

# PROCEEDINGS



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# PROCEEDINGS

OF THE

## SOCIETY OF GLASS TECHNOLOGY

### PROCEEDINGS OF THE TWELFTH MEETING.

HELD at 3.15 p.m. in the Chemistry Lecture Theatre, the University, Western Bank, Sheffield, on Wednesday, December 19th, 1917. In the absence of the President, Prof. W. G. FEARNSIDES, M.A., occupied the Chair.

The SECRETARY announced that at the preceding Council meeting it had been decided to make a special appeal for Collective Members with the view of raising the income of the Society and so helping to meet the increasing cost of producing the Journal. It was hoped that members would do all in their power to promote the interests of the Society by the proposal of new members.

The CHAIRMAN announced that the next meeting would be held at Stourbridge on January 16th, and that an interesting programme was in course of preparation.

Prof. P. G. H. BOSWELL, D.Sc., F.G.S., read a paper on "British Resources of Potash Felspar with a View to the Particular Requirements of the Glass Industry," and a discussion followed in which Prof. Fearnshides and Messrs. W. J. Rees, J. H. Davidson, C. J. Peddle, and F. G. Foster took part.

A paper was also read by Mr. J. KENWORTHY, on "Bolsterstone Glass House."

The following members were elected:—

*Collective Members.*

Parsons, Messrs. C. A., & Co., Ltd.	Heaton Works, Newcastle-on-Tyne.
Peacock, Messrs. B., & Sons,	Glass Bottle Works, Castleford, Yorks.
Pearson, Messrs. E. J. & J., Ltd.	Stourbridge, Staffs.

*Ordinary Members.*

Higgins, W. F., B.Sc.	The National Physical Laboratory, Teddington, Middlesex.
Kerr, C. H.	15, Oakes Avenue, Southbridge, Mass., U.S.A.
Marshall, John D.	Messrs. John Bell & Croyden, Ltd., 50, Wigmore Street, London, W. 1.
Osborne, Mary	Glass Technology Department, Uni- versity, Sheffield.
Williams, Arthur E.	Bureau of Standards, 40th and Butler Streets, Pittsburgh, Pa., U.S.A.

## PROCEEDINGS OF THE THIRTEENTH MEETING.

HELD at 3.15 p.m. on Wednesday, January 16th, 1918, in the Music Rooms, Theatre Road, Stourbridge, Mr. J. S. WILLIAMS-THOMAS in the Chair.

The CHAIRMAN welcomed the large attendance of members on the occasion of its first meeting in Stourbridge, and was glad that Nature had provided a fine white mantle for the Black Country in honour of the visit.

A generous donation of £25 from Messrs. Lewis and Towers towards the funds of the Society was announced, and a hearty vote of thanks passed to the donors.

A vote of sympathy for the Secretary in his illness was also passed.

During the course of the morning, visits were paid by members to the works of Messrs. Stevens and Williams, Ltd., Thomas Webb and Sons, Ltd., and Webb and Corbett, Ltd., and appreciative votes of thanks to these firms were also carried and placed on record.

The Chairman was asked to convey to the local glass manufacturers the thanks of the Society for their courtesy in providing accommodation for the meeting free of charge to the Society.

The following papers were read:—

- “The Resistant Power of Heavy Lead-Potash Glass to Chemical Agents,” by J. D. CAUWOOD, M.Sc., W. E. S. TURNER, D.Sc., and DUNCAN WEBB.
- “An Account of a New Blowpipe with Pre-heated Gas,” by W. A. WHATMOUGH, B.Sc., A.I.C., and
- “A New Variable-Jet Blowpipe,” by S. ENGLISH, M.Sc.

Following the reading of the applications for membership an election took place. The following new members were elected:—

*Collective Members.*

Branscomb, Messrs.	Glass Works, Adderley St., Birmingham.
Caledonian Bottle Works, Messrs., Ltd.	169, Murano St., Firhill, Glasgow.
Corbett & Co., Messrs., Ltd.	Royal Flint Glass Works, Tutbury, Staffs.
Fleming, Messrs. Joseph, & Co.	Amblecote Glass Works, Stourbridge.
Nelson, Messrs. William, Ltd.,	Ancoats Glass Works, Pollard St., Manchester.

*Ordinary Members.*

Clarke, J. R., M.Sc.	Glass Technology Department, The University, Sheffield.
Crawford, Wm.	Messrs. The "Z" Electric Lamp Manufacturing Co., Ltd., Orient House, New Broad St., London, E.C.
Easton, W. B.	Messrs. William Nelson, Ltd., Ancoats Glass Works, Pollard St., Manchester.
Heisey, A. H.	Messrs. A. H. Heisey & Co., Newark, Ohio, U.S.A.
Kenworthy, Joseph	Stretton Villa, Deepcar, nr. Sheffield.
Smart, G. W.	Messrs. Gay & Wilson, South Wootton, King's Lynn.

## PROCEEDINGS OF THE FOURTEENTH MEETING.

HELD in the Physics Lecture Theatre, the University, Western Bank, Sheffield, at 3.15 p.m. on Wednesday, February 20th, 1918, the President, Mr. W. F. J. Wood, B.Sc., F.I.C., in the Chair.

The SECRETARY announced that Messrs. E. Youldon, Ltd., had generously sent a donation of £5 5s. to the funds of the Society in appreciation of benefits derived from membership.

The PRESIDENT announced that the next meeting would take place at Newcastle on March 20th, details of which would be circulated.

Mr. Wood welcomed Mr. H. H. Pitt as an enthusiast in the glass industry who had visited many of the centres of glass-making both in America and on the Continent.

Mr. Pitt then read the following paper, illustrating it with lantern slides and with samples of glassware:—

“Some Notes on Glassmaking Practice in America.”

In the discussion which followed, Messrs. R. T. Swinden, W. J. Rees, J. Connolly, E. C. Peacock, and S. B. Bagley took part.

The following new members were elected:—

### *Collective Members.*

Barr & Stroud, Messrs., Ltd.	Anniesland, Glasgow.
Barron, Ltd., Messrs. Thos.	Mexborough, nr. Rotherham.
Chance Bros. & Co., Messrs., Ltd.	Glass Works, Smethwick, Birming- ham.
Dixon, Messrs. H. L., Co.	P.O. Box 140, Pittsburgh, Pa., U.S.A.
Edinburgh & Leith Glass Co., Messrs.	Norton Park, Edinburgh.
Fletchers Sauce Co., Messrs., Ltd.	Selby, Yorks.

*Collective Members (continued).*

Hyposol, Messrs., Ltd.	High Road, Wealdstone, Harrow.
Lang & Sons, Messrs. Jules.	Charlton Works, Charlton Place, Islington, London, N. 1.
Thompson Glass Co., Messrs.	Vine Street, Harts Hill, Brierley Hill, Staffs.
Townson & Mercer, Messrs., Ltd.	34, Camomile St., London, E.C. 3.
Webb & Sons, Ltd., Messrs. Thos.	Dennis Glass Works, Stourbridge.
Youldon, Ltd., Messrs. E.	Treby St., Maplin St., Mile End. London, E. 3.

*Ordinary Members.*

Allan, Alexander M.	The Forth Glass Works, Panmure St., Firhill, Glasgow.
Dickenson, H. H.	21, Canal Rd., Kingsland Rd., London, N. 1.
Drinkwater, R.	Womersley Road, Knottingley, Yorks.
France, E. Cecil.	Messrs. Joseph France, Baths Works, Westgate, Rotherham.
Goslin, James.	12b, Nourse St., Troyeville. Johan- nesburg, Transvaal, S. Africa.
Hadfield, Sir R. A., Bart., F.R.S.	22, Carlton House Terrace, London, S.W.
Kirkham, J. R.	"Astoria," Victoria Rd, Tipton.
Morrison, S. W.	Optical Munitions & Glassware Sup- ply, 117, Piccadilly, London, W. 1.
Redfern, Francis	Dauntsey House, Frederick's Place, Old Jewry, London, E.C. 2.
Savage, Herbert, A.I.C.	University of London, King's Col- lege, Strand, London, W.C. 2.
Toogood, William T.	65, Sarsfield Rd., Balham, London, S.W. 12.
Wilson, George V., B. Sc.	H.M. Geological Survey Office, 33, George Square, Edinburgh.

*Student Member.*

Corbett, Jas.	8, Belmont Street, Mexborough.
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## PROCEEDINGS OF THE FIFTEENTH MEETING.

HELD in the rooms of the North of England Mining and Mechanical Engineers, Neville Street, Newcastle-upon-Tyne, at 3.0 p.m. on Wednesday, March 20th. In the absence of the President, Mr. S. N. JENKINSON, Vice-President, occupied the Chair.

The following papers were read and discussed:—

- “Some Notes on Pot Failure,” by S. N. JENKINSON.
- “Note on a Coke Producer Gas Fired Glass Tank for the Production of White Glass,” by A. B. ROXBURGH; and
- “A Blowpipe with Preheated Gas and Air,” by S. ENGLISH, M.Sc.

Messrs. G. V. Wilson, W. J. Rees, G. V. Evers, H. Webb, and Prof. P. G. Boswell took part in the discussion on Mr. Jenkinson's paper, Prof. BOSWELL occupying the Chair during the reading of the paper; Messrs. S. N. Jenkinson, J. H. Crowther, W. S. Robinson, H. Webb, M. Turnbull, W. Butler, E. Bateson, F. G. Clark, W. A. Whatmough, W. Proctor, W. J. Rees, and T. Ferry on Mr. Roxburgh's paper; and Mr. W. S. Robinson on that by Mr. English.

During the course of the day visits were paid, at the kind invitation of the Directors in each case, to the works of Messrs. Lemington Glass Co., Lemington-upon-Tyne; Messrs. George Davidson and Co., Teams Glass Works, Gateshead; and Messrs. Tyneside Glass Co., Gateshead. The appreciation of the privileges so afforded to the members was marked by a hearty vote of thanks to the Directors of the works.

The following members were elected:—

*Collective Members.*

British Thomson - Houston Co., Messrs., Ltd.	Rugby.
Bailey, Messrs. W. A., & Co., Ltd.	Audrey House, Ely Place, London, E.C.
Abbott Glass Co., Messrs., Ltd.	39A, Rockingham Street, Newington Causeway, London, S.E. 1.
Harvey Gas Furnace Co., Messrs. E. W., Ltd.	10, Queen Anne's Gate, Westminster, London, S.W. 1.

*Ordinary Members.*

Thomas H. Speight.	Messrs. Speight & Sons, Hunslet Pattern Works, Leeds.
Hugh Gordon Cameron.	Messrs. Cosmos Lamp Works, Ltd., Brimsdown, Enfield, Middlesex.
Edward Barras.	66, Valnay Street, Tooting, London, S.W.
W. W. Warren, A.M.I.E.E.	Messrs. Lemington Glassworks, Ltd., Lemington-on-Tyne.

## THE ANNUAL GENERAL MEETING, 1918.

HELD in the Physics Lecture Theatre, Western Bank, Sheffield, at 2.45 p.m. on Wednesday, April 17th, the President, Mr. W. F. J. Wood, in the Chair.

The PRESIDENT referred to the loss sustained by the Society by the death of Mr. Thomas Tyrer, the Treasurer, and a former President of the Society of Chemical Industry.

An announcement was made by the PRESIDENT of the receipt of a special donation of £2 2s. to the funds of the Society from Mr. T. W. Ferry, to whom the Council had sent the thanks of the Society.

Messrs. J. D. CAUWOOD and S. ENGLISH were elected scrutineers.

The PRESIDENT announced that nominations to fill the places of the retiring officers had been received sufficient to necessitate an election in the case of the Vice-Presidents.

Nominations were invited and received for the office of Auditors.

During the voting, the SECRETARY read the following Annual Report of the Council, the Treasurer explaining in detail the financial statement appended.

"The Council has much pleasure in presenting this, its First Annual Report.

During the period between November 18th, 1916, and December 31st, 1917, 267 members were elected, comprising 57 Collective, 197 Ordinary, and 13 Student Members. Two of the elections became void owing to non-payment of subscription, whilst the Society lost one member by death, Mr. James J. Hirst, a member of the Council, of whom an Obituary Notice appeared in the July issue of the Journal.

The Council decided at its meeting on November 18th, 1916, to publish a quarterly Journal, and appointed Dr. W. E. S. Turner

as its Editor. It is a source of great satisfaction to the Council that the Journal has been so very favourably reviewed, has been received so well by members of the Society, and is gradually becoming known abroad. The Journal for 1917 contains, in addition to indexes, 36 pages of Proceedings and Reports, 19 papers comprising 238 pages of Transactions, and 300 Abstracts and Reviews occupying 176 pages. The Council desires to take this opportunity of expressing its thanks to the Abstractors for the valuable services they have rendered.

It has been the object of the Council to arrange, so far as possible, that the subjects dealt with at the Society's meetings shall be of general interest and lend themselves to discussion. There is a limit to which such a scheme can be continued with success, but that limit depends in a large measure on members themselves. The suggestion of subjects by members would be welcomed by the Council; but more than this, the Council trusts that an increasing number of manufacturers will communicate papers on observations made in their works, and thus initiate discussions in which both the practical and scientific bearings of a problem can be treated. The Council desires it to be known that communications on glass technology are welcomed from members at home or abroad.

During the year, the Council decided to establish a Library, and a sum of £20 was in the first instance set aside for the purchase of books, whilst the Secretary was authorised also to arrange for the exchange of the Society's Journal for that of other Scientific Societies. At the present time the Library receives the following periodicals by exchange:—

- “ Journal of the Chemical Society.”
- “ Journal of Industrial and Engineering Chemistry ” (2 copies).
- “ Transactions of the Ceramic Society.”
- “ British Clayworker.”
- “ Bulletin of the Imperial Institute.”
- “ Proceedings of the Institute of Chemistry.”
- “ Journal of the Society of Chemical Industry.”
- “ Transactions of the Optical Society.”
- “ Illuminating Engineer.”
- “ Journal of the Institute of Metals.”
- “ Journal of the Iron and Steel Institute.”
- “ Transactions of the Faraday Society.”
- “ Engineering.”

In addition, the Society obtains, by purchase or gift,

- “ The Clayworker ” (American).
- “ The Pottery Gazette ” (2 copies).
- “ The Optician.”
- “ Die Keramische Rundschau.”
- “ Die Tonindustrie Zeitung.”

whilst through the courtesy of the Department of Glass Technology, Sheffield, the following additional periodicals are available for reference:—

- “ Sprechsaal.”
- “ Die Glashütte.”
- “ Die Glasindustrie.”
- “ Die Zeitschrift für Instrumentenkunde.”
- “ Transactions of the American Ceramic Society.”

The total number of volumes in the Library to the end of December, 1917, was 71, with a number of pamphlets. The Council hopes that an increasing use will be made of the Society's Library by members. It would also welcome the gift of any books or periodicals bearing on glass technology.

In the early part of the year the Society was invited to appoint representatives to attend a joint Conference of Scientific Societies on Refractories Research. Mr. S. N. Jenkinson and Dr. W. E. S. Turner were appointed by the Council to represent the Society. At a later stage, the President was invited and accepted a position on the Organising Committee set up by the Conference.

The income of the Society during 1917 was £482 13s. 6d., towards which contributions of £25 from Messrs. Lewis and Towers and £5 5s. from Messrs. E. Youldon, Ltd., were generously made. The cost of printing and distributing the Journal amounted to £393 12s. 11d., and other expenses brought the total to £499 10s. 9d., leaving a deficit of £16 17s. 3d. For a first year's working the Council believes the position is satisfactory, and that the deficit will be converted into a surplus at the end of the present year. Last year, nearly 90 per cent. of the Society's income was devoted to the work of publication and to general printing, and in view of the continued increase in the cost of paper and printing it is necessary that a considerably augmented income should be obtained. Every member can be of assistance in making the position of the Society more financially sound by engaging actively in propaganda on behalf of the Society and helping to increase its membership. In keeping with the importance of the Society, its annual income should rather exceed than be below £1,000.

Looking back over the period of fourteen months which this Report covers, the Council is of the opinion that the Society has fully justified its existence. The attendance at meetings, especially in view of the difficulties of travel, has been very good, and only in two instances has it fallen below 60. At the Society meetings there has grown up a feeling of common interest amongst members and a willingness to share information which are new to the industry. Especially would the Council express its gratification at the courtesy

## SOCIETY OF GLASS TECHNOLOGY.

INCOME AND EXPENDITURE ACCOUNT, DECEMBER 31st, 1917

DEBIT	£	s.	d.	CREDIT.	£	s.	d.
To Printing and Distribution of Journal ... ..	393	12	11	By Members' Subscriptions ... ..	377	15	6
„ Library Purchases... ..	25	17	2	„ Sale of Journal ... ..	9	11	6
„ Printing and Stationery ... ..	43	0	6	„ Commission from Advertisements ... ..	63	0	0
„ Donation to Refractories Research Committee... ..	5	0	0	„ Special Donations:—			
„ Postages ... ..	19	2	11	Messrs. Lewis & Towers ... ..	25	0	0
„ Sundry Expenses and Petty Cash ... ..	10	19	3	Messrs. E. Youldon, Ltd. ... ..	5	5	0
„ Bank Charges and Postages ... ..	1	18	0	„ Bank Interest ... ..	2	1	6
				„ Balance—excess Expenditure over Income ... ..	16	17	3
	£499	10	9		£499	10	9
December 31st, 1917.							
To Balance ... ..	£16	17	3				

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We have examined the above accounts with Pass Book, Vouchers, etc., and certify the same to be correct.

27th March, 1918.

G. WILSON CLARKE, }  
FREDERICK LAX, } Auditors.

which several members of the Society have shown in throwing open their works to members on the occasion of meetings in the vicinity. All these things bespeak a happy future both for the Society and for the British Glass Industry."

The Annual Report and financial statement were adopted.

A vote of thanks to the retiring officers was proposed by Mr. W. J. REES and seconded by Mr. J. H. CROWTHER.

The SECRETARY read a note on "Our Friend the Enemy," being a garbled and highly amusing account which appeared in the German periodical "Die Glasindustrie" of February 12th, 1918, of the founding of the Society of Glass Technology.

Mr. J. CONNOLLY, on the invitation of the President, gave an account of his experiences before the Reserved Occupations Committee.

The desirability of introducing slight modifications into two existing rules of the Society was explained by the PRESIDENT, and on a motion from the Chair, the following amendments, of which due notice had been circulated amongst-members, were agreed to:—

Rule 3(a) *shall read,*

"Collective Members, *i.e.*, Firms, Associations, or Institutions who are engaged in the manufacture, distribution, use, or study of glass," *instead of*

"Collective Members, *i.e.*, Firms who are engaged in the manufacture, distribution, or use of glass."

Rule 21, last sentence, *shall read,*

"and shall not be eligible for re-election until after an interval of twelve calendar months," *instead of* "but shall be eligible for re-election."

The PRESIDENT then delivered his Presidential Address. On the motion of Mr. S. N. JENKINSON, seconded by Mr. F. W. BRANSON, a vote of thanks to the President for his address was passed.

As the result of the ballot, the following were the officers appointed by the Society for the year 1918-19:—

*President.*—W. F. J. Wood, B.Sc., F.I.C.

*Vice-Presidents.*—S. B. Bagley, Prof. P. G. H. Boswell, D.Sc., D.I.C., Sir William Crookes, O.M., F.R.S., A. S. Esslemont, C.B.E., Prof. Sir Herbert Jackson, K.B.E., F.R.S., F.I.C., S. N. Jenkinson, Harry J. Powell, B.A., Walter Rosenhain, B.A., D.Sc., F.R.S., H. J. Stobart, M. W. Travers, D.Sc., F.R.S., F.I.C., Duncan Webb, and H. S. Williams-Thomas.

*Ordinary Members of Council.*—W. R. Barker, F. W. Branson, F.I.C., W. Butler, F. G. Clark, J. Connolly, J. B. Coppock, B.Sc., F.I.C., J. H. Davidson, M.Sc., Thomas Davidson, Prof. W. G. Fearnside, M.A., J. W. French, B.Sc., E. C. Peacock, W. J. Rees, F.I.C., F. Swann, F. P. Wainwright, and A. R. Young.

*Treasurer.*—F. Sweeting.

*Secretary.*—W. E. S. Turner, D.Sc., M.Sc.

*Assistant Secretary.*—C. J. Peddle, M.Sc.

*Auditors.*—G. Wilson Clarke and Frederick Lax.

Mr. G. V. WILSON, B.Sc., F.G.S., then read a paper entitled "Notes on the Formation of Certain Rock-forming Minerals in and about Glass Furnaces."

Messrs. S. N. Jenkinson and W. J. Rees, Prof. Fearnside, the President, and Dr. W. E. S. Turner took part in the discussion.

The following new members were elected:—

*Collective Members.*

Josiah Lane & Sons, Messrs., Ltd.	Park Road, Eve Hill, Dudley.
Butterworth Bros., Messrs., Ltd.	Newton Heath Flint Glass Works, Manchester.
Walkers, Parker & Co., Messrs., Ltd.	Elswick Lead Works, Newcastle-on-Tyne.
Simon-Carves, Messrs., Ltd.	20, Mount Street, Manchester



*Ordinary Members.*

James Gillinder, B.S.  
Thos. L. Bourne.

M. Offer.

Alan H. Adams.  
Eugene C. Sullivan. Ph.D.

William M. Clark.

Carl W. Keuffel.

Port Jervis, New York, U.S.A.  
c/o Messrs. Spencer Lens Co., Buffalo,  
New York, U.S.A.

Messrs. Dominion Glass Co., Ltd.,  
Montreal.

Red House, Stocksfield.

Messrs. Corning Glass Works, Corn-  
ning, New York, U.S.A.

Messrs. Euclid Glass Division, E.,  
152nd Street, Cleveland, O., U.S.A.

Messrs. Keuffel & Esser Co., Hoboken,  
N.J., U.S.A.

## PROCEEDINGS OF THE SEVENTEENTH MEETING.

HELD in the rooms of the Institute of Chemistry, 30, Russell Square, London, W.C.2, on Wednesday, May 15th, at 2.45 p.m., the PRESIDENT in the Chair.

During the morning, members of the Society had visited, at the kind invitation of the Directors, the works of Messrs. Ediswan Electric Co., Ponders End, and had subsequently been entertained to lunch at the Connaught Rooms by the firm. The kindness and courtesy of Messrs. Ediswan were recorded by a very hearty vote of thanks.

The PRESIDENT said that following his address in April, a desire had been expressed for a full discussion by the Society of "The Glass Industry after the War," and at somewhat short notice it had been possible to make the necessary arrangements and to invite a large number of persons connected both with the industry and with Government Departments. He then delivered an introductory address on the subject, to which contributions were subsequently made by Mr. J. Connolly, Sir Frank Heath, Mr. Douglas Baird, Sir Herbert Jackson, Mr. R. S. Biram, Dr. W. Rosenhain, Messrs. S. N. Jenkinson, Congreve Jackson, Otto Thomas, W. Proctor, and A. C. Towers.

On the motion of Mr. W. BUTTERWORTH, the resolution proposed by Mr. S. N. JENKINSON and seconded by Mr. J. CONNOLLY was withdrawn in order that it might be circulated to all members and voted on at a subsequent meeting.

A vote of thanks to the Council of the Institute of Chemistry for its kindness in providing accommodation for the Society's meeting was unanimously agreed to.

The following new members were elected:—

*Collective Members.*

Tennent, Messrs. J. & R., Ltd.	Wellpark Brewery, Glasgow.
The Worshipful Co. of Glaziers of the City of London, Messrs.	11, Maiden Lane, Queen Street, London, E.C.
George Younger & Son, Messrs.	Glass Works, Alloa, N.B.
P. Waddington & Sons, Messrs., Ltd.	Glass Bottle Manufacturers, Mexboro, near Rotherham.
Boulton & Mills, Messrs.	Audnam Glass Works, Stourbridge.

*Ordinary Members.*

John G. Campbell.	9, Western Gardens, Ealing, London, W. 5.
J. B. Arch.	c/o Messrs. Tuxford Lamp & Glass Works, Boston, Lincs.
Howard Gow Welch.	135, S. Broad Street, Philadelphia, Pa., U.S.A.
Elbert E. Fisher.	Messrs. Federal Glass Co., Columbus, Ohio, U.S.A.
A. Vincent Elsdon, B.Sc., F.I.C.	10, Geurock Road, Eltham, S.E. 9, and Directorate of Chemical In- spection Dept., Royal Arsenal, Woolwich, S.E. 18.

## “THE FOUNDING OF AN ENGLISH TECHNICAL GLASS SOCIETY.”

Under the above heading, the following garbled and amusing account of the Society appeared in the German periodical “Die Glasindustrie” for February 12th, 1918:—

“A Society of Glass Technology has now been founded in England.

“The new Society held its first meeting in the Institute of Chemistry, when the President, Professor Herbert Jackson, developed in detail the aims and work of the Society.

“The range of work comprised:—

“(1) Resistant chemical glass.

“(2) Lighting glass.

“(3) Cylinder glass.

“(4) Glass for Röntgen-ray bulbs.

“(5) Optical glass.

“(6) Opal glass for various purposes.

“(7) Thermometer glass.

“Up to date the Society has provided fifty formulæ for the guidance of manufacturers in building up suitable batches.

“Professor Jackson laid particular stress on the close co-operation of Science and Industry, and mentioned, further, that the University of Sheffield had established a Chair of Glass Technology.

“The first meeting of the Society was combined with a visit to the works of Messrs. Powell and Sons, Whitefriars.

“This news is in any case noteworthy, as, in pre-war times, German glassware—particularly in the optical, lighting, and thermometer branches—ruled the English market. It shows that the English are conforming to the German ideal of a close combination of science and practice, developed so classically in Germany by the firm of Schott and Genossen (Jena).”

## PROCEEDINGS OF THE EIGHTEENTH MEETING.

HELD in the Physics Lecture Theatre, The University, Sheffield, on Wednesday, June 19th, 1918, at 3 p.m., the President, Mr. W. F. J. Wood, in the Chair.

The PRESIDENT announced that the present meeting would be the last of the Session 1917-18, and that the first meeting of the new Session would be in October, on a date to be announced.

On a motion by the Chairman, the President and Secretary were empowered to grant temporary privileges of membership to persons making application for membership between the end of June and the beginning of October, subject to the necessary conditions of application being fulfilled and payment of the first annual subscription; all such privileges to be subject to confirmation by the Society at its next meeting.

The discussion on "The Glass Industry after the War," begun at the London Meeting in May, was continued, and the following speakers took part:—Messrs. S. N. Jenkinson, J. Connolly, Mr. J. E. Foxon, the President, Mr. E. J. P. Benn (Ministry of Reconstruction), Mr. Walter Butterfield, Mr. Francis Redfern, Mr. W. J. Rees, Mr. C. J. Peddle, and Mr. Francis Swann.

Prior to the meeting a photograph of the members assembled was taken at the entrance to the University.

The following new members were elected:—

### *Collective Members.*

The Garston Bottle Co., Messrs., Ltd.	Garston, Liverpool.
The Kinghorn Bottle Co., Messrs., Ltd.	Fifeshire.
Davey and Moore, Messrs.	Glass Bottle Manufacturers, Blundell Street, Caledonian Road, London, N.

*Ordinary Members.*

Edward Meigh, M.Sc.	2, Upper Tooting Park Mansions, London, S.W. 17.
Caleb Parkinson.	Warmleigh House, Ambler Thorn, Halifax.
William Stuart Tunnock.	"Fairholme," Eccleston Park, Prescot.
Edwin Hopkinson, M.Sc.	209, Windleshaw Road, St. Helens.
Edward Sharp.	8, Powerscroft Road, Clapton London, E.

## OBITUARY.

ALFRED SHERWOOD ESSLEMONT, C.B.E., A.M.I.E.E.

It is with the deepest regret that we record the death, on Saturday, September 14th, of Mr. A. S. Esslemont, Controller of the Optical Munitions and Glassware Supply and British Potash Production Departments.

Mr. Esslemont was the fourth son of the late Mr. Peter Esslemont, M.P., and after much experience both in this country and abroad as an electrical engineer, volunteered his services to the Government in 1915, and began work to organise the supply of optical glass and optical instruments for the Ministry of Munitions. The need of taking in hand the supply of chemical and scientific glassware soon arose, and gradually the control of practically all branches of the industry have come within the purview of the Department. When, in 1917, it was decided to set up a Potash Production Department, Mr. Esslemont's wonderful organising ability was enlisted, and his work, already very heavy, greatly extended.

The growth of the Optical Munitions Department is itself a great tribute to Mr. Esslemont's skill as an organiser. Two features marked his policy, namely, his desire to be of real service to the industry and the immediate attention which he always gave to every matter that came to his personal notice. That he had very deeply at heart the interest of the glass industry, not only at the present time, but for the future, was evident to all who came into contact with him, and there is little doubt that his life would not have been cut off at the early age of forty-one had he placed his health rather than his work first. His death is a very great loss to the industry.

Mr. Esslemont was an Associate Member of the Institute of Electrical Engineers, a member of the Faraday Society, and a Vice-President of this Society.

A memorial service to him was held on September 18th at St. Columba's Church, Port Street, S.W., and was attended by a number of persons prominent in the glass industry.





## PROCEEDINGS OF THE NINETEENTH MEETING.

HELD in the Physics Lecture Theatre, The University, Sheffield, on Wednesday, October 23rd, 1918, at 2.30 p.m. In the absence of the President, Dr. M. W. TRAVERS, F.R.S., occupied the Chair.

The CHAIRMAN referred to the serious loss which the Society had sustained through the death of one of its Vice-Presidents, Mr. A. S. Esslemont, C.B.E., Controller of Optical Munitions and Glassware Supply. Not only had the Society lost a sincere friend, but the glass industry as a whole had lost one who had placed its interests before anything else during the last two years. The Society desired to place on record the services of Mr. Esslemont, and the following resolution was adopted, the members standing in silence:—

“This Society desires to place on record its profound and sincere regret at the untimely death of Mr. A. S. Esslemont, C.B.E., one of its Vice-Presidents and Controller of Optical Munitions and Glassware Supplies and of British Potash Production.

“It desires, further, to express its deep appreciation of the great services which Mr. Esslemont rendered to all branches of the British glass industry, and to state its belief that his enthusiasm and his able administration will exercise a beneficial influence on the industry for many years to come.”

Dr. TURNER gave an account of important developments in the work of the Society which had taken place during the recess in the direction of investigating the problem of glassworks refractories.

The following papers were read and discussed:—

“Refractory Materials and the Glass Industry,” by Prof. J. W. Cobb, B.Sc., F.I.C.

- "Note on the Firing of Glass Pots," by Morris W. Travers, D.Sc., F.R.S.
- "The Requirements of Clay for Glass Pot Making," by S. N. Jenkinson.
- "Note on the Solubility of Pot Material in Glass," by J. H. Davidson, M.Sc., and W. E. S. Turner, D.Sc.
- "Notes on Pot Attack," by C. Coad-Pryor, B.A.

The following gentlemen took part in the discussion: Dr. M. W. Travers, Dr. Turner, Messrs. S. N. Jenkinson, W. J. Rees, A. B. Searle, J. Connolly, C. Coad-Pryor, and T. Teisen.

The following new members were elected:—

*Collective Members.*

- The General Surgical Co., Messrs., Ltd., 147 and 149, Farringdon Road, London, E.C.1.
- The Richmond Gas Stove and Meter Co., Messrs., Ltd., Academy Street, Warrington.
- Negretti and Zambra, Messrs., 38, Holborn Viaduct, London, E.C.1.
- Pittsburgh Plate Glass Co., Messrs., Pittsburgh, U.S.A.
- General Electric Co., Messrs., Ltd., 67, Queen Victoria Street, London, E.C.4.
- Welsbach Light Co., Messrs., Ltd., 344-354, Gray's Inn Road, King's Cross, London, W.C.1.
- Palatine Glass Co., Messrs., Ltd., St. Simon Street, Salford, Manchester.
- United Glass Bottle Manufacturers, Messrs., Ltd., 195, Strand, London, W.C.2.
- Ludford and Co., Messrs., Flint Glass Bottle Works, Brooksby's Walk, Homerton, London, E.9.

*Ordinary Members.*

- A. R. Young, Royal Marine Engineers, Southwick, Sussex.
- V. Stott, B.A., The National Physical Laboratory, Teddington, Middlesex.
- E. Wilcox, Oldswinford Castle, Stourbridge.
- T. W. Sharp, Clapton Park Glass Works, 178, Glyn Road, Clapton Park, London, E.5.
- A. Simpson, Dept. of Overseas Trade, 75, Basinghall Street, London, E.C.2.
- T. Tucker, Messrs. T. Tyrer and Co., Ltd., Stirling Chemical Works, Stratford, London, E.
- Y. Amenomiya, Mitsubishi Goshi Kaisha, 120, Broadway, New York.
- R. F. Hind, Messrs. Hind and Lund, Ltd., Atlas Works, Preston.
- C. A. Luter, Messrs. Carr-Lowrey Glass Co., Baltimore, U.S.A.
- B. Black, Messrs. Black, Son and Spencer, 1, Green Terrace, Rosebery Avenue, London, E.C.
- Prof. J. W. Cobb, B.Sc., F.I.C., The University, Leeds.
- F. Cossor, Messrs. A. C. Cossor and Son, Vale Road, London, N.4.

- W. J. Hockin, The Eclipse Glass Works, Ltd., Eclipse Works, Lea Bridge, Clapton, London, E.5.
- J. D. Tatlock, Messrs. Baird and Tatlock, Ltd., 45, Renfrew Street, Glasgow.
- J. Thompson, Assistant Central Secretary (Yorkshire G.B.M.), 2, Wesley Street, Castleford.
- J. E. Foxon, The Bottle Works, Seaham Harbour, Co. Durham.
- F. C. Dannatt, A.M.I.E.E., Optical Munitions and Glassware Branch, Ministry of Munitions, 120, Boulevard Richard-Lenoir, Paris.
- Alexander Scott, M.A., D.Sc., Central School of Science and Technology, Pottery Laboratory, Stoke-on-Trent.
- G. H. Pearson Perry, Messrs. Mobberley and Perry, Ltd., Stourbridge.
- G. W. Reynolds, Glass Bottle Makers of Yorkshire United Trade Protection Society, Knottingley, Yorks.
- A. E. Calderara, Messrs. S. and A. Calderara, 10, Cross Street, Hatton Garden, London, E.C.1.
- E. Quine, B.Sc., Optical Munitions and Glassware Supply Dept., 117, Piccadilly, London, W.1.
- Miss M. E. Thomson, Ladies' Athenaeum Club, 98, Harley Street, W.1.
- Marquis de Mos, 5a, New Burlington Street, London, W.1.
- W. H. Lowe, 56, Wellington Street, York.
- F. Carder, Steuben Glass Works, Corning, New York.
- W. T. Ridley, Messrs. F. W. Berk and Co., Ltd., Chemical Works, 1, Fenchurch Avenue, London, E.C.3.
- O. Roberts, B.Sc., Directorate of Chemical Inspection, Wellesley House, Red Lion Lane, Shooter's Hill, London, S.E.
- F. Winchurch, c/o Messrs. Duroglass, Ltd., Blackhorse Lane, Walthamstow.
- John Peele Clapham, A.M.I.Mech.E., Messrs. Rylands Glass and Engineering Works, Barnsley.
- Donald Ross, B.S., Messrs. Findlay Clay Pot Co., Washington, Pa., U.S.A.
- A. G. Luraschi, Messrs. A. Luraschi, Ltd., 9, Kirby Street, Hatton Garden, London, E.C.1.
- A. A. H. Scott, 13, Old Square, Lincoln's Inn, W.C.2.
- T. W. Eaves, North Worcestershire Glass Co., Stourbridge.
- F. Edward, Messrs. United Glass Bottle Manufactures, Ltd., 195, Strand, London, W.C.2, and Messrs. Cannington, Shaw and Co., Ltd., St. Helens.
- A. W. Pearce, Messrs. Wm. Pearce, Ltd., Bridge Street, Broad Street, Birmingham.

## PROCEEDINGS OF THE TWENTIETH MEETING.

HELD in the Queen's Hotel, Leeds, on Wednesday, November 20th, 1918, at 2.30 p.m. In the absence of the President, Mr. F. W. BRANSON, F.I.C., occupied the Chair.

The CHAIRMAN announced two vacancies on the Council, one due to the death of Mr. Esslemont, the other to the resignation of Mr. A. R. Young. He intimated that the Council would be glad to receive nominations to fill these vacancies, and that the nominations should be received by the Secretary not later than December 4th.

The following papers were read and discussed:—

“Silica Refractories for Glassworks Use,” by W. J. Rees, F.I.C.

“The Properties of the Soda-Lime Glasses. I. The Annealing Temperatures,” by J. H. Davidson, M.Sc., F.I.C., S. English, M.Sc., A.I.C., and W. E. S. Turner, D.Sc.

The following gentlemen took part in the discussion:—Prof. Fearnshides, Messrs. W. Gardner, F. Sweeting, C. J. Peddle, and the Chairman. Mr. Rees and Dr. Turner replied.

The following papers were taken as read:—

“Note on the Use of Arsenious Sulphide as a Flux in Glass-making,” by J. H. Davidson, M.Sc., F.I.C.

“The Determination of Boric Oxide in Glass,” by J. D. Cauwood, M.Sc., A.I.C., and T. E. Wilson, B.Sc.

The following new members were elected:—

### *Collective Members.*

O. C. Hawkes, Messrs., Ltd.	Globe Works, Bromsgrove Street, Birmingham.
Dick, Kerr and Co., Messrs., Ltd.	Abchurch Yard, Cannon Street, London, E.C.4.

*Ordinary Members.*

C. M. Brooke.	Whileman Street, South Melbourne, Australia.
A. Bonson.	1, Elm Row, Hoyle Mill, Barnsley.
S. Winwood.	48, Grove Street, Barnsley.
J. H. O. Bunge.	Greenford Hill, Greenford, Middlesex.
E. Ambrose, M.I.E.E	The Osmosis Co., Ltd., Grosvenor Cottages, Eaton Terrace, Sloane Square, London, S.W.
Lieut.-Col. J. W. Gifford.	Chard, Somerset.
J. C. Fox.	16, Westover Road, London, S.W.18, and Battersea Works, London, S.W.11.
H. G. Parsons.	Bridge Road, Lower Edmonton, London, N.9.
E. Greenwood.	9, Leak Yark, Hunslet, Leeds.
W. B. Parker, F.I.C.	B.T.H. Co., Ltd., Rugby.
D. Herman, F.I.C.	House Boat, "Dai Nippon," Srinagar, Kashmir, India.
S. R. Scholes, Ph.D.	Messrs. H. C. Fry Glass Co., Rochester, Pa., U.S.A.

## REPORT OF THE REFRACTORIES RESEARCH AND SPECIFICATIONS COMMITTEE.

THE importance of the subject of refractories used in the construction of glass furnaces has been recognised by a few progressive glass manufacturers for a considerable time, and Mr. S. N. Jenkinson, notably, has been engaged for many months in directing attention to the urgent need of studying the problem.

The importance of the question was also recognised by Professor Cobb on beginning his work as Adviser on Furnaces to the Optical Munitions and Glassware Supply Department, and, at his instigation, the Controller of the Optical Munitions and Glassware Supply Branch of the Ministry called a conference of glass manufacturers, scientific workers, and furnace builders at the Ministry on July 4th. It was then decided that the body best capable of undertaking the study of the whole subject was the Society of Glass Technology, and an invitation was sent to the Council to deal with the matter. The Council of the Society at its meeting on July 30th, having considered the Report of the Conference called by the Controller of Optical Munitions, decided to set up a Refractories Research and Specifications Committee, charged with the duty of undertaking investigations and tests on the materials most suitable for furnace construction, and with the drafting of specifications embodying these results.

The following were appointed in the first place to constitute the Committee:—Prof. P. G. H. Boswell, D.Sc.; Messrs. F. G. Clark, J. Connolly, J. H. Davidson, M.Sc., F.I.C., S. N. Jenkinson, S. W. Morrison, O.B.E., C. J. Peddle, M.Sc., F.I.C., W. J. Rees, F.I.C., Duncan Webb; Prof. J. W. Cobb, B.Sc., F.I.C.; Sir Herbert Jackson, K.B.E., F.R.S.; Dr. M. W. Travers, F.R.S., with the President and Secretary. The Committee decided to invite Dr. J. W. Mellor to permit his name to be added, and he has consented.

The Committee has already done a great deal of work. It was believed that the best plan to meet the situation was to draw up Provisional Specifications based on the best experience available and on such tests as could be applied quickly, so that dealers in

refractories and glass manufacturers could both, at a very early date, have some trustworthy guide in the selection of materials.

To facilitate the work, four Sub-Committees were appointed by the Committee, namely:—

1. *Committee on Fireclay Bricks and Blocks*: Messrs. J. Connolly, W. J. Rees (Chairman), Prof. Cobb, and Dr. Mellor.

2. *Committee on Glass Pots and on Clay for Glass Pots*: Messrs. S. N. Jenkinson (Chairman), J. H. Davidson, C. J. Peddle, Duncan Webb, and Dr. Travers.

3. *Committee on Silica Refractories*: Messrs. W. J. Rees (Chairman), Prof. J. W. Cobb, and Dr. Mellor.

4. *Committee on Miscellaneous Refractories*: Prof. J. W. Cobb (Chairman), Messrs. S. N. Jenkinson, and W. J. Rees.

The first three Sub-Committees have already presented Draft Provisional Specifications, whilst that of the remaining sub-committee is nearly complete.

The Committee proposes at a very early date to arrange a Conference with the manufacturers of refractory materials. At the invitation of the Council of the Society, the Employers' National Council for the Clay Industries has appointed a Committee of six members to meet the Refractories Committee of the Society.

In the meantime, a small Research Sub-Committee, consisting of Dr. Travers, Messrs. Jenkinson and Rees, together with the President and Secretary, has drafted a scheme of investigations and tests for immediate operation.

The Optical Munitions and Glassware Supply Branch of the Ministry of Munitions, recognising the close relationship of the life of the glass furnace and its productivity, has given every support to the Committee and has obtained a grant of £1,000 to assist the researches, with the promise of a further £1,000 at the end of six months, subject to the production of a satisfactory report. Subject to the Council, financial control has been vested in a Sub-Committee consisting of Messrs. S. W. Morrison, O.B.E., S. N. Jenkinson, the President, and Secretary, whilst Mr. W. M. Gibbons, M.A., of the Delegacy for Glass Research, has consented to serve as Treasurer. Mr. S. W. Morrison has been appointed to serve as Director in connection with the scheme of researches drawn up.

The Council hopes that all members of the Society will assist the Committee with information, and so help to frame specifications which shall be of practical use to the industry.

## OBITUARY.

We regret to announce the death of

The MARQUIS DE MOS, at Vigo, Spain, on November 5th, from complications following influenza.

The Marquis de Mos was Commercial Attaché at the Spanish Embassy, London, and was a man of both singular personal and intellectual qualities. As a firm friend of Britain, much was expected of him in furthering the commercial relationships of this country with Spain. He was elected a member only on October 23rd.

WILLIAM ROBINSON, on December 17th, from pneumonia.

Mr. Robinson's exceptional ability as an engineer, combined with perseverance and industry, made him a very valued servant of the firm of Messrs. Wood Bros. & Co., Ltd., Barnsley; whilst his cheerfulness and his readiness to lend a hand in any emergency gained for him a high place in the esteem of all with whom he came in contact. He was an original member of the Society and a frequent attendant at its meetings.