The Added Burden of Cost to the Supply Authority in Complying with the Act and Consequent Repercussions.**

Generally it appears that the wages of the non-shift workers have increased by approximately 4.7 per cent. and the wages of the shift workers have increased by approximately 6 per cent. It is difficult to give the actual nett increased cost per unit as a result of the application of the Act, owing to the intrusion of other factors.

**5.23.—Discriminative consequences arising from the incidence of the Factories Act on one Supply Authority and the Mines and Works Act on another Supply Authority operating in the same or adjacent area.**

The main differences lie in the fact that the Mines and Works Act deals primarily with the safety of structures, boilers and workmen, whereas the Factory Act in addition to these factors deals with hours

of work, payment for holidays, paid leave, confinement leave and so on. It is quite possible that the employee under the Factory Act is better off financially than his equivalent in a concern under the Mines and Works Act.

**5.24.—The Desirability or otherwise of Adhering to the Mines, Works and Machinery Regulations for all Electricity Supply Authorities.**

In general in view of the greater scope of the Factories Act and that it now appears to be the standard to which all new determinations and awards are referred, it seems desirable to work under this Act rather than the Mines and Works Acts. It is understood that the South African Railways & Harbours Administration are investigating the means by which the Factories Act could be applied to the Railways. If this comes about it would be desirable in the interests of uniform Civil Service engineering conditions throughout the Union for both the Municipal electricity undertaking and the Railways to have a similar code.

**Mr. Chairman:** I will put Mr. Eastman's motion to the meeting that Electricity undertakings should be reinstated under the Mines and Works Act.

Motion carried. In favour 35, against 2.

We shall now proceed with the difficulties arising from the Act. I have pleasure in calling on Mr. Joubert, Chief Inspector of Factories, to address the meeting.

**Mr. Joubert:** Mr. Eastman has asked why electricity undertakings were included under the Act. When this measure was drafted it was the desire of the Minister that the greatest number of workers be included under the Act. If you take the term factory, the dictionary meaning is a place where articles are manufactured to be sold, and naturally a power station cannot be termed a factory in this sense. There is a difficulty arising from the distinction between Municipal power stations and Mines power stations. This difficulty was realised but then, as it was desired to bring as many employees as possible under the Act, the generation of electricity was included.

I think Mr. Foden and Mr. Eastman remarked on the anomaly in regard to distribution employees and generation employees. We found that it was going to be difficult to include distribution. This difficulty arose, as Mr. Eastman mentioned, mainly because, if extensions had to be made to a Municipal distribution network in any part of an area, permission would have to be obtained from an inspector. If distribution could have been included we would have included it. If you can suggest some way in which distribution can be included, it will be desirable because I am sure that a request asking the Minister to go back to the Mines and Works Act will be refused. He cannot do otherwise. Consider this for instance, if your Association applies to the Minister giving the conditions under which you want to withdraw, then the Chamber of Commerce will want to withdraw on the grounds that he proposes to allow the Municipal undertakings to withdraw.

There have been many applications to the Department of Labour for certain exemptions in connection with electricity undertakings.

You must agree that the Department has treated these applications with every consideration and has tried to appreciate your difficulties in applying the Act to your undertakings. In making application for certain exemptions, certain electricity undertakings have quoted that their conditions were far better than laid down under the Factories Act. If this is so, why do you want exemption altogether from the Factories Act if conditions are better than under the Act?

Mr. Eastman mentioned the powers of an inspector to shut down a power station if the Act is being infringed. No inspector would close down a power station although, as Mr. Eastman states, the powers are there. It would be unreasonable for an inspector to say you must shut down because, say, you have not supplied a decent change house or washing facilities, etc., although it is laid down in the Act that an inspector could take such a step. In regard to the qualifications of inspectors relevant to power generation, no inspector would go to any power station on his own. He would naturally take a technical man with him when dealing with technical matters in any power station or factory.

With regard to double pay for Sunday work done, it was found under the old Act that there were a lot of abuses. In a factory or workshop work which could have been done in an hour or so after the place was shut down at the end of the day was left over and the man called out on a Sunday to spend three or four hours on the work and his day of rest was broken up. He only got slightly more than ordinary pay, that is, time and one-quarter, under the previous Act. The Minister tried to overcome these abuses by providing for double time for men called out on a Sunday. There are, however, certain industries where, due to the class of work they are doing, it is necessary for a man to come out for one or two or maybe three hours on a Sunday. In particular industries, where the whole matter was put to the Minister in detail, exemption has been granted from paying double pay for a whole day where only two hours' work had been done. They had merely to pay double time for that two hours' work. A man may have been called out on Sunday for half an hour only, as Mr. Foden mentioned, and he has to be paid two days' pay. If you could draft something for the Minister asking him whether he would allow the electricity undertakings to pay that man double time for the time worked instead of two days, he would give it consideration.

Mr. Foden mentioned the difficulty about certain men working in various sections. Sometimes while working in workshops they are factory employees and while out of the workshop they are not factory employees. On the whole, as you say, conditions in the Municipalities are better than provided under the Act. The great additional cost of treating those employees on distribution in the same way as you treat your employees in other parts of the undertaking may be advanced. Some may find they can adjust such matters amicably so that the employees cannot grouse. Mr. Foden mentioned that the shiftman is getting an advantage on the non-shift workers as he works 48 hours and has to get two hours overtime. If the shift worker gets better pay than he deserves it because he has to work two hours more.

In regard to the S.A. Railways, they are excluded from the Act. It is going to be difficult to apply the whole of the Act to the Railways, but they have agreed to apply whatever regulations of the Act are applicable wherever they can do so. They are willing to follow it out as a standard for their work where it can be applied. In the first draft it was intended that the Railways should be included under the Act, but they were finally excluded on their promising that they would go through the Act when it was passed and see what could be done to apply the provisions of the Act. A committee was appointed and went right through the Act and agreed to adopt it in a large measure. We have no jurisdiction over the Railways and cannot tell them to agree to this and that. For instance, when everything is ready, they have agreed that I can go round their workshops and see how far the actual regulations are applied.

**The Chairman:** I suggest that members now state their difficulties, and shall be pleased, Mr. Joubert, if you will reply to the points as they are raised.

**Mr. Gripper:** Councillor Traub of Worcester has come to this Convention with a definite mandate from our Council on the Factories Act. I would like to leave such points to him.

I would like, however, to ask Mr. Joubert a few questions that have arisen in my mind from his remarks. In the first place, it is said that it was the intention of the Minister to bring as many men under the Act as possible. The thing that occurs to one is, why are the mines and the power stations supplying the mines left out and why are the distribution departments of Municipal undertakings left out? We are not out to do the men on our staff out of anything that is their due. It is most definitely my opinion that the distribution staff deserves payment for overtime rather than shiftmen who for years and years knew their hours of working. On the other hand, a distribution man is called out at all hours of the day and night and has stand-by duties. Sometimes a man is placed in charge of a sub-station and may reside in the building. If he enters that switch room on a Sunday he must book two days' pay if he comes under the Act, so he does not enter the premises unless he has to. The question of equity comes in, not only with our own staff on the power undertaking but also with the staff on other sections of Municipal work.

In our case in Worcester the Act makes us pay an increase of 15 per cent. to our men. I would not like you to think that this criticism is against such payment because it is their due, but nevertheless, the men have been well treated. They have not only been given increases since the 1941 Act came into force, but also before the undertaking was working under the 1941 Act. We had correspondence with the Labour Department in this connection, but, in spite of the men being given ordinary increments according to the salary scales, we now find that the Council is liable for back pay. Applications for this back pay and also overtime rates have been coming in on top of the increments these men were paid at an earlier date. Since the Act was promulgated the hours of work have been progressively reduced. We are now doing  $1\frac{1}{2}$  hours less work than

before the Act was enforced. To-day we give and take, but there is a spirit of bargain-consciousness abroad and one cannot blame the men.

Another point that arises is that I feel the distribution men with stand-by duties require every consideration. As Mr. Joubert mentioned, it might be put to the Minister of Labour that the two hours here and there could be paid as double time. Many of us feel that something was given to some and taken away from others. The type of men called out to do stand-by work is the man who knows stand-by duties. Under present conditions of double time on Sundays the man who would stroll up to the power station and look around stays at home. Human nature has been upset.

I would like Mr. Joubert to inform us whether the question of a man on stand-by duties has ever been brought up under the Act, and whether he has any separate place in the Act.

**Mr. Joubert:** The matter of stand-by men has been dealt with by the Department of Labour. I cannot tell you what the definite ruling of the Minister was, but I know that conditions of stand-by men have been brought up and certain rulings given. I would like to know whether you have brought the question of stand-by men to the notice of the Department, because I know some have.

Why the mines do not come under the Act, I do not know.

**Mr. Bevington:** With regard to stand-by men, would it not be possible for this question to be circulated among Municipal electricity supply undertakings? It could be circularised by the Department of Labour or by this Association.

I would like to ask Mr. Joubert for his interpretation on one point of the Act. Our local Inspector of Factories say that on statutory holidays men on shift must be paid double time. In the wages book he insists on men being put down as 24 hours' pay for eight hours' work.

**The Chairman:** Mr. Joubert and his Department must necessarily carry out the requirements of the Act. If there is any disagreement with an inspector, the Department of Labour can always be asked for a ruling.

**Mr. Bevington:** There seems to be different interpretations in different districts.

**Mr. Joubert:** The point made by Mr. Bevington is that the Minister has agreed by notice in the Gazette that power-station operation means an activity in which continuous work is necessary, but he said that before he did this he wanted an undertaking from the Municipalities that they will agree to certain conditions for shift work. That point he made clear to all Municipalities who applied to be gazetted as being engaged on continuous processes. The conditions under which the Minister has published all these names of Municipalities which have agreed to his conditions are fairly well known, for instance, 48 hours' pay for 46 hours' work plus one of the six days paid at time and a half.

**Mr. Bevington:** I appreciate Mr. Joubert's explanation. The position in my area is that men are paid the ordinary eight hours for that day plus double time, i.e., 16 hours for the day, making a total payment for 24 hours.

**Mr. Mail:** As far as the financial side of the overtime is concerned, it hits the small undertakings, which are better off if they give the men time off in the week instead of paying overtime. It would suit the employees, too, as it did before the war. We have had to increase our electricity tariff to meet these and other expenses and have caused great dissatisfaction among consumers and employees. From the financial side the Act has hit us hard.

**The Chairman:** Is your main difficulty the 16 hours' overtime payment for Sunday work?

**Mr. Bevington:** For work on Sundays, overtime conditions and turning out on Sundays for short spells.

**The Chairman:** Does the solution lie in making representations to the Minister and asking him whether he would agree to undertaking paying double time for time worked on Sunday with a minimum payment, say, equivalent to four hours at ordinary rates?

**Mr. Joubert:** If such request is made, he will want to know the class of work the man turns out on.

**Mr. Gregor:** In connection with the remark about Sunday work, it hits us very hard in Standerton. Now that the Act has been enforced we refuse to bring a man out on Sunday. In the old days, about 20 years ago, if we worked anything on the mines up to three hours, we were paid a half-day; for three hours or over, a full day. I think it would be an excellent recommendation from this Association that any man called out on breakdown on distribution be paid half a day for any work up to three hours; if more, that he be paid full time.

**Councillor Traub:** I think such questions should be a matter for the individual undertaking as they would be in a position to explain to the Department of Labour. Circumstances in place A might be different from place B. The Minister could give whatever exemption he thought necessary. It is very awkward for this Conference to submit a resolution in general terms. One matter has been dealt with by our engineer. I have a definite mandate from my Council to bring to this meeting and am hoping that the resolution I will presently move may find favour and go forward as an urgent matter as far as Worcester and similar small towns are concerned.

The notice published by the Minister was to the effect that managers and foremen earning £45 per month would be exempted from the Act in regard to overtime, etc. It affects all Municipalities to a very serious extent. In our case, there is one instance where a shiftman, by reason of intelligence, was promoted to the position of maintenance foreman. He started on a salary scale of £20 per month and reached £33 and by a stroke of the pen he must now be paid £45 a month if he is to be exempted. Under present conditions, if we do not pay him £45 per month, he must book his own overtime. These are capable men but also men who feel they do not want to be placed in that invidious position.

As recently as a few weeks back we sent a small deputation to interview the Minister of Labour. My Council did not regard itself as coming within the scope of the Act for such cases but found that Worcester was gazetted as a continuous process. As a result of our interview the Minister realised our difficulties and virtually gave



us to understand that there was something in the proposition put to him. He suggested that an inspector come out and put forward recommendations which he, the Minister, could consider. It is not fair that the inspector should be put into that position and it is unfair to various municipalities to be dependent on the the point of view of inspectors. Therefore we felt that this matter should be raised at this Convention. I have a mandate from my Council to this Convention to formally move:

"That having regard to the fact that in existing wage determinations and other wage agreements, the Wage Board takes into consideration various factors operating in different areas, i.e., reduced cost of living, in consequence of which a varied scale for such areas is adopted.

"Now, therefore, this Conference respectfully urges the Minister of Labour to revise and reconsider the terms of his Notice No. 1370 (Government Gazette dated 26/9/41) with a view to providing a scale for the minimum wage of managers and foremen who are to be exempted in specified areas."

**Mr. Gregor:** I second that motion. I think that salaries should be graded according to the size of stations. I realise that men in smaller stations are happier at £35, £37 10s. and £40 per month than some of the higher paid men in the larger centres. I feel that a recommendation could come from this Convention to grade salaries according to the output of the station, i.e., stations with an output of two million should be graded at £37 10s., stations with an output of two million to five million at £40, and those above five million £45, and so on.

Motion adopted.

**Mr. Foden:** The matter of "overtime" for Sunday is apparently a bone of contention as far as all members are concerned and I suggest applying to the Minister of Labour for exemption. There are cases where an employee of an electrical undertaking is called out on Sundays for repairing a consumer's fuse, urgent power station work, etc., involving a maximum of three hours' work and has to be paid for two full days.

**Councillor Gearing:** I am frankly of the opinion that we appear to be too much concerned with the question of profit-making. Engineers should not worry unduly about the increased cost of the overtime, as the Factories Act was merely a protection for employees. Municipal undertakings, as such, were not concerned with profit-making; in most cases employees who are asked to work overtime are themselves ratepayers. It is much better to have contented employees who are also ratepayers.

On a point of information, can any of the chief engineers of power stations tell me how many hours overtime are worked in comparison to the average time worked and how much money is involved? I consider that the overtime per annum would not equal one month's wage bill. For an Association such as this to put forward a recommendation to the Minister to cut down the greater remuneration for employees working for undertakings not concerned with profit-making is not a sound move.

**Mr. Sparks:** There is discontent in small Municipalities. One of our linesmen has to turn out for two hours each Sunday and apparently draws back pay to the date of promulgation. Employees in other departments are more discontented still. The whole Factories Act in this respect is too discriminating. Some system should be worked out where the whole of the Municipal services are treated on a separate basis, different from any factory. In that way more contentment would be apparent amongst Municipal employees.

**Mr. Wright:** Having listened to the discussion, I think along the same lines as Mr. Sparks regarding the Factories Act. I agree that the Factories Act is a very good thing but does not apply strictly to Municipal undertakings and what is wanted is some forms of legislation to govern Municipal undertakings — in particular electrical undertakings. The difficulty, I think, with most Councils is that they do not want to discriminate between employees. Under the Factories Act certain of their artisans are better off than others and that is a point to which Councillors object. Therefore, the logical outcome of these discussions, as far as I can see it, is that members desire, not a Factories Act, but a Municipal Works Act to cover all Municipal activities — an Act which would be the same for all Municipalities. I do not see why each class of artisan should have a different remuneration.

Regarding Mr. Joubert's proposal that we make representations for specific exemptions from this Act, I was surprised when I heard just now that an undertaking purchasing in bulk did not come under the Factories Act. Although we in Benoni buy in bulk, we have been subjected to inspection under the Act. The Factories Inspector has made application to us for inspection on several occasions.

Most of our Sunday work is only of very short duration. Only if a person rings up and states that the lights are out is a man sent out to repair the fault. Not very much time is taken up. Faults such as these are never left over till Monday but are attended to as soon as possible. I pointed this out to the Department but in spite of that we could not obtain exemption. We have not yet paid these men their back pay which will amount to quite a large sum and the men will then probably want to retire.

**Mr. Theron:** In Klerksdorp we are classing our electrical outside staff as employees. We have only a small staff but they were discontented. It now costs my Council more than it need but the cost is justified. As long as a shift-worker works 6 days he is paid 6½ days; if he has to work 7 days a week the Department interprets the Minister's special conditions that we shall pay that shift-worker 8½ shifts. If an outside, e.g., distribution, man works 7 days a week he only gets paid for 8 shifts. This leads to a large amount of dissatisfaction.

**Mr. Gregor:** In connection with the statement that nothing definite has been decided yet regarding linesmen and mechanics, I understand the case is going to the Minister. The Act came into operation in August 1941 and we were given 12 months to apply the Act. Therefore we took it that the Act actually came into operation in August 1942, and acted accordingly. Claims for back-pay between 1941/1942 were submitted to the Local Inspector who ruled that they had to be



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paid even to men who had been out of our employ for more than six months. Some claims were met, but we have taken the matter up again. It has been suggested that we write a memorandum giving details for submission to the Minister. All details have been submitted and we are awaiting a ruling on this whether the men are to be paid out between 1941/42.

Between 1941 and 1942 our outside men had to be paid overtime in accordance with Trades Union rates. In view of that we are trying to find out whether these men must also be paid time and a half or double time on Sundays, or whether as we have paid them. The ruling will be very interesting. It will come as a surprise to most Municipalities to know that they are liable between 1941 and 1942.

**Councillor Traub:** I hope I am not out of order in mentioning this feature to the meeting. Worcester was in a same position and reached the stage where the men had to be paid £900 as a result of a recent interview with the Minister. I do not think we were in a position to say how much the men must get on the basis of overtime. The Minister suggested that the difference should be settled with the men themselves, and gave further hints that a very big Municipality had arrived at some compromise. This placed the Municipality in a difficult position. The men contend that they must get their due which they claim to be £1,400. Even the Engineers themselves did not know what the men should get.

**Councillor Gearing:** I was not present at the discussion before tea but Mr. Eastman was present and had to leave to attend Section A. Mr. Eastman is better able to discuss the Act itself. You have passed a unanimous resolution to the effect that Electrical Undertakings be exempted entirely from the Act; but having grave doubts as to whether this will be granted, you are now discussing the question of clauses from which you should apply to be exempted. The position in Cape Town is that we have already been exempted from Clauses 19 and 20 because our conditions for employees under these two clauses are already better than or equal to those imposed by the Act. I wish to support Mr. Eastman's motion that Electricity Undertakings be exempted from Clauses 10 to 18 inclusive because they are inapplicable, unnecessary and unworkable as far as Electricity Undertakings are concerned. If it is desired to add Clauses 19 and 20 of Act we would have no objection because we already are exempted. I would also include Clauses 22, 25 and 26 which are likewise unworkable and unnecessary to an Electricity Undertaking.

In regard to the amendment proposed by Mr. Foden of East London I feel inclined to agree with Mr. Millar of Bulawayo that it is unlikely to be accepted. I think the Minister will be unsympathetic. He has endeavoured to restrict Sunday employment to the maximum possible extent and it would not be very good tactics to stress the financial side but rather to stress the point that these conditions under this Act are unnecessary, unworkable and irksome, because conditions under which we pay our employees are already equal, in 90% of the cases, to those imposed by the Act, and therefore quite unnecessary.

**Councillor Mulders:** I second Mr. Gearing's motion.

**Mr. Mocke:** I am a member of one of the small Municipalities and

we find it almost impossible to comply with certain sections of the Act.

Of the 300 to 400 natives employed by my Municipality, the Power Station employed approximately 10 to whom all privileges must be given. Surely the conditions applying to one section of the Municipality should apply to all. Serious discontent among native employees results from this discrimination.

**Mr. Gripper:** Natives are now given their two weeks' leave and great difficulty is experienced in getting them away from the gate during this two weeks leave for fear of losing their jobs. These are the difficulties of applying modern legislation to the native who requires some time to take it all in. He takes his overalls home and wears them out, and he does not appreciate change rooms.

**Mr. Foden:** I withdraw my motion on condition that Section 20 in its entirety be included in our application for exemption. I am under the impression that we might stand a better chance of getting a portion of a section exempted than an entire section. If the whole section is thrown out then the sub-section is also thrown out.

**Councillor Gearing:** You have a good precedent for going forward because exemption has already been granted to Cape Town.

**Councillor Traub:** I suggest that the A.M.E.U. Executive Council should send a small deputation to visit the Minister since I think it would help a lot. The Minister received our Worcester deputation very well and if he is approached again he will probably concede our difficulties.

**Mr. Gripper:** I understand that Cape Town Council was given exemption of Clauses 19 and 20 because it actually came as a suggestion from the Cape Town Municipal Employees Association which is not the same as the S.A. Municipal Employees' Association. In order to strengthen any case coming from this body it is just questionable whether it would not be advisable to obtain, if possible, some basis of agreement from the S.A. Municipal Employees' Association. If that is obtained there is no doubt that it will go through. Cape Town got it because it came from their own Employees' Association.

I propose that we convey the terms of our resolution to the Chairman of the S.A. Municipal Employees Association for comments and a discussion at an early date. This is liable to delay matters but should not be overlooked as a possibility. I suggest that a resolution in that form be considered by our Executive Council as early as possible. It is possible that the resolution may be put forward directly to the United Municipal Executive of South Africa with advice to the effect that this Association is in touch with the S.A. Municipal Employees Association and will follow up with any further points of agreement that may be reached.

**Councillor Anderson:** I second this proposal.

**Councillor Gearing:** Mr. Eastman and I waited on the officials concerned and went into the details as a result of two interviews got that exemption. It is true that Cape Town Municipal Employees Association agree with this exemption. The proposal by Mr. Gripper is impracticable since it has to go to all the Associations throughout South Africa. One phrase may be objected to by one Association

and it may take months to get unanimous opinion from them. I am very doubtful whether they would agree to every one of these clauses being exempted. The only practical procedure is to put it through as the Chairman suggested and it should get the maximum consideration.

**Councillor Traub:** I agree with Mr. Gearing. If the Minister turns it down we can then contact the Executive of the Municipal Employees Association.

**Mr. Gripper:** My intention is to approach the Association but not to allow that to delay the main resolution. If it is not practicable I will withdraw. This Association must show that it is not out to do the employees out of their due. Just because Cape Town employees agreed it does not mean that all Municipal employees must agree. It must be clearly understood that if this motion is put through it is on the assumption that suitable agreements are reached with the Municipal Employees Association. Advantage must not be taken of any employee; the purpose of Act is to improve conditions of employees.

**The Chairman:** I suggest that we go ahead on the lines already proposed. In the event of representations not being successful we can recommend to the Executive Council of this Association that they take it up on the lines suggested by Mr. Gripper.

**Mr. Gripper:** I suggested taking it up simultaneously.

**Councillor Traub:** We need not necessarily wait for the Municipal Employees Associations' reply but can take these steps simultaneously. We can send a deputation to the Minister and at the same time convey our intention to the Municipal Employees Association.

**Mr. Bevington:** We must consider the possibility of the employees lodging a complaint before the deputation has interviewed the Minister.

**Councillor Gearing:** I agree with Mr. Bevington. The Municipal Employees Associations may be against it. We are not approaching the Minister with any idea of curtailing in any way hours or pay. We do not want to take away any privileges an employee has got under the Act. From the administration point of view this Act is unnecessary because Municipal conditions are probably the most ideal conditions of employment in the Engineering Industry.

**Mr. Foden:** I would like to ask Mr. Gearing if the Cape Town Employees Association represent the Trades Unions, because the East London negotiations were carried out with the Trades Unions.

**Councillor Gearing:** I have no specific answer — yes or no — but I do not think the Cape Town Employees' Association call themselves a Trades Union. They are a separate body working in perfect harmony with the Council.

**Mr. Foden:** I think in some towns when the occasion suits, Trades Unions disassociate themselves from the Employees Association.

**Mr. Gripper:** I still feel that the matter should be referred to the Municipal Employees Association. We must conduct this application in a fair and open manner and to attempt to slip in something first will immediately arouse suspicion — I would move that reference to the S.A. Association of Municipal Employees should be made as early as possible, intimating the lines on which this Asso-

ciation is making its appeal to the Minister but not detailing the appeal in any way.

**Mr. Bevington:** I do not agree with Mr. Gripper.

The Chairman put Mr. Gripper's proposal to the vote.

Proposal lost.

**Mr. Wright:** I propose that we approach any other Municipal Departments such as Town Engineers with a view to having a Municipal Works Act promulgated.

**Councillor Whirrel** seconded this motion.

**Councillor Gearing:** Why do we want a Municipal Works Act? We do not require such an Act. Our relations with employees are perfectly amicable. Our present administration is simple and efficient. Why should we then apply to put another Act on the Statute Book? If there is a good case for such an Act I would like to hear it. There are far too many Acts already.

**Mr. Wright:** My reason for bringing this matter up is that there are employees in Councils' service other than those in Electricity Undertakings. It is desirable that all employees in a Council's service of the same type should be treated similarly.

**Mr. Kinsman:** I favour Mr. Wright's proposal. It is not a question of having another Act. Let us have one Act and not half a dozen. At present there is confusion concerning which Factory Act we do fall under.

**The Chairman:** Would you agree to the suggestion that it first be considered by the Executive Council of your Association?

Agreed.

I will now put to the vote the motion by Mr. Eastman that we apply through the United Municipal Executive for reinstatement under the Mines and Works Act instead of the Factories Act; failing acceptance of this that we are exempted from clauses 9 to 22 inclusive and clauses 25 and 26 of the Factories Act and that a deputation from the United Municipal Executive and this Association interview the Minister of Labour to make representations accordingly.

Motion carried.

#### **ITEM 5.30 — MACHINERY REGULATIONS.**

**The Chairman:** We will now proceed to the next item on our agenda, namely, 5.30 — Machinery Regulations. I will call on Mr. Foden to present some notes he has prepared.

**Mr. Foden:** Mr. Chairman and Gentlemen, I will read the following notes which I was invited to prepare in leading the discussion on this item:—

##### **5.30. Machinery Regulations (Chapter III of Factories Act.)**

A "certificated engineer" is defined in the Factory Act Regulations as

"a person who holds a mechanical or electrical engineer's certificate of competency recognised for the purposes of the

"Mines and Works Act, 1911 (Act No. 12 of 1911.)"

Here is a direct link up with the Mines and Works Act and one on which representations should be made to the Minister to furnish a separate certificate under the Factories Act for an engineer capable of taking charge of an electrical undertaking in all its engineering phases.



### 5.32. Difficulties in Providing Satisfactory "Earths" and Procedure in Such Cases.

In the country districts where no metal water pipes are laid in the Town, and City areas where asbestos water pipes are being installed the problem of a satisfactory earth of the order of one ohm is becoming increasingly pressing. It may be that as the existing water pipes used as earths become corroded they will be replaced by pipes of asbestos or other non-metallic material. A Committee should be set up to investigate and recommend a standard type of earthing such as 0.1 copper conductor laid in conjunction with the overhead or underground distributor mains. This method would be costly but may provide the most effective earth.

### 5.33—The Application of Miniature protective Circuit Breakers and the possibility and desirability of manufacturing these locally.

These miniature protective circuit breakers to take the place of fuses on a meter board appear to be a very desirable procedure providing a method of sealing against the cutting off of supply is incorporated with the breaker. The thermal type for domestic and electro-magnetic for motor installations would be desirable. If the price could be kept reasonably low, say 10/-, then a standard form could be evolved for Municipal use. While the desirability of manufacturing miniature protective circuit breakers is under discussion it would also be desirable to consider the necessity of installing earth leakage protection breakers based on the principle of increase on the earthing system of say 30 volts. In certain circumstances such circuit breakers would compensate for the loss of satisfactory earths.

**Mr. Kinsman:** In connection with the question of the use of asbestos piping in relation to earthing I formally move the following:—

"That it be a recommendation to the Council of the Association that consideration be given to the establishment of a Committee comprising representatives from the Association of Municipal and Country Engineers and this Association to investigate and report on the use of asbestos piping for water mains for electrical earthing purposes."

Motion carried.

# WEDNESDAY, 26th APRIL 1944, 9.30 A.M.

## 6.00 THE STANDARD WIRING REGULATIONS.

Chairman: Mr. W. H. Milton (E.S.C. Johannesburg).

- 6.10 The War Emergency Regulations.
- 6.11 Material shortages and necessity for relaxation and substitutes.
- 6.12 Emergency regulations only "intra vires" if promulgated.
- 6.13 The attitude to be adopted in regard to the repeal of relaxations when proper material becomes available.
- 6.14 Relationships between supply authorities and commodity controllers as affecting local and national wiring regulations.
- 6.15 Responsibility for accidents as a result of relaxation of regulations.
- 6.16 Recommended policy for Supply Authorities.
- 6.20 The Standard Regulations.
- 6.21 Interpretation of provisions.
- 6.22 Suggestions for new clauses or amendment of old in next Edition.
- 6.23 Procedure to be followed in drafting and promulgating next Edition.
- 6.24 Issue of revision slips.

**The Chairman:** Perhaps our deliberations will be assisted if I review the items on our agenda. Consider first of all 6.10 — War Emergency Regulations; sub-item 6.11 deals with material shortages and the necessity for relaxation and substitutes. You are all probably aware that the Safety Precautions Committee was approached in connection with substitutes and relaxations which were considered desirable in view of the shortages caused by war conditions. To name one particular substitute, there is the single strand (solid) wire instead of the stranded equivalent. Such substitutes were forced on manufacturers by the Governments at war with a view to increasing the output of machines available for producing V.R. insulated wire. The Safety Precautions Committee accepted the use of single stranded wire subject to certain restrictions, for example a maximum size of single strand conductor was laid down for drawing into conduit. The views and experiences of those who have had to carry on under war conditions in respect of substitutes would be very valuable and I would take the opportunity of suggesting from the Chair that the Resolutions drawn up by this Section of the Congress should take the form of recommendations to the Safety Precautions Committee for consideration.

Dealing next with Item 6.12 — the Emergency Regulations, you will note that they are only intra vires if promulgated for application in a Supply Authority's area. Our President dealt with this question in his opening address. A number of Municipal Electrical Engineers have condoned relaxation of the requirements of certain of the regulations although no legal provision is incorporated in the regulation for so doing. The regulations specifically provide for an Engineer to use his judgment but only in certain cases. Only in such cases is he "within the law." The point to be stressed is that none of us can grant exemption to any individual from fulfilling the requirements of the law. This aspect should lead to suggested amendments.

A number of Municipalities are not yet working to the Standard Wiring Regulations and may, in consequence, be able to grant exemptions under their official By-Laws.

Item 6.13 deals with a very difficult problem i.e. what is the position going to be after the war, when material meeting regulation requirements becomes available. Installations, where recommended

relaxations have been given effect, may require modification. If we repeal these relaxations at the end of the war period then of course, some war-time installations will no longer comply with the regulations. The position would have much in common with the position when the regulations were first promulgated.

In connection with the standardisation of voltages, the introduction of a 400/230 volt standard can hardly be expected to replace all other existing voltages at once. I think the same thing will apply in connection with the wiring of premises where relaxations have been adopted and then cancelled. It will be necessary to nominate some time limit for the replacement of non-standard work. Suggestions from the floor would be a very valuable guide to the authorities when it becomes necessary to adopt some standard practice in this direction. In my opinion no Municipality should act on its own initiative; we should all co-ordinate our action and co-operate towards adopting a common scheme. This would help to avoid the arguments which arise when different methods of treating the same problems are adopted by neighbouring Authorities.

Item 6.15 deals with the question of responsibility for Accidents which may result from relaxation of regulations granted in a manner which may be ultra vires. No doubt members will express their views on this particular subject.

Item 6.16 deals with the recommended policy to be adopted by Supply Authorities where shortage of material makes relaxation of the provisions of the Wiring Regulations essential.

**Mr. Gripper:** I feel that discussion on these matters will develop gradually. I do not know if any of us feel we have any special point to bring up. We feel grateful for the work put in by the Sub-committees which drafted and arranged the promulgation of the Standard Wiring Regulations. The point I thought of making at this stage is that in many cases we have our old, out of date and obsolete regulations which were not definitely repealed at the time of Group promulgation. Worcester's old regulations are still in force. It seems to me that the application of the Standard Regulations can only come in gradually. Engineers very often have to carry the personal responsibility for a relaxation as referred to by the Chairman.

I would not like to raise any individual motion at this stage but would like to hear what others have to say. In Worcester we are busy drafting a new set of local By-Laws which will in due course be submitted to the Administrator for approval. It was my intention to make reference here to local conditions as they were affected by the Standard Wiring Regulations. For example, there are clauses in the Standard Regulations referring to a special type of cooker plug implying that a 3 phase connection is taken into every house. In our case I am not proposing to do that and would just insert in our own regulations a clause wiping this provision out of the Standard Regulations as they apply to us. I would like to get the opinion of this meeting as to the validity of this measure. If we can have it ruled finally we will know whether we are permitted to pick out a clause in the Standard Regulations that does not apply to local conditions and say that it is definitely wiped off by putting

an amending provision in our Local By-Laws. I would also like to know whether we are permitted to add to the Standard Regulations in Local By-Laws or to cancel Standard Wiring Regulation clauses.

**The Chairman:** For the guidance of the meeting I wish to make it clear that, when it was agreed at our Umtata Convention to submit the Standard Regulations for Group Promulgation, this question was discussed. It was there agreed that, where any Standard Regulation could not be enforced in any given Municipal area, the Regulation could not be removed that regulation as promulgated under Group promulgation, by providing for its exclusion (or an alternative clause or clauses suitable for local conditions) in local "supplementary" regulations or by-laws. The Umtata Conference left the impression that Group promulgation would be proceeded with in each of the four provinces, i.e. that the Standard Regulations would be gazetted in toto with a list of those Municipalities in that Province who had agreed to adopt them. Actually that procedure was not followed because the Transvaal and the Free State were the only provinces prepared to follow that procedure at the outset. I am not sure of Natal's position. In so far as the Cape is concerned, the Municipal Authorities were fortunate because the Administrator actually gazetted the regulations as Standard Provincial Regulations. The effect, however, for the Cape, Transvaal and the Free State has been to achieve what we really visualised. The procedure to be followed by individual municipalities decided at Umtata has not become impossible, namely, that each Municipality would have a notice printed in the Gazette to the effect that they had adopted the Standard Regulations. I think that is a complete reply to Mr. Gripper on this particular point.

The question of standardisation of the stove plug is rather a difficult one. After all, the regulations which were drawn up by the Safety Precautions Committee were drawn up to ensure public safety. Whether the installation of a standard type of plug is necessarily a safety precaution or not I will refrain from saying. Standardisation of plugs would certainly avoid the using of adaptors when a tenant moves from one dwelling to another. Incidentally in connection with stoves and water heaters, it is claimed in some quarters that flexible armoured connections could be replaced safely with tough rubber sheathed connections.

**Mr. Gripper:** Referring to Mr. Milton's reply concerning Group promulgation in the Cape, a large number of Municipalities were listed as adopting the Standard Wiring Regulations but the old Regulations were not repealed at the same time. In some cases only were the old Regulations repealed at the same time.

With regard to flexible connections for stoves and hot water tanks, we have found in Worcester that there is a tendency in bathrooms and kitchens to hang cloths on any convenient loop of flexible, and metallic sheathed flexible connections which then rust and become unsightly. Up to now we have made a practice of using tough rubber sheaths. An advantage in Worcester is that 90% of the stoves and hot water systems are owned by the Municipality which thus has access for servicing. We are not anxious for this

fact to have any weight in drawing up our regulations, since we hope that the public will desire to purchase these appliances and we will encourage this.

At the present moment we are wondering whether the tendency to wire war factories and warehouses with open cleat wiring should be considered as a war measure or not. In some cases it may be found necessary to exceed a spacing of 3 ft. between cleats. Spacings exceeding 3 ft. may prove quite satisfactory provided the conductors are well strained.

We have found in installations subject to steam conditions, for instance in jam factories, that open wiring on ceats may be unsatisfactory due to the rapid deterioration of the insulation.

**Mr. Kinsman:** With regard to the promulgation of the Standard Regulations in Natal, the Provincial Secretary was approached for advice. From the legal point of view it was considered inadvisable to introduce new regulations at the present time. Many existing regulations would have to be rescinded and there was the fear of the retrospective effect. The legal view is that persons cannot be forced to alter existing installations. In Durban, where relaxations have been allowed, the owners have undertaken in writing to comply with the normal regulations when so required.

**The Chairman:** From what Mr. Kinsman has said, it would appear that the Regulations in Natal will differ from the Regulations in the remaining provinces. A few comments from the Chair in connection with retrospective application may be of interest.

I would point out that the Regulations were designed to lay down minimum requirements for the safety of life and property and that if an installation did not comply with those Regulations it did not comply with the minimum requirements for safety. I do not agree with the idea that existing installations should be left until they fall short of the old Regulations before applying the new Regulations. Surely no owner or user can object to meeting requirements which are in the interests of safety to life and property.

**Mr. Inglis:** I consider that the Regulations should be enforced even in the case of smaller Municipalities. With regard to stove plugs I am in favour of a standard plug being adopted. With a three phase plug there would be no danger of interchanging phase and neutral, but all three phases need not necessarily be connected.

**The Chairman:** For Mr. Inglis' information, while I said that all Municipalities have not adopted the Standard Regulations, only very few have not. These will find it expensive to do so now. This is a point which should be discussed.

**Mr. Inglis:** There are certain regulations which can very well be adopted in local By-laws.

**Mr. Stevens:** The question of how safe an installation is does not depend on what Wiring Regulations exist unless Supply Authorities inspect installations while they are being put in and then finally test them; in short, whether systematic inspections are carried out to ensure that regulations are complied with.

It is a good thing that in some clauses of the Standard Regulations the approval of the Electrical Engineer has to be sought.

There are clauses in the Standard Regulations with which I am

not at all happy. I know it is too late to suggest alterations to the present edition so am submitting these few comments only with a view to obtaining expressions of opinion from delegates.

The Index, I think, would be greatly improved if made similar to the one in the I.E.E. Regulations which is very easy to follow.

Clause 101-01 which gives the definition for live conductors as "Live—means electrically charged"—would, I consider, be improved if altered to the definition given in the I.E.E. Regulations which reads "An object is said to be alive when a difference of potential exists between it and earth." This clause also defines "Earth — free situations." To my mind there should be no recognised earth-free situations, for if a wash basin or any other fitting requiring a water lead, or a wireless set with an earth connection be installed alongside a two pin plug, the situation will, most probably, be no longer earth free. I am of the opinion that all plug outlets should be three pin plugs with the third pin earthed.

Clause 115-02 requires all Wireless sets to be enclosed to prevent access to the interior parts without the set having first been isolated from the supply. Many sets I have seen do not comply with this regulation. I would like a more complete definition for "Enclosed" as it applies to wireless sets. Further, I would like to see a regulation prohibiting the installation and use of improvised earths because of danger that exists should the insulation of a wireless set break down and its controlling fuse fail to blow. On more than one occasion I have witnessed improvised earths alive and children playing in the vicinity.

Clause 203-04 which deals with the position of the main switches in relationship to the meter board lays down that they shall not be a greater distance than three feet apart. I would like to know whether it is intended that this dimension should be superficial. For private dwellings in Ladysmith I have adopted the practice of fixing meters on verandahs for the convenience of my department in obtaining meter readings; consumer's main switches are, whenever possible, erected on the same wall inside the premises (back to back with the meters), this is for their convenience as it prevents 'outside interference with the lights by burglars, or any one else when the house is temporarily unoccupied.

The following question arises. Is the meter and main switch in this case within three feet, in terms of the regulation?

A third point arises from the condition laid down for the entry of an overhead service connection into the premises. An approved terminal box is called for. Can anyone tell me where an "approved" terminal box is procurable under present day conditions?

Clauses 103-12 and 209-01 appear to be in conflict as the former states that all poles, including live and neutral poles of every circuit, shall be protected by a fuse; whereas the latter lays down that live poles only, on circuits supplying distribution boards, need be fused. This raises the question as to why "single pole fusing" cannot be adopted throughout an installation.

It is interesting to note that at Ladysmith and other towns where multiple earthing of the neutral is carried out, it is impossible to reverse the supply. This, of course, must be guarded against

on D.C. systems or Insulated-neutral A.C. systems by fusing on both legs.

**The Chairman:** Mr. Stevens, you have now introduced the note which I had hoped would be introduced earlier in our proceedings. It would be of very great benefit to all of us if you would draw attention to the difficulties you are experiencing in applying the Regulations, with the recommendation to the Safety Precautions Committee that these difficulties be considered by them with a view to modifying such Regulations as may be decided necessary. Difficulties may arise from misconstruing the meaning of a sentence. I would like you to put your points forward in the form of a resolution. With this end in view may I briefly review matters as far as we have gone. Mr. Gripper has mentioned wiring in factories and has recommended that the regulations be modified in respect of spacing of cleats where the factory is of steel frame construction.

We have raised the question of a three phase supply. This should come up for further discussion before we attempt to frame a resolution. There is a feeling in some quarters that the regulations call for a three phase supply where a 3 phase supply is not necessary, i.e. where a single phase connection would be suitable. The views of you gentlemen on this point would be very valuable to the Safety Precautions Committee. Whether or not that is a matter for adjustment in the Standard Wiring Regulations or a matter which should be left for individual Municipal regulations is a debatable point.

I agree with Mr. Inglis' point concerning 3-pin plugs for stoves.

Mr. Stevens has raised one or two points in respect of which resolutions are required. We should also include a measure in regard to the earth leakage relay. With regard to approved terminal boxes I understand that Bough Engineering of Johannesburg are handling an approved design.

**Mr. Inglis:** I would like to see a standard distribution system laid down for all Municipal undertakings, for example, a standard arrangement of conductors, the use of an enclosed type of fuse such as the Yorkshire cut-out in preference to the open bar type "flying" fuse, etc.

**The Chairman:** Mr. Inglis you are out of order in connection with standard distribution systems, and we cannot discuss this matter nor put forward a definite resolution. Nevertheless, Mr. Inglis, I would like your remarks should be recorded in the Proceedings of the Conference so that your suggestion may be followed up by the Council, or at the next Conference.

Agreed.

**Mr. Gripper:** Regarding the request for a resolution for the amendment of the clause dealing with the spacing of cleats of open wiring, I find that the additions which have since been made to clause (d) of Appendix III (page 102), would appear to cover most of the requirements. I would simply move that the final sentence be deleted i.e., "The supporting bobbins or cleats shall be not more than 3 ft. apart."

**Mr. Wilson:** I second the motion, Mr. Chairman.

Motion carried.

**The Chairman:** Judging by articles appearing in the overseas technical journals, particularly that of the Institute of Electrical Engineers, London, there seems to be a substantial move on foot in Great Britain towards a complete revision of the methods of wiring of premises. The move deals with the possibility of houses being built around the amenities which are required for a dwelling rather than that the house should be built and the amenities fitted in afterwards. One can visualise that the wiring would be built into the premises. A suggestion has been put forward that each room should have its own bus-bar arrangement. A channel specially prepared to carry the supply mains in the room could be fed from the main supply point. Old regulations regarding the number of plugs permissible on one circuit in each room would fall away, since such installations could take any predetermined maximum load without overloading the circuit (bus bars). I think in framing our recommendation we should try to visualise a possible change of outlook in some such direction.

Another point I would stress is the necessity for adopting some form of resolution designed to deal with the manner in which any modification brought forward by the Safety Precautions Committee should be adopted and promulgated by Municipal Authorities. As somebody recently pointed out the Regulations in the first place were adopted by our members, and through them by the Municipalities concerned. Any regulation which did not suit the requirements of a particular Municipality could be expunged and Municipalities would be entirely free to modify the regulations accordingly. Whilst this freedom is very necessary, it could be abused, and I would urge that no modification should be adopted which has the effect of reducing the stringency in so far as safety is concerned.

In regard to the adoption of three and four pin plugs and 3 phase supplies, we have to bear in mind the case of residents in outlying areas, particularly in the case of small towns. It is possible that modifications to meet such conditions are required by some of the smaller Municipalities. We should try to arrive at some recommendation as to how such adjustments should be made, and if possible, make provision for them in the Standard Regulations.

At this stage it becomes pertinent to raise the question of the best method of giving publicity to modifications and of recording them for reference.

Whether or not Revision Slips for the Standard Regulations would be issued by the S.A.I.E.E. free of charge, I am not prepared to say. We can hardly call upon the S.A.I.E.E. to finance the printing and issue of modified Wiring Regulations as each change is adopted. The 2nd Edition will embody a large number of alterations, when it is issued, and some of the alterations will be substantial. For instance the 2nd Edition will include a complete set of regulations dealing with electro-medical apparatus, in fact a new section.

**Mr. Marchand:** The regulations lay down what could be done where 3 phase supplies are furnished but do not necessarily enforce 3 phase supplies where a single phase supply would be satisfactory.

**The Chairman:** I agree with Mr. Marchand. The obligation rests with the Municipality to enforce the provisions of the Standard Regu-



lations and it is for the Municipality to decide whether or not a 3 phase supply is "available". (See Regulation 102-02).

(The meeting adjourned for tea.)

**Mr. Stevens:** The first motion I have to move is that the Safety Precautions Committee consider the adoption of the definition for "live conductor" as contained in the latest edition of the I.E.E. (London) Regulation in place of the definition contained in the Standard Wiring Regulations of the S.A.I.E.E.

**Mr. Inglis:** Seconded.

Motion carried.

**Mr. Stevens:** The second motion is that the Safety Precautions Committee consider amending the Standard Wiring Regulations so that no special consideration is given to the so-called "earth-free" situations.

**Mr. Inglis:** Seconded.

**Mr. Gripper:** It must be impossible to transfer any appliances from an "earth-free" to an earthed situation and vice versa. I feel that the deletion of all clauses dealing with "earth-free" stations is very desirable and it appears to me that the argument now raised is in line with the above possibility. The Municipalities can keep a watch on this point.

**Mr. Stevens:** To my mind it is far better, if there is going to be an earth, to have it put in by the Supply Authority and three-pin plugs installed. Water connections may be introduced afterwards, and an "earth-free" situation ceases to be "earth-free." Wireless earths can be any sort of earth, and any sort of earth is a dangerous thing to have about. An earth must be a good earth or it is nothing at all.

**The Chairman** asked for contrary views but there were none forthcoming.

Motion carried.

**Mr. Wright:** I think that this subject was put down on the Agenda in the hope that constructive criticisms would be forthcoming. So far Mr. Stevens is the only member who has any criticisms. If you have any complaints, don't be afraid to come forward. Outside the Conference Room I have heard that there has been difficulty in carrying out these Regulations in actual practice. The Engineer has no power whatever to carry out these Regulations unless they have been promulgated.

In connection with the application of the Regulations, we all know that few of us go out to look for trouble on a job. Arising from the question of the shortage of material rendering it impossible to comply with Regulations, we should bear in mind that no new buildings, nor additions to old buildings, are permissible without the permission of the Controller of Building Materials. There are new buildings going up and, where there is a shortage of material, the Controller may limit the number of lights. Nevertheless, it is permissible to make application for a new plug. The danger of buying plugs and other electrical appliances over the bazaar counter is that very often they do not comply with Standard Regulations. The service terminal box manufactured by a Cape Town firm is satisfactory.

**The Chairman:** Speaking to the question of Standard appliances, I

would like to point out that the Wiring Regulations only apply to fixed wiring and appliances. A Municipal Authority can usually apply effective control in respect of the fixed appliances but control of apparatus beyond the outlets from the fixed wiring such as kettles, radiators, etc., presents great difficulty because "policing" can hardly be carried out to ensure that such apparatus is of approved design and safely used. This latter aspect of control seems to be one for government action in so far as the sale in the first place should be prevented.

**Mr. Downie:** It appears that there is a shortage of stranded wire at the moment; what is the position now and for the future?

**Mr. E. R. Smith:** 3/.036" and 3/.029" will not be made during the War period. In this instance we are following the ruling of the British Government, but principally from an economic point of view on the production side. For a short period after the War, 3/.036" and 3/.029" will not be made in Great Britain. Local factories will make these sizes if and when needed. 7/.029" will still be manufactured. This applies to 250 volt wire only and not to 660 volt wire.

The supply overseas of cables is nil and is likely to remain nil except for very special cables. The cable factory at Vereeniging is able to cope with South Africa's requirements at the moment, but special cables must be imported from England.

**Mr. Muller:** With regard to switchboards, I would like to know what the views of members are concerning substitutes for "incombustible material" which is practically unobtainable.

**Mr. Downie:** I move that the Executive Council take any necessary action to promulgate modifications of the Regulations by instigation of group promulgation or by any other means deemed expedient.

**Mr. Houreld:** Seconded.

Motion carried.

**Mr. Stevens:** Regulation 115-02 refers to wireless sets. There are wireless sets on the market which are not totally enclosed, and there is a possibility of people interfering with the wireless set while in operation and possibly receiving a shock. What action can be taken to avoid this, and to have the matter rectified on existing sets?

Another matter which has engaged my mind is improvised earths for wireless sets. Modern wireless sets can work efficiently without an earth, and in view of that I feel that improvised earths for wireless sets should be prohibited entirely. In Ladysmith there have been two near accidents because of faulty earthing. In one instance an end of the earth-wire was put into the ground which was damp with the result that the damp earth started steaming and became electrified. Anyone coming in contact with this ground could have been subjected to danger. There was no indication (apart from the steam) that anything was wrong, as the fuses did not blow.

Section 203-04 refers to the position of the main switch and fuses in respect of the meter board. It states that it must be placed within 3 ft. of the meter. Having the meter board on the outside wall and the main switch on the opposite side of a 9 inch wall, would that be 3 ft.? Furthermore, if the main switch is outside, people

go away and switch off with a view to eliminating the possibility of appliances being left connected inside the house. Anybody can come along and put that switch on. There are many Undertakings where they never consider having the meter board outside, but then again there are Undertakings that do.

I should like to hear opinions on the possibility of insisting on screw tubing on all installations bearing in mind that the increase in cost would not amount to more than 5% to 10%.

I should like to suggest that the Regulations might contain clauses setting down the maximum sizes of various types of motors that may be connected to the mains under various starting conditions for Squirrel-cage Induction Motors, Slipring Motors, and high torque double wound Induction Motors.

**Mr. Gripper:** In connection with Mr. Stevens' remarks I feel that this Conference will not have sufficient time to go into details. I feel that such Standard Regulations should be a basic safety code for guidance still allowing us as individual undertakings to develop our own code of practice. The difficulty arises where one has to draw the line. It is considered that the I.E.E. Regulations are becoming too comprehensive and consequently unwieldy. I have not come here to criticise point by point the existing Regulations, but don't let them become so rigid and comprehensive that individual undertakings feel bound to retract or withdraw.

With regard to the maximum H.P. of motors permitted for direct-on starting I submit the following formula which has been developed empirically. It is at present purely experimental, and consequently should be quoted as such. It follows to some extent the arguments put forward by Mr. D. B. Hoseason in his paper appearing in the journal of the Institution of Electrical Engineers, volume 66, No. 376, April, 1928.

The formula is as follows:

$$H = 4 + \frac{100 P}{R}$$

where H = The maximum Horse Power that would be permitted for direct-on starting.

R = The speed of the proposed motor in revolutions per minute.

P = The equivalent Horse Power for which the particular 3 phase installation is wired, equipped and/or supplied.

**The Chairman:** Mr. Stevens' point regarding wireless sets was raised to point the necessity to define what the Regulations mean by "enclosed". If the live parts are enclosed, it could be maintained that the back may be left open.

In so far as improvised earths for wireless sets are concerned, if such an earth is dangerous the use of improvised earths must be prevented, but this item comes very close to the item mentioned earlier, viz. control of consumers appliances. From a "Regulation" standpoint, enforcement might present difficulty.

In so far as the question of the location of main switches is concerned, it seems that the problem should be put to the Safety

Precautions Committee whether or not a displacement through an intervening wall would affect the measurement of 3 ft.

Agreed.

**Mr. Stevens:** I would be obliged Mr. Chairman, if you would give an explanation of Sections 103-12 and 209-01 of the Standard Regulations.

**The Chairman:** The provisions of these regulations are receiving the attention of the Safety Precautions Committee, and the position will probably be clarified in the near future. The difficulty of interpretation arises from the question "What is a permanently earthed neutral?" If and when revised regulations and/or definitions are decided on by the Safety Precautions Committee, this Association will be advised.

I see Mr. Eastman has managed to leave the other section meeting, and as I know he wishes to return there, I will ask him now to speak.

**Mr. Eastman:** In regard to item 6.14 of our agenda, I would like to say that as far as Cape Town is concerned, we have obtained the utmost assistance from Commodity Controllers when once our difficulties have been put forward. I know very well that Controllers have extreme difficulty in determining their course of action because I believe they have no specific instructions at any time.

We are fully agreed, and every Controller with whom I have discussed the question, agrees as to the National importance of the Electricity Supply Industry. I have endeavoured to get definitely fixed some *modus operandi* whereby to stress the National importance of securing the essential materials to give electricity supply. The point of view I have taken up in this matter is that the Munitions Production is entirely dependent upon the Electricity Supply Industry.

**Mr. Kinsman:** Durban has suffered recently from an undue number of fires in fish-and-chip shops. Investigation went to show that almost without exception the fires occurred in a popular type of locally manufactured, electrically heated fish-frying pan fitted with a sliding hood. There is little possibility of the fire being caused by an overflow of cooking oil running onto the open type heating elements as an efficient labyrinth is provided.

A clue to the possible cause was afforded by evidence that the fires occurred over the surface of the oil when the hood was lifted.

A small boiler was constructed and fitted with a thermometer pocket, inspection glass and a removable cover to which was attached a small vent pipe.

A cooking oil whose flash point was given by the manufacturers as 600° F. was used and heated over a hot plate. By suddenly removing the cover from the boiler at different temperatures, thus permitting an inrush of air into the accumulation of gases it was possible to set up spontaneous combustion at temperatures as low as 464° F. The matter was taken up with the manufacturers of the oil—a firm of world repute — and the matter referred to their overseas headquarters. Our assumptions and conclusions were confirmed and it appears desirable that provision should be made in the Wiring

Regulations to cover the installation of such appliances. The provision of thermostatic control alone will not entirely meet the case, because, with the high temperatures necessary for quick and crisp cooking, accumulations of gases will still occur unless adequate ventilation is provided.

It was unanimously agreed to recommend to the Joint Conference that the resolutions, suggestions and queries raised at this section meeting should, with the approval of Council, be forwarded to the Safety Precautions Committee for attention.

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## SECTION B: 2.30 P.M. WEDNESDAY, 26th APRIL, 1944.

### 7.00 REGISTRATION OF WIRING CONTRACTORS.

Chairman: Mr. C. Kinsman (Durban).

7.10 The Electrical Wiremen and Contractors Act, 1939.

7.11 Powers of Local Authorities to license contractors.

7.12 The methods of implementing such powers.

7.13 Experience in Durban and Cape Town.

7.14 Viewpoint of the interests represented on the Electrical Wiremen's Board.

7.15 Interaction with pending building programmes.

7.16 Interaction with the factors enumerated in clause 1.5 of this agenda.

**The Chairman:** The passing of the Electrical Wiremen and Contractors Act in 1939 was an advance on the position previously existing, when local authorities who licensed contractors did so under the authority of Provincial Councils. It is certainly preferable to operate under uniform powers than under powers which may vary in the different Provinces.

One important point did arise from our experience in Durban; it was found that holders of a Municipal licence generally expect the local authority to apply, in the case of new applicants for licences, such tests as suitability of locality, financial stability of the applicant and the possibility of overtrading. Legal opinion was sought in Durban and it held, that when operating under an Act, it was not competent for a local authority to take into account any other aspects than those prescribed by the Act.

I do think, however, that the Act should be amended to empower local authorities to define more specifically the requirements which must be satisfied by applicants for licences.

In approaching this subject I would suggest one or two aspects which might be borne in mind. The first is that relating to the locality of the business; in the districts served by the Durban Municipality, there are one or two one-man contractor's businesses located in residential areas and which render excellent service to consumers in their particular districts. Personally, I would not favour the introduction of conditions relating to locality and premises which would make it impossible for such businesses to operate. Then there is the suggestion that an applicant for a

contractor's licence should be a registered wireman. Under the Act this is only necessary in the case of a one-man business; to go further would be impracticable, in my opinion. It comes to mind that in the pharmacy business, it is not necessary for the owners to be qualified provided they employ a qualified man to do the dispensing of prescriptions.

I urge upon all Municipalities, who have not yet done so, to introduce the licensing of electrical contractors in their respective areas. The provisions of the Act are fair and reasonable and to the advantage of the community and the supply authority. The subject is now open for discussion.

**Councillor Traub:** Mr. Chairman, I want to ask you for information concerning your experience as to the practicability of requiring that the registration of Wiring Contractors should be renewed every year. I do not mean that this should necessarily be on the payment of a fee. I feel that it would be sufficient for a contractor to apply for a renewal registration so that, as time goes on, the suitability of the premises and also the qualifications for his test work and of his staff could be periodically checked for compliance with the Licence conditions.

**The Chairman:** Again I must revert to Durban's experience but in doing so would be very glad to have Cape Town's views and those of other towns which have provided for the licensing of contractors.

The Provincial Council provided for payment of fees subject to a maximum fee. The maximum fees for the electrical contractor are so comparatively low that in every township in which I have had any experience Contractors have willingly paid the maximum fee. The maximum fee in Natal for a Wiring Contractor's Licence issued annually is:—

In the case of a Wiring Contractor who is not licensed as a general dealer .. . . . . .	£2 0 0 per annum.
In the case of a Contractor who is licensed as a general dealer . . . . .	£1 0 0 per annum.

and he reapplies for a licence every year.

The law-advisers contend that a Local Authority cannot stipulate that it will charge a fee for the registration certificate since the Act does not include for such a provision.

**Councillor Traub:** In regard to the requirements as to suitability or premises in Worcester, we have found only recently quite an efficient electrician who had all his equipment in his motor-car and resided at one of the local hotels. We do, however, feel the contractor must be pinned down to definite and suitable premises.

**The Chairman:** The Durban By-laws require that a contractor must have suitable premises. An attempt was made to apply the test of suitability not only to the design but also to the locality of the premises. Our legal opinion, however, holds that no matter where a man intends to set up business it is not competent for the Council to refuse the granting of a licence solely because it does not approve of the locality.

**Mr. Eastman:** In Cape Town the legal advice to which the Chairman has referred has not been taken, but the Municipal regulations which existed before the Act came into force lay down no qualification

necessary to the registration of an electrical wiring contractor.

At present anyone in Cape Town can become an electrical wiring contractor merely by paying the registration fee of 10s. 6d.

In the course of previous discussions of this matter by members of the Association it was mooted that the holding of a general dealer's licence should be an essential pre-requisite to the registration of an electrical wiring contractor. I discussed this matter on behalf of the Association with the Government officials concerned in the preliminary drafting of the Electrical Wiremen and Contractors Act so as to include this provision in the qualification of applicants for registration, but I was informed that to do so was legally impossible.

I might mention, as a matter of interest in this connection, however, that all of the better-equipped contractors with whom I have discussed the matter were in wholehearted agreement with the proposal and indeed they themselves pressed for its adoption.

I do not think that it falls within the powers of a Municipality to decide the question of registration of an electrical contractor on the grounds as to whether or not the profession or business is overtraded. It so happens, however, at the present time to be within the jurisdiction of the Controller of Industrial Man Power through the fact that no new engineering business, including that of electrical wiring contracting, can be started up without his consent.

I find it difficult, therefore, to suggest qualifications additional to those implied in the Act, namely, that the premises which he occupies are suitable for the purpose and that he is in possession of adequate equipment for the carrying out and testing of wiring work.

The questions of suitability of the premises and the adequacy of the equipment might, of course, with advantage be enlarged upon, and the minimum requirements clearly specified in any new regulations.

**The Chairman:** In Durban, if a contractor wishes to carry on a retail business, in addition to his contracting business, he must also apply for a general dealer's licence. The City Licensing Officer has powers in this case to take into account the locality of the proposed business. If his business is to be limited to contracting only, we require the applicant to have premises which may consist of a garage containing a work-bench, to have a telephone connection and to display a signboard.

**Mr. Rodwell:** In so far as Johannesburg is concerned, I would like to inform the meeting, Mr. Chairman, of our position for general information. Up to the present, it has not been necessary for electrical wiring contractors to hold a licence to operate in Johannesburg, as it has been in Durban and Cape Town.

When the Act was promulgated we gave attention to its provisions in this direction but felt that these were somewhat nebulous as a means of effective enforcement of registration. We were disappointed at such deficiencies and would like Government backing to have them removed. For instance, the Act lays down that a contractor shall occupy "premises which are suitable for carrying on the business of a contractor." This is altogether an inadequate definition, for who is to say what premises are suitable? We must bear in mind that most of a contractor's work is down away from his premises. Coun-

cillor Traub has even mentioned the case of a contractor whose "premises" comprise a motor car. Another item laid down in the Act is that a contractor shall be "in possession of adequate equipment for carrying out and testing wiring work." The discussion as to what "adequate equipment" really comprises is difficult enough, but when it is borne in mind that a contractor may specialise in E.H.T. or L.T. industrial installations, or in wiring large new blocks of flats, etc., or installing and maintaining electric lifts, or in jobbing repairs on domestic appliances and wiring, one's difficulties become worse confounded. A megger test set seems to be the only definite equipment common to all. A contractor can go into a building with only a bag of tools and do a job very well.

On the question of suitable premises, the effort was made to get the Apprenticeship Committee to state their minimum requirements in so far as apprentices were concerned. They, however, did not seem able to define a workshop suitable for training apprentice wiremen. I do not feel disposed to pass any opinion in regard to withholding permission to take on wiremen apprentices unless the contractor has suitable premises; the electrical contracting business is so wide and diverse in its scope. The possibility exists that a premises may be ruled by a supply authority as suitable and by the Apprenticeship Committee as unsuitable for their respective purposes. In drafting our by-laws recently for contractors in Johannesburg, we tried to find ways and means of being more explicit in defining minimum premises and equipment but ran into many difficulties. We also tried to adopt many other ways of rendering administration of the regulations effective. Our law advisers ruled out our intention to charge an initial registration fee plus a small annual renewal charge since the Transvaal Local Government Ordinance precludes charging a licence fee for "electricians" who are defined in such a way as to include electrical contractors. The provisions of the Ordinance also raised difficulties in the way of our provisions that intending contractors should advertise their intention to apply for a licence in the local newspapers; likewise loss, destruction or theft of a licence. Several other of the provisions we desired to incorporate in our Bye-laws referring to contractors were ruled out as ultra vires the powers afforded by the Wiremen and Contractors Act of 1939.

The Act as it stands at present gives rise to many difficulties which are by no means easy to overcome. Nevertheless, we have the opportunity of outlining our suggestions and difficulties at this Convention as a guide to the Wiremen's Board in deciding what steps to take in removing these shortcomings in practical applications.

**The Chairman:** I wish to thank Mr. Rodwell for his helpful contribution, which confirms the experiences of both Durban and Cape Town in regard to this question. Conditions to-day are such that we have a certain music firm in Durban carrying out some of our best electrical work and which has in its employ a staff incorporating qualified electrical wiremen.

**Mr. Muller:** In connection with the issue of general dealer's licences and the position in regard to premises for the purpose of carrying out wiring work, it was the practice of the Health Department in



Krugersdorp to approve premises to be used by a general dealer. The operation of the system had worked reasonably satisfactorily for a number of years.

The spirit shown at this meeting clearly indicates that the Act should be amended. After all, we feel that if the local authority is to take steps to make provision that electrical contractors should be registered, it should have a measure of effective control over the issuing of licences. If the public has confidence in knowing that in town there are licensed contractors, and they are advertised, then the public should have confidence that they can depend on the contractors to do work reliably. For such registration to be dependable, uniform and effective steps should be taken to define the minimum qualifications an applicant for a contractor should have. I do not hold that each applicant must be an electrical engineer or a licensed wireman, but I do suggest that certain minimum qualifications be laid down for contractors.

I suggest, Mr. Chairman, that this meeting recommends that the Executive Council considers the advisability of having the Act amended in order to provide for minimum qualifications for contractors and a clearer definition of the suitability of premises that are to be registered for carrying out a wiring business.

**Councillor Traub:** I wish to express my support of Mr. Muller's suggestion.

**Mr. Clutterbuck:** Members appear to be conversant with the provisions of the Act in respect of the control of electrical contractors. Requests have been received by the Board from certain quarters, following dissatisfaction concerning the requirements for contractors, that the Act should be amended to give the Board authority to control contractors in the same way that it controls licensed wiremen. There should be a standard code of requirements and regulations, and specific circumstances dealt with. At present this is only a suggestion, and it would be interesting to hear what this meeting's reaction is on this subject.

**Mr. Milton:** Can a Municipality describe what is required in regard to suitable premises? The Act calls for suitable premises, and this requires someone to define what is suitable.

**Mr. Rodwell:** The trouble is that very often what the Municipality lays down in the way of by-laws is held to be ultra-vires. In Johannesburg we have frequently had the experience of by-laws being ruled ultra vires when matters reach the stage of a court case where we have tried to lay down workable extensions to provisions of an Act or the Local Government Ordinance in which the provisions laid down are not adequately comprehensive to cover specific difficulties in full. At other times our efforts in these directions have been cut away by the law-advisers in the drafting stage. I agree that the sooner something is done in the matter the better. If the licensing of contractors was brought under Government control it would not be left to the local authorities to administer those provisions of the Act which are too indefinite to be effective in practice.

**Mr. Milton:** In my experience, where engineers and supply authorities are often at fault in framing by-laws is in their tendency to

include what legal people refer to as "a regulation within a regulation." An Act cannot confer on private persons the right to lay down a law which is not specifically defined in the Act. In short, laymen cannot be empowered to be their own law-makers.

In framing the Standard Wiring Regulations, which we talked about this morning, the drafts were submitted to the Provincial Government for approval and ultimate promulgation. In cases where elasticity of application was required in connection with specific points in the regulations, powers were conferred on the engineer "to approve." If a by-law is to be of force in law it must be specific. It must not in any particular confer on the authority power to lay down qualifications or requirements which are not specifically contained in the by-laws; if a by-law should contain such a provision, then it is likely to be ruled as ultra vires the first time it is attacked. Such words as "approved," "suitable," etc., must be rigidly defined, and their scope is strictly limited.

A serious point which arises is that no "engineer" who is given powers under the by-laws has any authority to remit the provisions of any by-law as they apply to an installation. Where he is given powers to "approve," he can do so, but where provisions are specific (and strict) he is powerless to remit. An amending by-law is necessary before he can approve an alternative. Any approval granted otherwise renders him, as an individual, responsible for an infringement.

Another direction in which by-laws fail, and in which modification of certain of the standard wiring regulations was necessary, is where an attempt is made to empower an authority to act within the by-laws in directions which have not been rigidly defined in detail in the enabling Act under which the by-laws are framed. For instance, in the case of electrical contractors, Mr. Rodwell has been advised by his legal advisers that we cannot lay down a number of disqualifying conditions because they are not contained in the Wiremen and Contractors' Act (from the point of view of licensing electrical contractors). This impasse seems to point to the only solution and that is, an amendment of the Act.

**Mr. Rodwell:** All that has been possible in drafting Johannesburg's new by-laws concerning the licensing of electrical contractors under these limitations has been as follows:

- (1) No new wiring installation or extension to existing installations connected or intended for connection to the Council's supply mains may be carried out except by a licensed contractor.
- (2) Applicants for an initial licence shall advertise in the local newspaper that it is their intention to apply for registration. The form of advertisement is laid down and calls for the lodging of any objections to a licence being granted.
- (3) Contractors must produce their annual licence for inspection at any time called upon so to do by an authorised official of the Council or a client. It is an offence under the by-laws for a client to engage a contractor who does not hold a current licence. If the licence is lost, stolen or destroyed the fact must be advertised in a newspaper to try to recover the licence if stolen or lost before a new one will be issued.

It is an offence for anybody except an authorised contractor or official to be in possession of a contractor's licence.

- (4) Various standard application forms, etc., are laid down.
- (5) The attention of contractors is drawn to the provision of the Electrical Wiremen and Contractors Act of 1939 relevant to the licensing of contractors.

It has not been possible to include in our new by-law any provisions beyond these. In issuing licences we are still bound by the rather indefinite provision of the Act in regard to premises and equipment, supplemented by the foregoing formalities. The position is by no means satisfactory as the provisions for determining whether or not a licence shall be issued are too vague to make their administration as effective as they should be in the interests of public safety, more particularly when we bear in mind the spate of building work which will arise after the war.

I move, Mr. Chairman:

"That the Electrical Wiremen's Registration Board be asked to investigate—

- (a) The possibility of the Act being amended to enable suppliers to prescribe specific minimum requirements for "premises." [Section 21 a (i)] and "equipment" [Section 21 a (ii)].
- (b) The possibility of the Electrical Wiremen's Registration Board being given control over contractors on the same lines as now applied to wiremen."

**The Chairman:** I would join Mr. Rodwell in expressing dissatisfaction at the vagueness of the qualifying clauses in the Act. Speaking as a supply engineer I feel that while a Municipality should have the right to approve the premises of a contractor, it would not like to define too closely the locality of the premises in the Municipal area. The amendment of the Act might be made to provide for the occupation of premises which, in the opinion of the supplier, are suitable for carrying on the business of a contractor. Alternatively, very definite powers could be given for the supplier to draw up by-laws on the subject which would clearly lay down its minimum requirements in regard to premises.

With regard to a reasonable complement of instruments and tools for carrying out wiring work, this Association should approach the Wiremen's Registration Board with suggestions for laying down minimum requirements.

**Councillor Traub:** In accordance with the Act, as it now stands, the Board serves a purpose in requiring wiremen to be qualified, licensed and registered. On the question of registration of contractors in a particular area, this should not be left entirely to the Board; its present function as an appeal authority is suitable. If the supplier was allowed the right to define the regulations governing the registration of contractors, he might require that the contractor has at least one registered wireman for every so many other employees. In this and various matters, the supplier can best define the immediate requirements of their particular area and this should not be left entirely to the Board.

**Mr. Milton:** Mr. Rodwell's motion was such to further the interests of Municipal authorities. It would be for the Board to decide

whether a person or firm is or is not suitable to act as wiring contractors, but the motion could be extended to confer on Municipalities the right to prescribe the nature of premises and details of equipment required. This allows some elasticity for local conditions.

**Mr. Eastman:** In regard to electrical contractors, the Board already has a good measure of control. The question of whether or not a person shall be registered by the Municipality, and the question of suitable premises, is covered by Section 23 of the Act, which states that a supplier shall, before he refuses any licence or registration under Section 21 (which deals with the suitability of premises) give the contractor concerned not less than 14 days' notice in the prescribed form of the grounds of such refusal. Section 14 Subsections (2) and (3) deal with the question of submitting to the Board and the contractor a summary of all the relevant facts alleged.

We already have duly promulgated regulations in Cape Town empowering us to register electrical contractors and, as I have mentioned before, these have worked satisfactorily and fit in quite well with the provisions of the Act.

**Mr. Milton:** We have practically no restrictions on electrical contractors under the existing Act. The motive in establishing this Act was to ensure public safety by providing that wiring work shall be done by registered wiremen and contractors in any determined areas. In undetermined areas there is no less necessity for work being done by registered wiremen and contractors, and I feel that those supply authorities who have not yet done so should apply for determination of their areas.

**Mr. Rodwell:** It seems evident, Mr. Chairman, that we require some amendment of the Act to deal with electrical contractors. The trade unions are much in support of registration for both wiremen and contractors and we can look to them to do something to assist. Whatever is put forward will be referred to the Board for consideration before any steps are taken dealing with the Act. The Board comprises not only representatives from the Municipalities, but also provides representation from the trades unions and the contractor themselves. All interested parties are catered for. The Government would see that if this Association wanted certain amendments to make administration of the Act more practical, this would be done.

**Councillor Traub** seconded Mr. Rodwell's motion.

Motion carried.

9.30 a.m., THURSDAY, 27th APRIL, 1944.

**JOINT SESSION OF SECTIONS A and B.**

**TO HEAR REPORTS ON PROGRESS AT SECTIONAL MEETINGS  
AND CONSIDER PROVISIONALLY ADOPTED RESOLUTIONS.**

In the Chair: The President, Mr. Rodwell.

**The President:** Ladies and Gentlemen, I have a few announcements to make. The first is that photographs can be obtained by members on the payment of 13/-, which includes postage. As you have already seen, they are worth it. Each delegate and member's name and district will be inscribed. We would like those of you who have not already signed an order in the book to do so if you want photographs to be despatched to you; we must definitely know before the end of the meeting how many are required.

You know that each member and delegate is, of course, entitled to a copy of the proceedings, and it is usual for engineer members to ask their Council to purchase copies since, apart from conveying useful information to Councillors, it incidentally helps the revenue of the Association. May I ask you to do what you can in this connection. In view of the increased costs which will face us on this occasion it will be necessary to charge 10/- per copy instead of the usual 7/6.

The next item, ladies and gentlemen, is the venue of the next convention. You will remember that this was discussed at our opening session when it was left to our Executive Council to go into the matter together with the Councillors representing those towns which kindly offered to have us. Councillor Olley, the Mayor of Salisbury, and Councillor Millar, of Bulawayo, have agreed that the next convention shall be held in Salisbury, and at the termination of this, not less than 24 hours of the convention shall be held at Bulawayo. I desire on your behalf to express our grateful thanks to these Councillor members and to the City Councils of Salisbury and Bulawayo for their invitations, which are much appreciated by us. Those of you who attended the 12th Convention at Salisbury back in 1934 will have very happy memories of the welcome we received there. We made many friends and visited Bulawayo at the end of the proceedings. Therefore, we look forward very much indeed to this trip to Rhodesia, and I ask you to pass a very hearty vote of thanks to Councillor Olley and Councillor Millar for their very kind invitations, which we heartily accept. (Applause.)

Yesterday at the Section A session it was impossible entirely to complete the agenda and Mr. Foden was on his feet when we more or less had to enforce a closure due to the late hour. Mr. Foden had one or two interesting points to make and we will give him the opportunity of doing so now.

**Mr. Foden:** The items on our agenda with which we were dealing are the following:—

**3.40.—Rehabilitation Plans.**

3.41.—The draft "Volunteers Employment Bill," published for general information and suggestions in Government Gazette Extraordinary, 3rd November, 1943.

The Draft Volunteers' Employment Bill is intended to provide for the civil employment of persons who have rendered military or other war service and for matters incidental thereto.

In so far as the principle of the Bill is concerned, I am of opinion that legislation is desirable to cater for those who have rendered military or other war service. Many of us have vivid recollections of what happened after the last war and I am sure no one desires to see those conditions repeated.

### 3.42—Powers and Constitution of VolunTERS' Employment Board and Committees.

At the outset I would state that the notes I have made on this subject were based on the draft Volunteers' Employment Bill, which appeared in Government Gazette No. 3263, dated 3rd November, 1943. It now appears that the title of this draft Bill has been altered to the "Soldiers' and War Workers' Employment Bill" and it has been referred to a Select Committee for report. This statement is borne out by a South African Press Association article which appeared in the East London "Daily Despatch" on the 19th April in which apprehension is expressed with regard to the Bill causing unemployment of persons who may be displaced by soldiers returning from active service.

In the Press notes to which I refer reference is made of the committee accepting the motion of Mr. S. E. Warren which states, inter alia, ". . . and recommends for the Government's consideration the desirability of introducing legislation at an early date to provide such employment."

It would therefore appear that, in view of this draft Bill being referred to a Select Committee and the possible amendments and possible further legislation which may alter the Bill beyond all recognition from its constitution of November, 1943, to what it will be when it becomes law, it may seem premature to discuss the matter. However, it is for this meeting to decide whether it wishes to listen to my comments on the original draft Bill or not. As an alternative, the meeting could decide that in view of the many possible amendments and further legislation having a bearing on the Bill it is desirable that a committee of this Association investigates the Bill when it reaches its final form and make recommendations to the Association on the matter.

**The President:** Your Executive Council will naturally watch questions that come forward very carefully, so Mr. Foden's address can almost be looked upon as a recommendation to the Council that they take particular note of the final Bill when it is issued.

**Mr. Milton:** May I suggest that Mr. Foden's points be put to the Executive Council for attention.

**The President:** Will you do that Mr. Foden?

Now, ladies and gentlemen, it is obvious that your president has not been able to attend two sectional meetings at the same time, and for that reason I will ask the chairmen of the various sections, who

know the whole of the details of all that transpired, to report to you accordingly.

We will start in the order of the agenda. I will call on Mr. Clinton to give you a resume of the discussion which took place under his chairmanship.

**Mr. Clinton:** Mr. President, the first meeting of Section A, held on Monday afternoon, dealt with Item 1.10 on the agenda, namely, Collaboration in Electrical Development Schemes by this Association of Municipal Electrical Undertakings on the one part and other Power Supply Authorities on the other. In dealing with this subject we felt that the most effective way of developing electricity supply in the Union and sharing in a planned economy, was to nationalise the collaboration between the supply undertakings in this country. It was felt by some speakers that the whole industry should be run on the lines of the Electricity Supply Commission so that one single control would operate throughout the Union. However, there was not very much support for that suggestion and I think the consensus of opinion was that the way of development in this country lay in the direction of free collaboration and, in order to make that effective, some definite and official form of collaboration between the existing kinds of electricity undertakings should be instituted by the Government. The result of our debates was that the relevant draft resolutions set down in our agenda were adopted by 43 votes to 3, without substantial modification.

One major point, however, is that our draft resolution, which was provisionally adopted, set out that the form of co-operation and collaboration should be primarily between Municipal Electricity Undertakings and the Electricity Supply Commission. Your Executive Council considered that point, for several representations had been made that there were other interests also vitally affected in the planning of electricity supply in any country. In this country other interests were in the hands of private enterprise, the Railways, the Post Office and so on. It was therefore felt that we should slightly amend the preamble of the resolution so as to represent to the Government merely that a National Joint Electric Power Board should be formed on which this Association should be adequately represented. It could then be left to the Government to add any interests which it felt could usefully serve in the development of electricity supply throughout the Union.

As a word of explanation I might add that the nationalising of electricity supply would, of course, mean marshalling and mobilising the existing resources of the country. The points put forward by the conference for the establishment of an over-riding co-ordinating authority does not really mean that every existing undertaking would be embodied under a single control to nationalise the way of development. There are many grounds why most of the British countries are wedded to a system of private employers and private enterprise, even though these may be co-ordinated by a central authority. Mr. President, that disposes of any comments I have to make concerning the existing machinery controlling the power industry.

Regarding Item 1.20, Co-ordination and Standardisation: After a

fairly full discussion it was felt that most of these items represented matters which could be better dealt with by sub-committees of this Association as an initial step. You will see that these items are particular and require a considerable amount of technical discussion which would not be suitable for a meeting of this description, so that we decided that a sub-committee of the A.M.E.U. should be appointed and our appropriate resolution is before you in its final form. These matters have been submitted to your Executive Council and it was left for them to decide whether representation should be on a geographical or regional basis. The Executive Council discussed this very fully at two meetings and felt that as its personnel was, or could by co-option be made, truly representative of the four Provinces of the Union it could be left to form the sub-committee when this resolution was adopted. As you are aware, your Executive has the power to co-opt where any member is of particular use to the work in hand. The Executive also felt that finality could be reached on the subject matters under this item if, in a preliminary way, the various Provinces first co-ordinated their views and then submitted these through their representative to an inter-Provincial meeting which might be held during the year.

Under the next Item, 1.30, Rural Electrification, there was a full discussion in which the Electricity Supply Commission, through its representative, was able to give us the benefit of their experience. Many of the members of the Association who are interested in rural electrification also gave experiences relevant to their particular areas. It was felt generally that the case for rural electrification had been made and that the development of rural loads had not proceeded as fast as had been visualised by the public and engineers generally. When the Electricity Act was promulgated in 1922, it laid down specific functions and while we may have anticipated that the Act would be amended from time to time so that the electricity supply in this country could be more quickly developed, this has unfortunately not taken place. Because of this limitation and because of lack of contact between the Association, the Commission and private bodies, the difficulties before many of our members in the development of rural electrification was made greater than necessary. Moreover, the sectional outlook in many cases on the part of the Town Councils has not been helpful and has resulted in a subdivision on the question of costs. During the initial years of rural development it might be necessary to subsidise development on lines which should be laid down by the Government. Now this particular section likewise falls under the main preamble of the provisional motion which was adopted and you will note this is particularly referred to under Item (e) of the preamble and Item 4 of the functions of the Joint Board, so that the matter can be left to the National Joint Board to advise on ways and means whereby the rate of development in rural areas can be accelerated.

Section A on the following day proceeded to consider the Conservation of Primary Power Sources under Item 1.40 of the agenda. We were fortunate in being addressed by several speakers who had made a study of this particular subject, and I feel they have established a very good case for collaboration with existing bodies on the con-



servation of our primary power resources.

As you are all aware, electricity generation is a large consumer of coal and in many cases use was reported of coking coals for this purpose. These scarce resources should be conserved by whatever means suggest themselves, but at the moment, because we are not represented on the Fuels Research Board or other appropriate body, we have very little say in this matter. It was therefore decided to support the particular item in our draft resolution under Item 5 that the Joint National Electric Power Board should collaborate with the Fuels Research Board and other relevant bodies concerning the conservation of primary power resources. Other methods of contributing to the objects visualised include, of course, consideration of hydro-electric resources and the use of electricity as a substitute for the timber resources of the rural areas.

In regard to Item 1.50 which was the last item on this section of the agenda — Load Building and Sale of Electrical Appliances, here again we were fortunate in being addressed by representatives of the South African Standards Institution and the Chamber of Commerce. I think that there again a case was made out for supporting standardisation and the branding of approved appliances. A certain amount of discussion took place towards the end of the meeting on battery-vehicles and revision of licensing methods to popularise their use. Battery-vehicles were disposed of I am afraid in rather a hurry but the general opinion was that we should be very careful not to be too enthusiastic at this stage in supporting the use of battery-vehicles in cases where there are many hills. The relevant items concerning load building and the sale of electrical appliances as set out under Items 6 and 7 of our draft motion were unanimously adopted.

Mr. President, I do not wish to elaborate any further but I should like to call on speakers who are particularly interested in the subject matter to bring forward any further points that should be cleared up in respect of Section A's proceedings.

**The President:** You have before you in type, Gentlemen, a draft motion in this connection. The first concerns Item 1.20.

Section A adopted the proposal that:—

"A sub-committee of the A.M.E.U. be appointed, on a basis of geographical representation for the purpose of investigating and submitting to the next Convention a report, on the matters arising under Item 1.20—Co-ordination and Standardisation detailed in the final draft agenda."

The A.M.E.U. Executive Council considered this question at meetings held during the course of the Convention and recommends that the above draft motion be amended to:—

"It is resolved that the Executive Council of the Association appoints regional sub-committees of the A.M.E.U. for Natal, the Cape Province, the Orange Free State, Transvaal and Rhodesia for the purpose of reporting on the matters arising from Item 1.20 to 1.27 of the Final Draft Agenda on a regional basis, and that those reports be co-ordinated and acted upon by the A.M.E.U. Executive Council for the purpose of circulating a report to members of the Association in advance of the next Convention at which these matters will be placed

on the agenda for discussion and action."

Now, gentlemen, that motion is before you and it is open for discussion.

**Councillor Gibb:** Is the Rhodesian E.S.C. acknowledged by this Association?

**Councillor Evans:** They are members of this Association, but of course the Rhodesian E.S.C. has no connection with the South African E.S.C. They are acknowledged by this Association but I see they are not represented.

**The President:** Members of the Rhodesian E.S.C. were invited to this meeting but it would seem that they have, unfortunately, been unable to attend.

This point raises the question whether a representative from the E.S.C., Rhodesia, would be invited to serve on the sub-committee or not, as they are the biggest suppliers in Rhodesia. Presumably Rhodesian A.M.E.U. members would co-opt the E.S.C. in their deliberations, as a regional committee might be given power to take advice or co-opt anyone to help them in their talks.

**Mr. Milton:** To make the point clear, there may be some idea that I am here as a representative of the South African Supply Commission. I do not represent the Commission but only speak as one of your associate members.

**The President:** Gentlemen, as there seems to be no further discussion of the amended draft motion before you I will put it to the vote.

(Motion Carried)

I would now like to continue by treating the proposed amendments in the preamble of the draft motion which was considered by Section A as laid down in our agenda.

The first proposal is to amend the preamble following Item (f) to:—

"And whereas this Conference is of the opinion that the foregoing purposes could be more expeditiously served by a closer association between municipal electricity supply undertakings on the one part and with other electricity supply authorities on the other part, beyond the objectives envisaged for the development of electricity supply under the provisions of the Electricity Act (No. 42 of 1922), provided such association so formed is afforded official status and has official advisory and executive powers."

**Councillor Kelly:** We have the words "other electricity supply authority." That is a very wide term and possibly it should be better defined.

**The President:** The wording is deliberately couched in wide terms because there may be other associations formed in the future with whom we might want to collaborate. Moreover, we wish to avoid the risk of being exclusive of other parties whom we may overlook and yet with whom we should collaborate.

Gentlemen, if there is no further discussion on the portion of the motion before you I will put the adoption of this amendment to the vote.

(Motion Carried)

Nextly it is proposed that the following portion of the preamble to the draft motion be amended as follows:—

"That the Government of the Union of South Africa be requested

to establish at as early a date as possible, a Joint National Electric Power Board upon which this Association would be afforded adequate representation with executive and advisory powers, and the powers to establish local advisory panels where deemed expedient in the Union of South Africa in order to achieve the following objectives:—"

Is there any discussion concerning this amendment?

**Councillor Gearing:** Mr. President, I know there is a pretty overwhelming majority in favour of this motion to establish a Joint National Electric Power Board, but I am not clear, and I was not clear at the earlier meeting on Monday, as to the purpose or exact meaning of the resolution. Is it proposed, Mr. President, to set up a National Electric Power Board with statutory executive powers over and above those of the E.S.C., and if so, is there any hope of our obtaining any such powers or such a board? You have in existence at the present time, the Electricity Supply Act (No. 42 of 1922) and the Government have got all the statutory power they want under that. There is a certain amount of feeling amongst City Councillors in South Africa that the E.S.C. is a body wholly or partially divorced from Government control, but actually, gentlemen, that is not so. They are a Government body as instanced by the fact that their Chairman is appointed by the Government of the day. Therefore, what is the purpose of a further board? As I stated on Monday, we have got too many controls and too many boards. The E.S.C. undertakings through the Union have first to obtain the sanctions of the Government; they have to work under the Mines and Works Act, now the Factory Act, and shortly it will be the Apprenticeship Act. When they have satisfied all these technical requirements, they have to be very careful that they do not tread on the toes of the Provincial Administrators. If the object of this resolution is to eliminate these other Acts, I can understand it, but if it is to supplement these, then I submit, Mr. President and Gentlemen, that we are going the wrong way. We are going to create more machinery and more control, whereas I think we want less. I have been very alarmed myself at the tendencies here and there on the subject of control. I say it is a dangerous policy to adopt, particularly for you technical gentlemen. I cannot understand a technical City Electrical Engineer and his assistants asking for increased powers from the Government to be exercised by the Commission unless he wishes to commit professional suicide, because that is the way I think it is going. Presumably, the Commission will attain their objects; do we desire them to eventually take over all existing stations and erect several more of their own around South Africa to make everything in the electrical garden lovely?

From each of these super power stations we will have large pylons dotted around the country distributing energy in all directions and I hope you will all be happy, but I cannot see the advantages to the community as a whole. It will result very largely, in my opinion, in most of you technical gentlemen, after years of study and experience, becoming glorified switchboard attendants because there cannot possibly be room for all of you in this new scheme of power stations which is to cheapen production so that we can all use it. So, therefore, the ultimate end surely must be the elimination of a large number of employees, senior, junior and otherwise.

Of course, we will be told that the system has been adopted in Great Britain, but I am not too sure that it has been so wonderfully successful from my reading of the Technical Press. When these bodies get such autonomous powers they are most reluctant to relinquish them. Their tendency is to stifle competition from any other source. You can see it in England in the past decade. It was found in various parts of the country, particularly in the rural areas, that the oil engine was becoming rather worrysome to the grid-people. They found that the usurper, the crude oil engine, with its vast improvements was becoming rather a menace, particularly in small installations some distance away from the wonderful pylons. So what they did, and were strong enough to do, was to put a 1d. duty on the import of heavy fuel oil. It is still there and I imagine it will remain unless the others with interests in the oil engine are stronger than they.

You will be told that so far as your Municipalities are concerned you are quite alright. We will allow you energy from our stations to all your Municipalities and what will you have to complain about. Your assistants will have less to do, you will not have any worries about breakdowns and you will be able to rake in the profits — but will you? I say you won't! If it is a sound argument for them to become national suppliers, it is a sound argument for them to resort to the old ideas for all economic ills, which will be the elimination of the middleman. Then the City Councillors will be the perfidious middleman, and we will be told that they serve no real purpose. Now I ask again, what is to become of all your officials? They will become Government employes because power supply will become a Government function. It was always intended to be a Government Function. There may be attempts to prove that this is not so and always will be. The Government will become stronger and stronger as we get weaker and weaker, and therefore all you technical gentlemen will have to become civil servants to add to the number you already have in the country. Perhaps you delight in the prospect, but I think you would prefer to be Municipal servants.

Mr. President, I am talking thus because wherever I go in South Africa, on Municipal affairs particularly, I find this tendency for increased National control. I think we are in danger of becoming, in South Africa, a spineless people, in so far as where there is anything wrong, whenever the selling price goes down, or the selling price goes up, we say, please Mr. Government eliminate this nasty man who is interfering with our industry. This is what we have, gentlemen — instead of in the spirit of our forefathers, getting on with the job ourselves and doing something for ourselves.

National control is to my mind a negation of progress. For a young and virile nation we should oppose it in every way. We are always asking for Government interference. I say that this is the wrong line and is the end of what was the foundation of national freedom. If you are going to have democracy, your democracy must start amongst the people. It must begin in the little villages and the smaller municipalities; you must have local autonomy and you must never relinquish any of the power you have got. By encouraging this policy of asking for greater national control you will eventually destroy what is the foundation of freedom.



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P.O. Box 1459 Tel. Add.: "Wils herd" Phone 2-7883

In the Electricity Act, to prove to you what I have said as to what power the Government have already got, I would refer you to Section 53, sub-section (f):—

“The Governor-General may make regulations not inconsistent with this Act as to inspection and enquiries into the conduct and operation of undertakings;”

Therefore, the Governor General or the Government have got all the power they want already. You can implement this Act if you want more Acts. The Government are already all powerful and there is no need in my opinion for increased Government control; rather is there need for decrease. Let us collaborate more closely than we have done in the past, but do not let us go crying to the Government every time something does not agree with us. Let us solve our own difficulties, but whatever we do do not let us set up any more Government control.

You see it around you in one form or another, and if you have not seen the difficulties and cannot realise the inefficiency of Government control, then I cannot understand it because it is evident every day of our lives. In the last two years we have been badgered and hampered by Government control until the average business man would be glad to let the Government buy him out at once. We do not want this extra control and we do not want another act; we have got all we need.

**Mr. Milton:** Mr. President, I do not intend to reply to Mr. Gearing in detail but I think he has gone astray on several points. In the main I think his arguments have been very sound and very worth while listening to. I would, however, like to make the following few remarks:—

The E.S.C. is a power supply authority established under the Electricity Act. The E.S.C. however, is responsible to its consumers and to the Electricity Control Board and in the event of these consumers being dissatisfied that group of consumers can take over the Commission's generating powers and ownership. Therefore, they must operate in the interests of the consumers if they are to retain their powers.

The function of the Electricity Control Board is to ensure that the users of electricity obtain their power at reasonable rates and that competition is not stifled. It is the Control Board's duty to grant that everybody who can do so sufficiently cheaply has the right to supply electricity in spite of the existence of a supply in other areas. In other words the Electricity Act does not remove competition. In the event of competition being possible with benefit to the user, it is the Control Board's duty not to eliminate that competition. Thus, in effect, the Electricity Act as it stands does not create a monopoly.

The other point I have to make is that one of the functions of the Control Board, and the Commission in its relation to the Provincial Administration, is to facilitate co-ordination of supply. From that point of view it seems to me that the Act itself provides the necessary machinery to implement many of the items from 1- to 15 in the draft motion we have before us. From my point of view, therefore, the objection I can see to our draft resolution is that the body so formed should really not have National executive powers so much as advisory powers in the administration of the Control Board's affairs and the Commission's affairs, to make sure that the Association's executive representations could be given effect to.

There are, of course, certain aspects among items 1 to 15 mentioned in our draft motion which are not yet covered by the Electricity Act. I think we can sum up items 1 to 15 as a desire which we all have to standardise practice in the interests of removing that feeling of discontent which exists in different parts of the Union, and certainly so to standardise procedure that the Nation as a whole will benefit by inter-linking power sources. A subsidiary benefit is expected from purchase of our equipment and plant in bulk on standard lines, for ultimate use in the small quantities required by individual users. Standardisation and bulk purchase is expected to reduce cost of production and selling price.

**Councillor Gibb:** I am sorry to note that Mr. Gearing has brought into our Convention a feeling of pessimism at this very late hour. I do not agree with him in all respects but he has very aptly put forward the case as I see it from the point of view of the middleman he carefully stresses. I am also sorry that he has brought in the view that the people in this country were in danger of developing into a spineless people, but I hope he is talking for the South and not for the North.

Mr. Gearing evidently misunderstands the underlying principle of the motion before us. The underlying principle is not to get another Act. The principle as I see it, is to establish a body from the technical members at the disposal of our Association to assist the Government, the Municipalities and the people as a whole with their wide knowledge to further the fundamental interests of electricity supply in South Africa. That is the point of principle and if this Association with the very able technical knowledge at its disposal, can further this object in that way, I am sure that when they have got to form a board or sub-committee they will not get away from this fundamental principle.

**Mr. Sibson:** I sincerely hope that due notice will be given regarding the elimination of staff that could be expected if unified control is adopted. I think it is an unfortunate remark for Councillor Gearing to use in favour of his point of view which, if given outside the context of this motion and if serious consideration is paid to it, will lead to the very worst construction being placed on whatever we do at this meeting. In any case I dispute the statements made in that respect. It does not matter who is generating, distributing or supplying electricity in this country; we will require more or less the same number of technicians even if employed by some other body. There is no doubt that they are required. I am sure that this is the attitude of most of us opposing monopolistic control; it is not because we are trying to hold our jobs down or that we are afraid we might lose them if such unification came about.

Apart from the state of affairs that exists on the Reef, which is rather unique, and also apart from the question of electricity for the railways throughout the rest of the Union and Rhodesia, our peak load centres around our Municipalities with their domestic and other load. The amount of electricity sold outside these Municipalities compares unfavourably with that of the amount sold within, and so I suggest that it is not the Municipalities but the E.S.C. who are the middlemen. They are the ones we are required to express our sympathy for. Where it is not practicable for the E.S.C. to have their own generating stations,



as is the case on the Reef, if they are to carry out their functions, they must purchase their supplies from existing large stations owned by the Municipality. So it is the Supply Commission, Mr. Gearing, who would be the middleman with the possibility of being ultimately eliminated, but I am quite sure that you will not seek to eliminate that middleman. You would have to carry the liability and I think that you would much prefer him to carry on.

I suggest, Mr. President, that in view of the fact that our large load centres are already Municipalities, we do not seek to give away our freedom. What we do desire is to get together to improve our efficiency and collaborate in our domestic matters to national advantage.

**The President:** We shall shortly submit our draft resolution to the vote but before doing so I should like to correct one or two wrong impressions. There seems to be some feeling that we are in danger of putting more power in the hands of the Government at the moment. In recent years the Government has been making inroads into the administration of our industry to an ever increasing extent. Every progressive Government in the world rightly wants effective control and we have to be governed. In being governed, however, we do like representation and a voice in our affairs. Now that is the whole point. At the moment there is a possibility of our losing our rightful representation in this particular instance of power supply. It is for us to vote on securing our rights and, to a large extent, that is why this motion has been brought before you. It has been discussed at great length under Section A's proceedings and agreed to by a large section of our members.

Now one or two references have been made to the British Grid and I gained the impression that it was alleged to be a failure. Gentlemen, that is not so. I venture to state that the grid system has proved very efficient in peace time and I have been privileged to go very carefully into this question at first hand. But still more so is this proved during the War when whole industrial areas might have been put out of action but for the assistance of others which were immediately brought in to share out the load. The rather wonderful British Grid is an example to the world.

I feel I must take up the challenge in regard to the benefits of inter-connection on a basis of freely-given mutual collaboration as against the swallowing up of one undertaking by another which has unfortunately eventuated in some parts of the country. This City has not only kept its end up but has kept its own power supply despite opposition. At this moment large private companies in this area are only too pleased to take large blocks of power and the Johannesburg Municipal system is pumping power into non-municipal industries through their suppliers. The agreements concerned are on a basis of reciprocity which increases the security on both sides to a far greater extent than would be the case of one single undertaking existed as a result of the swallowing process.

Gentlemen, the whole object of the draft motion before you is to see that we definitely have a hand in all matters affecting power supply. I agree that there is a tendency for too much Government Control. On the other hand we have to appreciate that the E.S.C. is serving an extremely useful function in this country, and I think that they and

the private companies are, in their own sphere, doing something very useful.

Regarding the question of interconnection this is of course the right thing to do when it comes to the question of rising peak loads, particularly when these are diverse. In this area Pretoria, Johannesburg and all the V.F.P. and E.S.C. stations are coupled up. Emergency and peak standby is there when it is wanted with consequent reduction in the installed reserve capacities for all parties concerned.

I do not want a wrong impression to be created of the grid in Great Britain or of the principle of interconnection in this country. I want to say very definitely that the whole idea of this motion before you is to ensure that Municipalities and Local Authorities shall have a say in the power supply of this country. I see no reason why this should not be, providing each Local Authority will fight for their rights even while collaborating with all those other parties who are engaged in supplying electric energy for the national weal incidental to parochial interests.

Tea interval.

**Councillor Gearing:** Apparently the impression has got abroad that I am antagonistic towards the proposals of our draft resolution. I would like to point out now that I am in no way antagonistic to these proposals for collaboration provided this is on a 50-50 basis.

**Mr. Clinton:** All that we desire to see, as a result of our motion, is that we improve collaboration and enable this Association to take its proper part in its relations with the Electricity Supply Commission. Further, I consider that it will be necessary to have certain executive powers as set out in our draft motion which do not interfere with those of the Control Board or the Electricity Supply Commission.

**The President:** I now propose to put to the vote the motion we have before us setting forth the amendment of the preamble concerning the establishment of the Joint National Electric Power Board.

Motion carried. (One dissentient.)

I will now ask Mr. Eastman to report on the proceedings under his Chairmanship concerning Item 2.00 — The Acquisition of Material and Equipment required by Electricity Supply Undertakings.

**Mr. Eastman:** When we were discussing Item 2, we were very glad indeed to have with us certain representatives of the S.A. Standards Institution and the Chamber of Commerce, and to have their very valuable assistance in our discussions.

The Meeting felt that as things were at the present time, supplies are being made available to the maximum extent. Many spoke appreciatively of the assistance given by Controllers in obtaining supplies to meet the present needs. However, we all know that it is the intention of the Government to transfer the whole control over the supply of commodities to permanent officials in the Civil Service. The Controllers of commodities with whom we have dealt up to the present are mostly gentlemen who have some knowledge of our requirements, even though it may be the case that few have any intimate knowledge of the difficulties which we experience in continuing to make electricity supplies available under present day shortages of materials and plant. Accordingly the meeting felt that our Association should have a voice on one or more of the various bodies which are in a position to control the

availability of supplies. Our discussion centred not only on securing supplies for present needs but also for our future needs. The meeting felt that when the Government appointed to the Control Organisations Civil Service officials who hitherto have had no experience whatever in connection with the supply of electricity on a National scale, then our difficulties may be expected to be intensified. This Association has a very wide experience in this direction.

The Post Office Department, the Railway and other Government Departments, as well as the Gold and Coal Mining Industry, all have channels through which their requirements of materials and equipment are dealt with purely on the basis of essentiality but there is no recognition whatever of the importance of the supply of electricity in war measures relating to priority of materials. It is within my knowledge, however, that the supply of electricity is recognised by the Director General of Supplies himself as being an important service. We ourselves know that supplies for these Departments and Industries are essential but none less essential are supplies for our key-industry of electricity supply.

It is because of the possibility of Municipal electricity supplies being relegated to the background that the meeting which I had the honour of presiding over decided that we should have a greater voice than we have now in advising the Government on this matter. This decision is made all the more necessary of being put into effect because of the important part which the Electricity Supply Industry will have to play in the future in carrying out the various post-war schemes which we read of in the papers.

With these considerations in mind your Association last February addressed a letter to the Director General of Supplies pointing out the difficulties facing the Supply Industry in regard to both present and future needs of equipment and materials and drawing his attention particularly to the need for co-ordinating our future requirements with the post-war development schemes being planned. In our letter we conveyed a resolution of your Executive Council to the effect that, in view of these considerations, some form of central organisation should be established for facilitating the acquisition of material and equipment required by Municipal Electricity Undertakings in the operation, maintenance and extension of such undertakings.

The reply from the Director General of Supplies was to the effect that there is already an organisation in existence, namely the Commodity Supply Directorate. He went on to point out that there are two principal controllers affecting our industry, namely the Controllers of Iron and Steel and of Building Materials and indicated that there was no need for any change, though his organisation would render all possible assistance in the matter of obtaining essential requirements.

Section "A" of our Conference decided that we should not drop the matter at this point but should rely on the establishment of a Joint National Electric Power Board which would act in an advisory capacity to the Director General of Supplies concerning our needs which the Board would co-ordinate. To this end we adopted Section 9 of our draft motion, namely that among the objectives of the Board should be included:—

"9. the co-ordination, standardisation and acquisition of material, equipment and spares required by electricity undertakings in the prosecution of their functions, and making recommendations to the Director General of Supplies;"

We also decided that, since some time must lapse before the Joint Power Board can become effectively active, we should take whatever opportunity may offer itself now to secure representation on those other bodies who dealt with these matters. The bodies we considered in our discussions are the Electrical Conductors Advisory Committee and the Public Utilities Advisory Committee.

The meeting also decided that it should appoint within the Association itself a domestic Sub-Committee to consider and co-ordinate our requirements of plant, equipment and materials so as to be ready to become immediately effective in an advisory capacity to the Joint National Electric Power Board as soon as this was established.

Three resolutions were passed, namely, that:-

- (1) "The A.M.E.U. make representation that a delegate be appointed to represent the interests of the Association on the Electrical Conductors Advisory Committee within the Director General of Supplies Organisation."
- (2) "Representations be made to the Government that a representative of this Association be appointed on the Public Utilities Advisory Committee."
- (3) "This Association appoint a Committee with power to investigate and co-ordinate the requirements of plant and materials required by Municipal Electricity Undertakings and to advise the appropriate authority appointed by the Government to regulate the supply of materials required for the operation, maintenance and extensions of electricity supply undertakings."

It was pointed out at our meeting that Mr. E. T. Price of the Electricity Supply Commission and Colonel G. G. Ewer, who is a member of this Association, are members of the Public Utilities Advisory Committee, and it was suggested that these gentlemen would look after our interests being fully acquainted with our troubles. This suggestion was not accepted since it was felt that our Association should be officially represented and accordingly we resolved to apply for official representation.

**The President:** Gentlemen, you have heard Mr. Eastman give his very clear statement on the matters dealt with by the meetings of Section A concerning the supply of materials and equipment required by Municipal Electricity Undertakings. Before I put them to the vote at this Joint Congress of Section A and B, is there any discussion on these items? If not we will put each motion to the vote.

Each of the four foregoing motions carried.

In each of the three latter motions Gentlemen, it will be necessary to appoint from our members the necessary representatives. This will require careful consideration including taking into account the ability of representatives to perform their functions in relation to their geographical situation. Are you prepared to leave it to your Executive Committee to appoint the respective delegates taking the various factors into account?

Agreed.

We will now continue with the proceedings of Section A under Item 3.00 — The Personnel of Electricity Undertakings and Post-War Rehabilitation, and I will ask the Chairman, Mr. Angus, to report.

**Mr. Angus:** Mr. President, I will be very brief in view of the time and the amount of business still before us.

The question on National Salary Scales for Municipal Electricity Undertakings was discussed at yesterday's meeting of Section A when it was agreed that it would be better if all our Engineer Members were first circulated with details of some proposed scheme for their information and discussion. Subsequently, if and when we were able to establish the basic principles, copies could be submitted to our respective Town Councils for consideration from their viewpoint.

Our second item concerned National Pension Schemes which proved to be a very difficult subject to tackle in view of existing conditions. Firstly there is a lack of transferrability of pension fund values between each and every Provincial scheme; secondly, we can hardly handle this problem solely from the viewpoint of Municipal Electricity Undertakings without reference to the effects on other branches of Municipal Service. However, we adopted item 10 of our draft motion to the effect that one of the functions of the Joint National Electric Power Board should be to investigate these questions arising from pension fund matters adding the rider that such investigations shall include the question of transfer between various provinces.

In regard to the question of apprentices and Power Station Personnel, after very full discussions we supported the principle of taking Army-training into account in the term of apprenticeship.

On behalf of Section A, Mr. President, I have to lay before this Joint Congress the following resolutions which we adopted for submission to this meeting, namely that:—

- (1) "It be adopted in principle that a sub-committee of the A.M.E.U. be established to schedule recommended salary scales for the technical staffs of Electricity Power Undertakings for circulation among members and subsequent consideration by Town Councils."
- (2) "The above sub-committee also investigates the question of transferring pension fund values between undertakings located in different provinces."
- (3) "Items 10, 11 and 12 of the objectives of the Joint National Electric Power Board."

**Mr. Stevens:** What consideration will be given to the technical staffs, as small as they are, of the small undertakings where the Electrical Engineer's responsibilities are very great on account of the shortage of staff necessitating the employment of inexperienced personnel? Will all this be taken into consideration?

**The President:** Yes, Mr. Stevens, the appointed Committee will go into those matters.

Gentlemen, if there is no further discussion I will put the three motions Mr. Angus has laid before us to the vote.

Motions carried.

We now come to the proceedings of Section B and I will ask Mr. Milton, Chairman for Item 6.00 — The Standard Wiring Regulations, to address the meeting.

**Mr. Milton:** Mr. President, the meeting has before it a rather lengthy list of resolutions which we adopted in connection with this general item of the conference agenda.

In regard to Item 6.14 of our agenda which concerns the relationships between Supply Authorities and Commodity Controllers as affecting local and national wiring regulations, Mr. Eastman kindly spoke and it was clear that the matter had been very largely dealt with in his own Section. There was no need for a particular motion from my section as it was obvious that his section would implement anything required.

As regards Item 6.15, namely the responsibility for accidents attributable to the relaxation of regulations, no discussion took place. My own feelings in this matter which I expressed from the chair were that it was perhaps unwise to say whether or not we felt any responsibility rested on the Supply Authority or its officers.

The remaining items on the agenda were fully discussed. The question of Emergency Regulations being *intra vires* only if promulgated (Item 6.12), it was pointed out, had been dealt with in our President's opening remarks. The item was merely regarded as being a statement of fact and was accepted as such. Mr. Kinsman pointed out that, in so far as Durban was concerned, they had acquired powers to quote relevant items of the Emergency Regulations and thus establish them as by-laws. This position, in so far as Natal is concerned, only applies until The Standard Wiring Regulations are promulgated in that Province. A special clause should be inserted in the Second Edition of the Standard Regulations when promulgated to provide that the new conditions will not become effective on existing installations. In Natal the Modifications and War Emergency Regulations, published by the S.A. Institute of Electrical Engineers, will be embodied in the promulgated regulations. In that respect Natal will differ from the remaining provinces, all of whom have already had the 1st Edition of the Standard Wiring Regulations promulgated.

The Municipalities in Natal, of course, will also be free to deal with modifications to meet local conditions. I have in mind the use of single-stranded conductor. I think that this covers the points of particular interests which was discussed under the specialised item heads at our meeting.

Mr. Joubert, Chief Inspector of Factories, has given me the following figures concerning accidents which have occurred over the period 1937/43 for incorporation in our Proceedings. These figures, he suggests, indicate that the beneficial effects of the Wiremen and Contractors Act of 1939, the Factories Act of 1941 and the adoption of the Standard Wiring Regulations are now becoming apparent.

Year	No. of Accidents	No. of Casualties	No. of Deaths
1937	27	30	12
1938	24	27	16
1939	39	41	20
1940	37	42	21
1941	40	41	20
1942	41	47	20
1943	29	31	15

A further recommendation we made was that the following information be submitted to the Safety Precautions Committee. Dealing with the fires experienced with fish-fryers, Mr. Kinsman drew attention to the fact that in Durban they had experienced a very large number of fires where fish-fryers were in use. On investigation, a further interesting fact came to light, namely the majority of these fires were experienced with one particular type of fish-fryer. A firm in Durban made a fish-fryer which was so constructed as to provide a hot cupboard for the storage of food for which there was no immediate demand. In fact the firm had done what at first seemed to be a well-finished job; a special feature was that the fumes were vented to a flue instead of being allowed to develop a pressure over the hot oil. There was, however, no provision for through-draft ventilation. Mr. Kinsman carried out some instructive experiments with this fish-fryer in regard to the conditions under which fires had occurred.

(On Mr. Milton's invitation Mr. Kinsman briefly described his experiences and tests on these fish-fryers as per page 160 of these Proceedings. — Editor).

**Mr. Milton:** It was resolved by Section B that this information was of such an interesting and vital nature that it should be submitted to the Safety Precautions Committee through this Association. We understood that there are others who might gain experience in this same direction, and asked them also to submit their findings to the Safety Precautions Committee.

This line of thought raises the question of the use of two and three-pin-plugs and earthing arrangements. It was pointed out that the Safety Precautions Committee had been faced with considerable difficulty in connection with these Regulations. There was some mention of multiple earthing of neutrals. The Standard Regulations are not entirely clear on this question of earthing and fusing of neutrals. However, if the Regulations are carefully examined there is little doubt as to their meaning. This whole question is under review because there have been some changes of practice in Great Britain in this connection. On this question, because of the changes of outlook, you will find that we have nothing to bring forward in the way of a resolution. Before putting to the meeting the various resolutions which were adopted by the Section, I would suggest that we hear Mr. Eastman's remarks.

**Mr. Eastman:** When the question arose in Cape Town as to how and when we were going to get the Standard Wiring Regulations promulgated, the first question that I was asked was: "Have you any idea whether these regulations are going to be made retrospective?" Municipal Regulations of this kind cannot be made retrospective and I have regarded the Standard Wiring Regulations as applicable only to new installations and additions to new installations. There has been no difficulty whatever in that respect, but it was found occasionally that certain wiring installed in accordance with the original Municipal Regulations were not only contrary to the new Standard Regulations, but was also in a condition which could be regarded as likely to introduce a danger. To meet such cases we have applied the Standard Regulations where an important change is made in an existing installation whereby additions are necessary to the wiring or where dangerous conditions necessitate a change.

**Mr. Milton:** I was given to understand both by the Cape and Transvaal members that it would not be possible for the Municipality to impose by-laws retrospectively in a manner which would impose any hardship. The point was not pursued, however. The Orange Free State Provincial Authorities have been in communication with the Supply Commission on this point.

I would now like to put forward the following resolutions of Section B under Item 6 of our agenda, namely that:—

- (1) The question of recommending standards for constructions of overhead mains be referred to the Executive Council for inauguration of action.
- (2) The last sentence of Section 'd' of Appendix III of the Standard Wiring Regulations be deleted.
- (3) The Safety Precautions Committee be requested to adopt the definition of "live conductor" as given in the latest edition of the I.E.E. regulations in place of the definition given in the Standard Wiring Regulations.
- (4) The Safety Precautions Committee should consider amending the Standard Wiring Regulations to remove the special conditions now applied in "Earth-free" situations.
- (5) The Executive Committee take any necessary action to promulgate modifications of the Regulations by instigation of group promulgation or by any other means deemed expedient.
- (6) The Safety Precautions Committee be requested to define "enclosed" with reference to regulations 115-02 (wireless sets).
- (7) The Safety Precautions Committee be requested to consider forming a regulation to prohibit the installation and use of improvised earths for wireless sets.
- (8) The Safety Precautions Committee be requested to state the intention of regulation 203-04 in so far as meters situated on the outside wall of premises are concerned, with due regard to the advisability of having the (only) main switch located within the premises.
- (9) The following words should be added to definition of switchboards 101-01 — "nor to the main switch (board) of domestic installations."
- (10) The Executive Council take any necessary action to promulgate the next edition of the Wiring Regulations.
- (11) Any member shall submit suggestions, clarifications, modifications or new regulations via the A.M.E.U. Executive Council to the Safety Precautions Committee so that the Safety Precautions Committee's findings could be returned to the Council for dissemination to all members."

**Mr. Muller:** Mr. President, I would like to move that we add the following as item (12) on this list:—

- (12) A definition of "incombustible material" be given.

**The President:** Gentlemen, you have before you eleven motions whose adoption is proposed on behalf of Section B plus a twelfth motion proposed by Mr. Muller. Is there any further discussion? Are you prepared to vote on all twelve motions together?

Motions carried.

The meeting adjourned for lunch.



THURSDAY AFTERNOON, 2.30 P.M., 27th APRIL, 1944.

## COMBINED SESSION OF SECTIONS A and B.

**The President:** To continue where we left off this morning I will now call on Mr. Wright to report on the Proceedings under his Chairmanship dealing with 4.00 — Registration of Electrical Wiremen.

**Mr. Wright:** First of all I would like to pay tribute to members of the Electrical Wiremen's Board who were present at our session. Mr. Clutterbuck (Chairman of the Board), acted as interpreter in regard to our difficulties, assisted by Mr. Rodwell and Mr. Elisio who are also members of the Board.

One of the main items exercising the minds of members, was the underlying reasons for the determination of certain areas and not others. It was explained by Mr. Clutterbuck that, where areas had not been determined, the Board had received no application from wiremen to be licensed or else men in those areas were not sufficiently qualified to apply. Our object in having this item on the agenda was to have the number of determined areas increased but since our agenda was drafted we have learned that the number of areas is to be increased in due course. It has been explained that there is no necessity for anyone to become alarmed at this intention. From the date of determination to the time of enforcement of the provision of the Act is usually a period of 15 months. In certain areas the number of registered wiremen is not up to the number expected by the Board. This is explained by the fact that certain individuals had applied for registration and given a host of details regarding experience and training but when called upon to substantiate these details have not been able to produce anything that would satisfy the Board. Others have been accepted for examination but are never heard of again. This process has been repeated by certain candidates half a dozen times and in the end they do not sit for the examination.

The only matter which has given rise to considerable discussion is the question as to whether a wiring-inspector should be a licensed wireman. We finally agreed that it was only right and proper that a wiring inspector, as such, should be a licensed wireman. But there was the difficulty foreseen by certain members in regard to the possibility of the head of a Branch or the Department as a duly qualified Electrical Engineer, being called in to inspect a job at any time and this person not being in possession of a wireman's licence. It was felt that a person in possession of a Government Certificate of Competency (Electrical) might be far more qualified than a wireman to carry out an inspection. It was the intention of the meeting to apply for an amendment of the Act so as to make it unnecessary for a person with a Government Certificate, who may be called upon to examine wiring work, to be in possession of a Wireman's Licence. It was finally accepted, however, that the present day working arrangements in this matter was not in conflict with the Act and was therefore quite satisfactory. Mr. Clutterbuck concurred that it was not necessary for any official holding a Government Certificate, who may be called upon to inspect wiring work, to have a wireman's licence. That covers the discussion which took place on our subject, Mr. President, and I have

no motion to place before the meeting on behalf of my section.

**Mr. Foden:** Do I understand that any official in possession of a Government Certificate does not require a Wireman's Licence, but other officials must have one if engaged on the inspection of wiring work?

**Mr. Wright:** It is not proposed to amend the Act as it is not considered necessary. It was unanimously agreed that any person appointed as a Wiring Inspector, as such, should have a Wireman's Licence, but a technical official who may be called in to inspect a portion of wiring installation need not be in possession of a wireman's licence provided he holds the Government Certificate.

**The President:** Is this general interpretation of the requirements of the Act agreed to, Gentlemen?

Agreed.

I will now call on Mr. Hugo to report to us on Item 5 — The Factories, Machinery and Building Works Act, 1941.

**Mr. Hugo:** The meeting I had the pleasure of presiding over held a full discussion on the Factories Act and the practical difficulties and anomalies arising from the Act. We had the pleasure, and were fortunate, in being addressed by Mr. F. W. Joubert who also answered a number of questions on particular points arising from the Act.

It is not possible in the time at my disposal to give you a resumé of all the matters raised. The general concensus of opinion was however, that, as Electricity Supply Undertakings are in fact not factories but public bodies rendering an essential service to the community, representations should be made for the re-instatement of the control of all Electricity Undertakings under the Mines and Works Act as was the case prior to 1931. Certain private electricity undertakings are in fact subject to control under the Mines and Works Act which does not contain any restrictions relating to hours of work, overtime payments, conditions of paid leave and so forth.

Falling acceptance of this proposal it is suggested that application be made to the Minister of Labour to exempt Electricity Supply Authorities from the provisions of Sections 9 to 22 inclusive and Sections 25 and 26 of the Factories Act.

Resolution No. 2 arises from a proposal put forward by the representatives from Worcester relating to Government Notice No. 1370, dated the 26th September 1941, in terms of which managers and foremen in receipt of a salary of not less than £540 per year are exempt from certain provisions of the Factories Act relating to hours of work and overtime payments for Sundays and Public Holidays. The resolution before you suggests that the responsible Minister should vary the figure of £540 depending upon the varying factors operating in the different areas.

On behalf of Section B, Mr. President, I would formally move the adoption of the following motions:—

**Resolution No. 1.**

"That having regard to the distinction which exists between publicly-owned electricity supply undertakings rendering an essential service, already subject to control by Provincial legislation, and, privately-owned manufacturing concerns operating for the pecuniary benefit of the private owners thereof, and the

desirability of all electricity supply authorities being subject to the same statutes, it be a recommendation from this Convention to the United Municipal Executive of South Africa,

- (a) That representations be made to the Government for the reinstatement of the control of Electricity Supply Authorities throughout the Union under the Mines, Works and Machinery Act.
- (b) Failing acceptance of (a), that application be made to the Minister of Labour to exempt electricity supply authorities from the provisions of sections 9 to 22 inclusive and sections 25 and 26 of the Factories Act.
- (c) That a deputation comprising representatives from the United Municipal Executive of South Africa and from this Association interview the Minister of Labour to make representations accordingly."

**Resolution No. 2.**

"That having regard to the fact that in existing wage determinations and other wage agreements, the Wage Board takes into consideration various factors operating in different areas, i.e., reduced cost of living, in consequence of which a varied scale for such areas is adopted.

Now therefore this Conference respectively urges the Minister of Labour to revise and reconsider the terms of his notice No. 1370 (Government Gazette dated 26/9/41) with a view to providing a scale for the minimum wage of managers and foremen who are to be exempted, in specified areas."

**Resolution No. 3.**

"That it be recommended to the Council of the Association to give consideration to the question of the desirability or otherwise of a Municipal Works Act to control all Municipal activities."

**Resolution No. 4.**

"That it be recommended to the Council of the Association that consideration be given to the establishment of a committee comprising representatives from the Association of Municipal and County Engineers and this Association to investigate and report on the use of asbestos piping for water mains in relation to use of water mains for electrical earthing purposes."

**The President:** Gentlemen, you have these motions before you and if there is no further discussion I will put them to the vote.

Motions carried.

I now call on Mr. Kinsman to report on the proceedings under his Chairmanship covering Item 7 — Registration of Wiring Contractors.

**Mr. Kinsman:** Discussion on Item 7 was held yesterday afternoon, and the fact that this item was included in the agenda served a very useful purpose. We have heard the valuable experience of other centres more particularly in regard to the legal aspects of licensing Electrical Contractors. It was on these points that the resolution before you was formulated.

The point was made clear that it was not necessary for a Local Authority to wait until their area was determined under Act before instituting provisions in their Local By-laws concerning the licensing of Contractors.

It was also made clear that no Local Authority in promulgating regulations covering the licensing of Contractors could introduce in those by-laws any prohibition clauses not already provided for in the Wireman and Contractors Act. This Act contains two prohibition clauses. The first relates to the suitability of the premises which the applicant proposes to occupy for his business, and the second concerns the tools and testing equipment with which he is supposed to be equipped. However, it was felt that the Act did not go far enough in defining quite clearly what premises and equipment were to be considered as being suitable under these two prohibition clauses. It was at first felt that we should approach the Minister for an amendment of the Act but realised that he would refer the matter back to the Wireman's Board for report. Accordingly we decided to ask the Wireman's Board to investigate this matter as a preliminary step. To this end I would formally move, on behalf of Section B, the adoption of the following motion:

"That the Electrical Wiremen's Registration Board be asked to investigate:—

- (a) the possibility of the Act being amended to enable suppliers to prescribe specific minimum requirements for "premises" [Section 21a (i)] and "equipment" [Section 21a (ii)].
- (b) the possibility of the Electrical Wiremen's Registration Board being given control over Contractors on the same lines as now applied to Wiremen."

**Councillor Traub:** I would like Mr. Kinsman to explain to the meeting whether there is any provision in the Act which will enable a Local Authority to prescribe a proficiency test. If this would be *intra vires* then I move that resolution (a) be amended by the addition of the word "proficiency". The Act is not clear to me on that point.

**Mr. Kinsman:** That was one point that Section B did discuss. There is no reference in the Act as to the personal qualifications of the persons applying for registration as Electrical Contractors. One Local Authority suggested that it might be desirable to stipulate some qualification with which the applicant must comply before the Local Authority would consider granting him a Licence. Cases were cited of music firms now selling and installing electrical goods; the directors are not qualified electricians in any sense, and it is unreasonable to expect these directors to have a knowledge of electricity.

**Councillor Traub:** I am trying to stress the point that the Local Supplier, through its Electrical Engineer, should have some say in regard to qualifications when a would-be Contractor comes forward with an application for registration. We simply want the Act to give the Local Supplier the right to prescribe some minimum standard of efficiency either by stipulating technical qualifications or proficiency. At present there is nothing which we can put in our by-laws in this direction. Our local by-laws merely make provision for the fact that on the first application for registration a fee is payable.

**Mr. Milton:** I think we have lost sight of the fact that Wiring Contractors cannot do any work unless they employ registered wiremen. Therefore, in respect of proficiency, the municipal authority is covered. If a man applies for registration as a Wiring Contractor and does not employ qualified wiring personnel he could be refused registration as

he could not do wiring work otherwise.

**Mr. Muller:** Paragraph (b) of the motion appears to be alternative to (a). Would the Contractor's Licence be a "once and for all" licence or would the Local Authority have the power to issue licences on an annual basis? Another point I would like to ask is who would get the fees accruing from the licensing of Contractors?

**Mr. Milton:** The point was not that Section (a) and (b) of our motion should be alternative but that (b) would have the effect of covering Mr. Traub's point. Section (a) in itself is a large step forward while (b) is a still further advance, but not an alternative to (a).

**Councillor Traub:** I appreciate that once an area is determined then a licensed wireman must operate. However, it will take some considerable time before all areas are determined. In the meantime there are Wiring Contractors operating in non-determined areas in which they are not obliged to employ Licenced Wiremen. We must also bear in mind the Contractors right of appeal to the Wiremen's Board. The Local Supplier must have some say from the point of view of a proficiency test before the issue of a certificate. If Electrical Contractors are to be liable to supervision by the Board, it would not be fair to Contractors if they have to submit to the Board and write theoretical examinations.

**The President:** I would like to answer a few of the points brought forward. In the first instance, you will remember that it is about 20 years ago since we started on the question of requiring a licence for a wireman or electrician; it has taken us the best part of 20 years to get our Standard Wiring Regulations and the Registration of Wiremen and Contractors into a duly established and authoritative form which is *intra vires*. In those earlier days it got known that the Local Authority had no legal authority in this matter of licensing and were carrying on largely under bluff. We have now got this matter under Government control and under an Act which requires that a man working in the electrical wiring trades shall be qualified.

While on this question I would like to deal with the position in regard to old-timers who are still in the trade. In many cases they are men who have been well trained and have been in the business for over 40 years. The Board is very generous in these cases. We feel that it is impossible for such men to sit down and write an examination. The Board, however, have a job in which they are responsible to the whole country and accordingly are very careful about these men. The Trades Unions expect a man of this type to be given an oral test as the sole basis of deciding whether he should be granted a licence. This is not enough as he may be a menace to the public. We have to be very careful. If such a man can show great deal of practical experience he is exempted from the theoretical part of the examination and only examined on his knowledge of the Wiring Regulations.

I want to stress that for men who have been in the trade for many years a written examination is not a hard and fast rule. They must, however, prove to the Board that they have reasonable experience, proficiency and knowledge of the Wiring Regulations.

Regarding Electrical Contractors with whom we are primarily dealing, here we have a class engaged on wiring work, the provision

for whom, under the Act as it now stands, is hardly worth the paper it is written on. The difficulties we have in Johannesburg are similar to those in other cities. For a long time we have been trying to formulate for our local by-laws something to give us effective control over Electrical Contractors. However, in a Court of Law, the suggestions that we did put forward to control Contractors would not be of much value; they would be ultra vires under the Act. We can do very little under this Act as it stands. We all definitely want something to control Electrical Contractors effectively. The Government have given us an Act and have appointed a Board to deal with that Act. The Board is administering the Act very successfully in regard to wiremen over whom we have quite effective control. But over Contractors we have not got control; this is passed on to the Local Authority and they are finding the provisions impossible to apply. It would be a good thing to bring Contractors also under the control of the Board.

Some reference was made to certificated engineers. Before engineers can secure such Government certificate they have to sit examinations which are common throughout the Union. We have found that the only one way to register wiremen is on this universal basis in which the same requirements apply throughout the country. It affords effective and recognised Government control. To my mind we are giving nothing away to the Government in this matter; it is to our mutual advantage to have this uniformity throughout the Union. It is for these reasons that Section B has asked that the registration of Electrical Wiremen and Contractors and suitable amendments to the Act be investigated by the Board. That is as far as we have gone in the matter. It would be a splendid thing for the country if a uniform and effective policy in registering Contractors could be brought about.

**Mr. Clutterbuck:** In granting or withholding Electrical Contractor's licences the Act as it stands gives you nothing concrete to work on. Certain requests have been made to the Board to consider amendments to the Act which would secure standard conditions under which Contractors should receive their licences. Up to the present this matter has not been considered by the Board in view of the amount of work accruing from the licensing of wiremen. You now take this matter a stage further and ask that the Board shall consider it. To my mind whatever action may ultimately be taken, the Board will still have to rely on the recommendations of the Electrical Engineers of the Local Authorities. Let us leave the matter at this stage for the present. If we carry it that far our next step will be to consult the parties interested for specific details. Your assistance will be much appreciated by the Board. I think this is a move in the right direction.

**The President:** In regard to the question of Contractors being qualified, I put it to you that some of the finest wiring firms operate under Principals who are not qualified wiremen. Wiremen should be dealt with first and we should get them duly licenced before we start considering the qualifications of Contractors. If wiremen have to be licenced in a determined area then of course it is obvious that any Contractor must employ qualified wiremen to do a job in that area. There is no real reason for Directors of a contracting firm to have technical qualifications except in so far as is necessary to ensure that Directors and firms shall be of good repute which is more important than anything else.

**Mr. Milton:** It is most important that Wiremen should be registered rather than Directors of contracting firms. We are discussing the question of personnel and I do not think that we need to do that. If any town reaches a stage where they consider the licencing of Contractors to be essential then they should insist that the Board determines their area. If an area is sufficiently advanced to licence its Contractors' then the personnel of such firms should be qualified men and the body to approve their qualifications is the Board.

**Mr. Eastman:** Mr. President, I feel that I must remind the meeting that this Association itself is responsible for the regulations governing the registration of Contractors in their present form. In (1916?) when this matter was first raised, it was on the recommendation of this Association that Municipalities took powers to promulgate their own supply regulations concerning Electrical Contractors. We are all working under different statutory regulations in the respective provinces and the different Provincial Councils each have their own Ordinances governing the supply of electricity. The Cape Town regulations as well, probably, as those of other Municipalities, for the registration of contractors are valid in law provided that they are in accordance with the Act of Union, but that is doubtful. It may even prove to be the case that if in the Cape Province such regulations have no standing in law there may be other Provinces in which various By-laws concerning the registration of Electrical Contractors are good in law.

Before the Electrical Wiremen and Contractors Act came into operation I had discussions with draughtsmen employed by the Labour Department in preparing the clause concerning the registration of Contractors when difficulties arose in specifying qualifications under our Municipal regulations. Our legal adviser expressed doubt as to whether Municipalities had any right to lay down essential qualifications as a condition for licensing Contractors beyond those somewhat general provisions which are now included in the Act. There is, therefore, a great deal to be said in favour of introducing into the Act provisions which will make it possible to define specific qualifications and at the same time avoid the danger of their being found to be ultra vires the Provincial Ordinances.

It would appear that most Municipalities have regulations which differ from those of other Municipalities but we all agree that in matters of this kind uniformity is desirable. I must support this. I do not like Government Control any more than anyone else, but from the standpoint of uniformity it is highly desirable in this particular instance.

**Mr. Kinsman:** It would seem that I was erroneous in suggesting that Municipalities should lay down specific qualifications to which Contractors must conform.

This very interesting discussion makes it seem almost impossible for us to do this under existing legislation. However, for the present it would seem that we need not worry about the qualifications of contractors since in a proclaimed area they will be obliged to employ licensed wiremen.

**Mr. Mocke:** Is this Act confined to Europeans?

**The President:** The Act includes no provisions which confine its application to Europeans only.

I will now put to the vote the adoption of the motions (a) and (b) Mr. Kinsman has moved on behalf of Section B.

Motion carried.

That, Gentlemen, virtually completes the work we have before us. Are there any questions anyone wishes to raise before we close the Convention? We have done wonderful work in completing the formidable programme which our agenda laid before us.

**Mr. Gripper:** Mr. President, there is one question which arises from our discussion of the Factories Act. Some of us are members of the S.A. Association of Municipal Employees. That Association is interested in anything this Association puts forward in connection with the Factories Act. I shall report the proposed action of this Association to my branch of the Employees Association. I feel that it should be recommended that all Engineer Members here should acquaint their local branches of that Association of the trend of this amendment we are proposing to the Factories Act. This information will come through in time and it will only put a spoke in the wheels if the Employees Association feels that it has not been informed.

**The President:** This question was discussed at the Executive Council meeting this morning. So many bodies are interested in this question, and so much delay would arise, that we felt it was undesirable to do anything in an official way particularly as it might create misunderstanding. There is, however, no reason why any member should not bring these matters to the notice of any body to which they are affiliated. It is not the province of the Association to make representations to others in that connection. In our resolution we have decided to report to the United Municipal Executive as a preliminary to approaching the Government.

Before we close, Gentlemen, it is my sad duty to bring to your notice the death of one of our members — Mr. K. W. Thomas of Kuru-man, and I would ask you to stand as a mark of respect and sympathy with those he has left. (Two-minute pause).

**Councillor Gearing:** I would like to propose that we record a very hearty vote of thanks to the City Council of Johannesburg for the facilities they have granted this Convention in allowing us to use this magnificent Library Building for our meetings, for their hospitality and for the great interest they have taken in our meetings as evidenced by the Mayor's address. Mr. President, we have enjoyed our visit to your wonderfully progressive city and would be glad if you would convey our appreciation to the appropriate quarters.

**The President:** Thank you, Mr. Gearing, I will do that. Mr. Verity, Chairman of my Committee has asked me to convey his apologies to you for his inability to have been present at this Convention on account of the pressure of other work.

**Councillor Millar:** Gentlemen, I would like to propose a cordial vote of thanks to the Commercial World for their great assistance to us in providing stenographers, cars, and other facilities which have so greatly contributed to the success of this Convention.

**Mr. Torrance:** In reply to that motion, Mr. President, may I on behalf of the Commercial World convey to you and this Association our sin-



cere appreciation of the invitations and many courtesies extended to us.

**Mr. Clinton:** On behalf of this Association I would like to express our hearty thanks to our President, Mr. Milton and the "Backroom boys" for all the work put into drafting our Agenda.

**The President:** Thank you very much indeed Gentlemen. It is my pleasing duty to thank all of those who have so ably assisted in making this Conference a success. I trust that you have found your visit both interesting and profitable. At this Convention we have tried out a radical change in our normal procedure. This time we decided not to deliver formal papers but to discuss the many difficulties that have accumulated in the past five years and the steps we would take to improve the co-ordination of our efforts towards the betterment of our rapidly growing industry. I feel that you will all agree that this new arrangement has been a complete success. We have completed a very comprehensive Agenda and the debate has been of an extremely high order. The most difficult part now remains, namely, to make our many resolutions effective. This can only be done by persistent effort and we must make full use of our Association for that purpose. Much of the work has been carried out by the Chairmen of the various Sections. Handling our agenda has already involved and will still involve a tremendous amount of work. To those of our Members, Councillor Members and visitors who have taken part in the proceedings, we tender our thanks.

The social side of this Convention has necessarily been curtailed owing to the war. We are very grateful to the Commercial Community for their ever ready assistance with transport, stenographers, entertainment, etc. Our thanks are due to them all.

My personal thanks I would extend to Mr. Horrell for the efficient and unremitting assistance which he has rendered at all times. Also, I would extend my personal thanks to the Vice-President, Mr. Clinton, who has lightened my burden very appreciably. The work arising from the activities of our Association is very great even in normal times, but as a result of this Convention and the resolutions we have adopted, the work during the coming year will be very greatly augmented. Your Executive Council often wondered during the past few years whether they were carrying out your wishes but now you have given us such a definite mandate we can now proceed inspired by the knowledge that we have your backing. Our Association should now proceed on its career of usefulness.

I will now thank you all once again for your helpfulness and attendance and declare this Convention closed.

Time 3.45 p.m.

## APPENDIX I.

### A BRIEF DESCRIPTION OF THE ORLANDO POWER STATION.

(Transcript of leaflet handed to visitors on Tuesday, 25th April 1944).

#### 1.—Site.

The Orlando Power Station site was acquired from the Non-European Affairs Department and was chosen on account of the rail and road facilities and the existence of a dam containing approximately 160,000,000 gallons of water in an area of approximately 65 acres. The site, 450 acres in extent, is approximately nine miles from the centre of the City and is adjacent to the Johannesburg-Potchefstroom main road.

The Rand Water Board's mains are in close proximity to the power station and the water is delivered to a large ground level reservoir from whence it is pumped to an elevated tower, so as to permit gravitation to the higher levels of the power station.

#### 2.—Cooling or Circulating Water.

The cooling water for the condensers is taken from the dam situated on the south side of the station. For the present 90,000 kW section of the station four circulating pumps have been installed, each having a capacity of 28,000 gallons per minute; these are situated in a pump house erected at the edge of the dam at the west end, the pump suction being 16 feet below normal water level of the dam. The circulating water is pumped through a 66 inch concrete duct to the turbine room and is situated below basement level, branches off same being provided for the inlet to each condenser. The discharge duct, also concrete and below basement level, is located at the opposite side of the condensers, which are of the 3 pass type. The discharge duct is carried to a "seal pit" situated toward the east edge of the dam, the effect of the "seal" being the creation of a syphonic action on the discharge side of the condensers. From the "seal" pit the warm circulating water flows over a weir into an open concrete channel which discharges the water to the extreme eastern end of the dam. The normal natural surface cooling obtained on the dam is, theoretically, sufficient to take care of the cooling effect necessary with the station carrying approximately 40,000 kW's. To obtain the additional cooling necessary a booster pump house is erected adjoining the seal pit. Booster pumps of 24,000 gallons per minute capacity each are installed which draw their water supply from the seal pit and discharge through a series of sprays erected on the shore of the dam. At present there are two such sets of booster pumps and spray equipment, each set designed to sufficiently cool the circulating water from one 30,000 kW condenser unit when on its C.M.R. The spray cooled water falls into the dam and eventually circulates its way to the circulating pump inlets and so completes the cycle.

The dam, with its spray cooling equipments as erected and projected, will cater for all circulating water cooling necessary for the station until the installed capacity exceeds five — 30,000 kW sets. The capacity would complete the first half on the station as designed by the Consulting Engineers. Evaporation loss from the dam is made up

in the rainy season from the two small streams which flow in from the east; during the dry season the make up water required is supplied in the form of purified sewerage effluent from the adjacent Municipal sewerage disposal works.

### 3.—Coal Handling Plant.

The coal for the power station is delivered by the South African Railways to an exchange siding on the site, and the Council thereafter uses its own locomotive to deliver the coal to the coal storage bunkers. These are 760 feet in length, 39 feet in width and 62 feet in depth, having a total storage capacity of 28,500 tons. This large storage capacity is required for the ultimate conditions when the station is developed to full capacity and will ensure the continued operation of the station for a considerable period should temporary stoppages of coal deliveries occur.

Below the coal store is situated a coal conveyor tunnel running the whole length of the bunkers and designed for two horizontal coal conveyor belts to run side by side. At present one only is installed which is sufficient until the station extends beyond the 150,000 kW mark. The horizontal conveyor is 760 feet centre to centre; from there the coal is discharged on to the first incline belt conveyor which is 420 feet centres. This belt lifts the coal from approximately 70 feet below rail or ground level to 30 feet above ground level and discharges on to the second incline belt conveyor (550 feet centres) which completes the lift to the top of the boiler house and then flattens out to the horizontal and runs the length of the bunker loft over the gravity coal bunkers. There are 6 of these bunkers, one for each boiler and each has a capacity of 400 tons — sufficient for 36 hours steaming of each boiler at maximum rating. The total length of the conveyor belts in operation is 3,460 feet, the belt being 36 inches in width and the conveying capacity 220 tons per hour.

### 4.—Boiler Plant.

A single row of six water tube boilers of the chain grate stoker type are erected in the boiler house which is situated at the south side of the turbine room. These boilers are adequate for the operation of three turbo-alternators. Each boiler has an economic evaporating capacity of 140,000 lbs. per hour and a maximum continuous evaporating capacity of 175,000 lbs. per hour. At the latter rate of steaming approximately 11 tons of coal per boiler would be consumed per hour.

The boilers are equipped with air pre-heaters and economisers and operate at a high degree of efficiency. The induced draught and secondary air fans are located on the boiler house floor level behind the boilers, whereas the forced draught fans are situated on the boiler house roof. The boilers are designed to obtain their full output when using pea coal or a mixture of peas and duff.

The boilers deliver steam to the turbo-alternators at a pressure of 625 lbs./sq. inch and a temperature of 825° Fahrenheit.

### 5.—Ash Handling Plant.

The ashes from the travelling grates are dumped into ash hoppers, quenched and ejected into sluiceways by means of high pressure water jets. The mixture of water and ash flows to a pump house

where the ashes are crushed if required and the mixture is thereafter pumped to a valley west of the station. The ash handling plant was supplied as part of the boiler equipment and is designed to dispose of 100,000 lbs. of ash per hour.

#### **6.—Turbine Room.**

The turbine room houses the main generating sets, house set, boiler feed pumps and the boiler feed heating apparatus. The turbine room is 348 feet in length, 90 feet in width and 87 feet in height.

Of the three main generating sets, one has been in commission since the beginning of 1942; the second came into service in October 1943, whereas the third set is on the point of being shipped. A large proportion of the third set's ancillary equipment is on site, including the condensing plant which is erected.

Each main generating set has a maximum continuous rating of 30,000 kilowatts, being larger than any of the sets at the Council's City Generating Station. Each set has a maximum one hour rating of 37,000 kilowatts.

A small turbo-alternator "house set", having a capacity of 2,500 kilowatts, is provided for quick starting and operating of the station's auxiliaries should a serious disturbance cause a complete shutdown of the main generating equipment.

On the turbine house floor level the boiler feed pumps (4 electric and 2 steam driven) and also the feed heating plant are located between the boiler house and the main generating sets. The condensing plant and ancillary plant are situated on the intermediate and basement floor levels below the main turbo sets. Boiler feed water losses are made up by unit evaporators supplied by bled steam from the turbines.

The turbine house is equipped with two independent overhead electric travelling cranes, the one being positioned over the other so as to facilitate easy handling of the plant. The lower crane lifts up to 90 tons and the crane above lifts up to 22 tons.

#### **7.—Electrical Equipment.**

The outdoor switchboard or substation, which is not yet complete in every detail, is equipped with duplicate bus bars. The generator switches are situated between the step-up transformers and the overhead jumpers for selection to either set of bus bars serving generator and transmission circuits; generator switching is, therefore, on the 88 kV side. From the generator terminals supply by cable is also carried to unit transformers, stepping down to 6 kV for station auxiliaries supply. Station auxiliary bus bars can also be supplied by station transformers which are supplied from the 88 kV bus bars in the switchyard and step-down to 6 kV; the normal method of supply to auxiliaries is via the unit transformers as this provides the reliability necessary in the event of interruption on the 88 kV side.

Certain electrical auxiliaries are supplied direct from the 6 kV bus bars, i.e., the boiler feed pump motors of 610 h.p., the circulating water pump motors of 610 h.p. and booster pump motors of 210 h.p., all of which are arranged for direct on line starting. All other auxiliary motors, except a few of small h.p., are operated at 380 volts and for

this supply a number of 750 kVA transformers are installed; these are supplied from the 6 kV bus bars stepping down to the lower voltage.

**Transformers.** The generator step-up transformers are in banks of 3 single phase units and are Delta/Star connected. Each generator is connected to its own bank of transformers which has a capacity of 40,000 kVA. These transformers are air blast oil cooled, each bank being fitted with two air blast fans. For normal running one fan is sufficient but on a predetermined oil temperature rise being reached the second air blast fan comes into operation automatically.

The unit transformers, one to each generator, are Star/Star connected 3 phase units of 4,000 kVA capacity, radiation cooled. There are also two 400 kVA transformers for lighting.

**Switchgear.** The 88 kV and 6 kV oil circuit breakers are provided with de-ion grids for arc control.

The current ratings for the 88 kV generator transformer and transmission line circuit breakers are 600 amperes with a breaking capacity of 1,500 M.V.A. The current ratings for the unit and station transformer 6 kV circuit breakers are 1,000 amperes and for the station auxiliaries 400 amperes, both ratings with a breaking capacity of 150 M.V.A. The 380 volt air circuit breakers are also provided with de-ion grids and have a current rating of 400 amperes, with a breaking capacity of 15 M.V.A. These breakers are used for switching in direct on line motors with capacities up to 220 h.p.

**Control.** A 220 volt 400 ampere-hour lead plate battery is used for the operating circuits of switchgear, indicating lights and emergency lighting of the station. Emergency lighting comes on automatically in the event of alternating current supply failure.

The battery is trickle charged from mercury arc rectifiers, which are grid controlled to enable the charging rate to be varied from zero to 60 amperes.

Control for the generators, transformers, transmission lines and the 6 kV station and unit boards is centralized in an air conditioned control room. On the control panels are the usual instruments, protection relays and mimic diagrams with electrically operated semaphores for circuit indications.

A loudaphone operates from the control room and by means of a coder giving an audible signal, officials are quickly contacted in any part of the power station or its vicinity.

**Transformer and Switch Oil Plant.** The 88 kV transformers and switchgear are served by oil pipe lines, copper piping being used for the clean oil and galvanized piping for the dirty oil.

There are two 4,000 gallon tanks, one for clean oil and one for dirty oil. A meta-filter is used for reconditioning dirty oil, the capacity of the filter being 500 gallons per hour.

**Generator, Transformer and Transmission Line Protection.** Merz Price protection is installed for the generators and within the area covered by this protection are the step-up and unit transformers.

The neutral point of a generator is earthed through a fuse shunted across the potential transformer. The blowing of a fuse operates an alarm. The neutral points of the step-up transformers will be connected to a Petersen coil for transmission line protection. The Petersen coil is arranged with on-load tap changing, the tap position being determined by the number of transmission lines in service.

Transmission lines are protected by earth leakage, overload and impedance relays. Intertripping relays clear both ends of the line in the event of a protection relay operation. Auto-reclose relays restore the lines after a suitable time interval, check synchronising relays at the City sub-stations preventing the closure of the switches should the systems be out of parallel.

Merz-Price and overload protection is employed for the station transformers. Motors are protected by thermal overload relays incorporating an adjustable instantaneous trip.

Transformers are segregated from one another by brick division walls and each transformer is provided with a rubble pit. The rubble pit will contain the oil content of the transformer in the event of a tank rupture.

Mulsifyre fire extinguishing equipment has been installed for the protection of transformers.

#### **8.—Transmission Circuits.**

The power generated at Orlando Power Station is transmitted to the City via three transmission circuits carried on lattice type towers, each circuit being of 40,000 kVA capacity. One route of two circuits terminates at the John Ware Substation (Fordsburg) and the other at the Cleveland Substation. The power delivered at the two sub-stations is stepped down from 80,000 to 20,500 volts and is then connected to the main 20,500 network.

The Orlando Power Station is also connected to the Victoria Falls and Transvaal Power Co., Ltd's network. This interconnection has been introduced so as either to import from or export to the Victoria Falls and Transvaal Power Co. Ltd., power up to 30,000 kilowatts, as and when required by either party. This interconnection is, therefore, of equal value to both undertakings and has proved to be a valuable link.

The transmission circuits are protected by Westinghouse auto valve lighting arrestors. Another feature is the counterpoise running the full length of each transmission tower route, the counterpoise being bonded to each tower. Each tower is also bonded to a cast iron earth pipe sunk 7 to 8 feet in the ground in a coke surround.

The above measures for the dissipation of line surges have proved highly satisfactory during the periods of lightning storms.

The step-down transformer at the City ends of the transmission lines are arranged with on-load tap changing.

#### **9.—Workshops and Stores, Etc.**

As this power station is at a distance from the main workshops and stores at the City Generating Station, it has been necessary to make provision at Orlando Power Station for the execution of repairs to the plant and the storage of materials and equipment for the works.

A large building has therefore been built to house both workshop and stores. In addition, 45 cottages have been erected for the operating and maintenance staff. One hundred natives are housed in a compound to the west of the power station.

#### 10.—General.

The construction of the Orlando Power Station was agreed to by the Council at its special meeting held on the 9th April, 1937 and was subsequently approved of by the Administrator on the 2nd July, 1937. This additional power station was considered necessary during 1930 when it was evident that despite the extensions at the City Generating Station, further power would be required to meet the City's increasing demands.

The initial scheme was for 60,000 kilowatt of plant, but in 1937 the demands were such that still further plant was seen to be necessary and sanction was given for the installation of an additional 30,000 kilowatt of plant, bringing the total station capacity to 90,000 kW for this first section.

The original plant was to have been ready for service by April 1940, but the advent of the war and some losses at sea resulted in delays in completion of the equipment. Despite the setbacks, the first turbo-alternator commenced commercial operation on the 28th January, 1942 and the second set on the 1st October, 1943. The condensing plant is erected and the alternator stator and certain parts of the turbine equipment are on site for the third set; the delivery of the remaining parts and erection of this will complete the first section of the first half of the station.

The whole of the power station construction was divided over twenty-one contracts, each contract covering a definite portion of the work. The contract work covered, clearing of site, excavation for foundations, concrete work, building construction and the supply and installation of the plant.

The Council was fortunate in having as its Consulting Engineers, Messrs. Merz and McLellan, who designed the station and inspected and supervised during manufacture the whole of the power station plant. During the course of erection the work was supervised by the Council's officials, who were directly responsible to Messrs. Merz and McLellan for the work on site.

The total capital cost of this first section of the power station will be in the region of £2,500,000.

APPENDIX 2.

THE ASSOCIATION OF  
**Municipal Electricity Undertakings**  
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