

PROCEEDINGS

OF THE

CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, February 3rd, 1938, at 5 p.m.

Discussion on "Associated Liquids" to be opened by Professor J. D. Bernal, M.A., F.R.S.

The discussion will commence at 5 p.m. and it may be adjourned and continued after dinner at the discretion of the President. Tea will be served at 4.30 p.m.

It has been arranged for Dinner to be served at Stewart's Restaurant, 50, Old Bond Street (Corner of Bond Street and Piccadilly), at about 7.30 p.m. The price of the dinner will be 4s. 6d., including coffee, and Fellows are asked to pay at the Restaurant. Fellows wishing to attend the dinner should advise the Assistant Secretary by Tuesday, February 1st.

If the Discussion is continued after dinner, it will be held either in a private room at Stewart's Restaurant, or in the Society's Rooms.

Thursday, February 17th, 1938, at 8 p.m.

The Franklin Memorial Lecture, by Professor A. Findlay, M.A., D.Sc.

Thursday, March 3rd, 1938, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, March 17th, 1938, at 8 p.m.

Joint Discussion with the Physical Society on "Electron Diffraction and Surface Structure" to be opened by Professor G. Ingle Finch, M.B.E., Dip.Tech.Chem.

MEETINGS OUTSIDE LONDON.

ABERDEEN.

Friday, February 4th, 1938, at 6 p.m. Joint meeting with the Institute of Chemistry. Lecture on "Alchemy in Scotland" by Professor John Read, M.A., Sc.D., F.R.S., in the Chemistry Department of Marischal College.

The Lecture will be followed by an informal dinner at the Palace Hotel, at 7.30 for 7.45 p.m. The price of the dinner will be 5s. 6d., inclusive of gratuities, but not including wine. Further particulars can be obtained from Mr. R. Craven, B.Sc., A.R.C.S., F.I.C., 2, Richmondhill Gardens, Aberdeen.

[Continued Over

BIRMINGHAM.

Monday, February 7th, 1938, at 5 p.m. Lecture on "The Thermal Decomposition of Solids" by Professor W. E. Garner, D.Sc., F.R.S.

Monday, February 14th, 1938, at 5 p.m. Lecture by Professor I. M. Heilbron, D.S.O., D.Sc., F.R.S.

These Lectures will be held under the auspices of the Society and the Birmingham University Chemical Society in the Chemistry Lecture Theatre of the University, Edgbaston.

EDINBURGH.

Monday, March 14th, 1938, at 7.30 p.m. Joint meeting with the Society of Chemical Industry and the Institute of Chemistry. Lecture by Professor N. V. Sidgwick, C.B.E., D.Sc., F.R.S., on "Multiple Links," in the North British Station Hotel.

GLASGOW.

Friday, February 4th, 1938, at 7.30 p.m. Meeting for the reading of papers at the Royal Technical College, 204, George Street, Glasgow.

MANCHESTER.

Tuesday, February 8th, 1938, at 7 p.m. Joint meeting with the Manchester Section of the Institute of Chemistry and the Manchester University Chemical Society. Lecture on "The Significance of Synthetic Oestrogenic Agents" by Professor E. C. Dodds, M.V.O., D.Sc., F.R.C.P.

Monday, March 7th, 1938, at 7 p.m. Meeting for the reading of papers.

These meetings will be held in the Chemistry Lecture Theatre of the University.

Thursday, March 31st, 1938, at 4 p.m. The Ninety-Seventh Annual General Meeting at the University of Manchester. At 7.30 p.m. Anniversary Dinner at the Midland Hotel.

Friday, April 1st, 1938, Morning. Visit to Shirley Institute and other Visits. At 4.15 p.m. The Pictet Memorial Lecture by Professor G. Barger, M.A., D.Sc., F.R.S., at the University of Manchester. At 8.30 p.m. Reception by the Council of the University of Manchester.

Further particulars will be announced later.

NEWCASTLE AND DURHAM.

Friday, February 18th, 1938, at 7.30 p.m. Scientific Meeting.

Friday, February 4th, 1938, at 6.30 p.m. Bedson Lecture: "Aliphatic Diazo Compounds" by Professor J. Kenner, Ph.D., D.Sc., F.R.S.

These meetings will be held in the Chemistry Lecture Theatre of King's College, Newcastle-upon-Tyne, 2.

NORTH WALES.

Thursday, February 10th, 1938, at 5.30 p.m. Joint meeting with the University College Chemical Society. Lecture on "Some New Aspects of the Organic Chemistry of Nitrogen" by Professor G. R. Clemo, D.Sc., Ph.D., F.R.S., in the Chemistry Lecture Theatre of the University College of N. Wales, Bangor.

SHEFFIELD.

Friday, February 18th, 1938, at 5.30 p.m. Lecture on "Multiple Links" by Professor N. V. Sidgwick, C.B.E., D.Sc., F.R.S., in the Chemistry Department of the University.

SOUTH WALES.

At Swansea.

Friday, February 4th, 1938, at 6 p.m. Joint meeting with the University College of Swansea Chemical Society. Lecture on "Structural Crystallography and Chemistry" by Dr. E. G. Cox in the Chemistry Lecture Theatre of the University College, Swansea.

At Cardiff.

Friday, March 11th, 1938, at 7 p.m. Joint meeting with the Cardiff and District Section of the Institute of Chemistry. Lecture on "Strong Electrolytes" by Dr. C. W. Davies in the Chemistry Lecture Theatre of the University College, Cardiff.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Minutes of an ORDINARY SCIENTIFIC MEETING at Burlington House, London, W. 1, on January 20th, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
Pramod Krishor Banerjee	1920	Date not known.
Percival Walter Clutterbuck	1921	Jan. 1st, 1938.
Alexander John Dey	1925	Dec. 19th, 1937.
John James Morgan	1888	Oct. 30th, 1937.
Charles Watson	1885	Sept. 9th, 1937.
Frederick Percy Watson	1887	Date not known.

The following announcements were made :

1. VACANCIES ON COUNCIL.

The names of the members of Council who retire at the next Annual General Meeting are as follows :

Vice-Presidents who have filled the office of President : Sir GILBERT MORGAN and Professor J. F. THORPE.

Ordinary Members of Council—

(a) *Town Members* : Dr. J. J. FOX.

(b) *Country Members* : Mr. W. A. S. CALDER, Professor T. P. HILDITCH, Dr. F. G. MANN, and Professor J. READ.

The above are ineligible for election to the same office until after the lapse of one year except in so far as special provision is made in Bye Law VIII for the election of Vice-Presidents who have filled the office of President.

The death of Professor H. E. Armstrong in July 1937 created a further vacancy among Vice-Presidents who have filled the office of President. In April, the Council accepted the resignation of Professor G. I. Finch as an Ordinary Member of Council (Town Member) on his appointment to the Fondation Francqui Chair at Brussels, and in May appointed Dr. R. J. W. Le Fèvre to fill the vacancy thus caused, the appointment being made until the next Annual General Meeting. These vacancies, therefore, also fall due to be filled.

No vacancies arise among the Vice-Presidents who have not filled the office of President.

NOTICE is hereby given that in accordance with the Bye-Laws the following vacant places in the Council fall due to be filled at the Annual General Meeting of the Society, which will be held at the University, Manchester, on Thursday, March 31st, 1938, at 4 p.m. :

Vice-Presidents who have filled the office of President *Three vacancies.*

Ordinary Members of Council—

(a) *Town Members* (*i.e.* those living within a radius of 50 miles from Charing Cross) *Two vacancies.*

(b) *Country Members* (*i.e.* those living beyond a radius of 50 miles from Charing Cross) *Four vacancies.*

Fellows are reminded that nominations for any of the above vacancies may be made in writing signed by at least twenty Fellows, and must be received by the Secretaries at the Society's Rooms not later than Monday, the 14th day of February, 1938. Every nomination must relate to one vacant place only, and must be accompanied by a signed declaration by the nominee that he is willing to accept office if elected. Forms of nomination can be obtained on application to the Assistant Secretary.

2. NOMINATION OF HONORARY FELLOWS.

The Council, at its meeting held this afternoon, has proposed the following as Honorary Fellows, and a ballot for their election will be held at the Ordinary Scientific Meeting on February 3rd, 1938 :—

Professor Roger Adams (Urbana).
 Professor Niels Janniksen Bjerrum (Copenhagen).
 Professor Herbert Freundlich (London).
 Professor Paul Karrer (Zürich).
 Professor Richard Kuhn (Heidelberg).

3. CONGRATULATIONS.

The congratulations of the Society have been conveyed to the following Fellows, whose names were in the list of New Year Honours :

Knight Bachelor : Duncan R. Wilson and William F. Wyley.
 Commander of the Order of the British Empire : Dr. Joseph W. Mellor, F.R.S., and Philip F. Rowsell.
 Member of the Order of the British Empire : Thomas L. D. Porter, B.A., B.Sc.

4. REPRESENTATIVES ON OTHER BODIES.

Representatives of the Society on other bodies for the year 1938 have been appointed as follows :

Royal Microscopical Society :

Committee dealing with Standardisation of Biological Stains : Professor A. G. Green.

British Standards Institution :

Committee to co-ordinate the work of the Divisional Councils in regard to any British Standard which may be issued in future for units, conversion factors, fundamental formulæ, values for properties of materials, etc. : Dr. H. J. T. Ellingham.

5. ACKNOWLEDGEMENTS.

The Council has conveyed its cordial thanks to Mr. S. Martineau who has sent a contribution of £50 on completing 50 years of Fellowship, to Sir David Rivett, Messrs. P. K. Dutt, J. Newton Friend, F. W. Kirkbride, Emile Mond, R. H. A. Plimmer, W. G. Polack, J. E. B. Price, H. G. Rule, F. C. Smith, R. B. Turbutt, and G. W. Young, who have contributed to the Publications Fund for 1938, and to Messrs. C. A. Buckmaster and H. W. Keenan for presenting copies of the Society's publications.

Forms of Recommendation for Fellowship were read for the first time in favour of :

John Woolley Batty, B.Sc., 359, Kings Road, Ashton-under-Lyne.
 William Burns, Carbrook Vicarage, Sheffield 9.
 Frederick Sydney Dainton, B.A., Sidney Sussex College, Cambridge.
 Adam Deutsch, D.Tech.Sc., University New Buildings, Edinburgh.
 Joseph Ratchliffe Edisbury, Ph.D., Erddig, Broad Green Road, Roby, Liverpool.
 Geoffrey Moorhouse Gibson, B.Sc., Heathcote, 623, Stonegate Road, Moortown, Leeds.
 Harold Joseph Gover, 283, South Lane, New Malden, Surrey.
 Thomas Kenneth Hanson, B.A., B.Sc., 18, Ladbrooke Gardens, W. 11.
 Taro Hayashi, Professor, B.Sc., Tokyo Higher Normal School for Women, Tokyo, Japan.
 Rachel Anne McAnally, Ph.D., 3, Pembroke Villas, W. 8.

James Eustace Radclyffe McDonagh, F.R.C.S., 42, Wimpole Street, W. 1.
 Percy George Murden, 267 High Holborn, W.C. 1.
 Charles Alexander Pulley, B.Sc., 77, West Street, Oundle.
 Frederick David Perrin Smith, M.P.S., Ramblers, Ledbury Road, Hereford.
 John Oliver Smith, B.Sc., Wyndhurst, Heymoor Common, Shepley, Huddersfield.
 Lloyd Arthur Stocken, B.Sc., A.I.C., Department of Biochemistry, Oxford.
 Fritz Benedict Strauss, Dr.phil., 4, Islip Road, Oxford.
 Ernst Waldschmidt-Leitz, Professor, Dr.phil., U Nemocnice 5, Prague.
 Archibald Watt, 6, Marchhall Crescent, Edinburgh, 9.
 Frederic Victor Wells, 102/5, Shoe Lane, E.C. 4.

and also of the following whose applications have been accepted by the Council under Bye-Law I (2) :

Heinz Hunsdiecker, Dr.phil., Wiethasestrasse 21, Cologne-Braunsfeld, Germany.
 Sidney Edward Miller, M.S., Ph.D., 801, East River Road, Minneapolis, U.S.A.
 Jan Adolph Maria van Moll, Poststraat 10, Tilburg, Holland.
 Albert L. Raymond, M.S., Ph.D., 4741, N. Paulina, Chicago, Ill., U.S.A.

Forms of Recommendation for Fellowship were read for the second time in favour of twelve candidates.

The following papers were read :

- “ Union of aryl nuclei. Parts I and II.” By W. S. M. GRIEVE, I. M. HEILBRON, D. H. HEY, and R. WILKINSON.
 “ The configuration of heterocyclic compounds. Part VI. An examination of derivatives of selenoxanthone and phenoxselenine.” By (Miss) M. C. THOMPSON and E. E. TURNER. “ Part VII. Some derivatives of phenoxtellurine.” By (Miss) I. G. M. CAMPBELL and E. E. TURNER.
 “ Prototropy in relation to the exchange of hydrogen isotopes. Parts I—IV. Experiments with unsaturated nitriles, ψ -acidic ketones and methyleneazomethines.” By C. K. INGOLD, E. DE SALAS, S. K. HSÜ, and C. L. WILSON.

Summary of Proceedings of a COUNCIL MEETING held on 16th December, 1937.

The Council feels that it would be of interest to Fellows to be supplied with a summary of its deliberations, and has decided to publish in future in the Proceedings a brief account of the proceedings of Council. The following is a résumé of the proceedings of the meeting held on December 16th, 1937 :

Professor F. G. DONNAN (President) was in the Chair and there were 26 members present.

The deaths of six Fellows, whose names appear in the Proceedings for December 16th, were announced, and the Secretaries were directed to convey the sympathy of the Council to their relatives.

The PRESIDENT agreed to convey the congratulations of the Society to Mr. Sydney Martineau and Dr. A. R. Ormiston, who completed 50 years of Fellowship on December 1st, 1937.

The following statistics were given :

(a) The number of pages and cost of printing the *Journal* and *Abstracts* from January to October were :

	1937.		1936.	
	Pages.	Cost.	Pages.	Cost.
<i>Journal</i>	1752	£2825	1575	£2562
<i>Abstracts</i>	1384	£2608	1308	£2255

(b) Sales of *Journal*, *Abstracts*, and *Annual Reports* from January to November realised £5444, as against £5161 in 1936.

(c) Proceeds from advertisements from January to November amounted to £489 in 1937, as against £440 in 1936.

The balances at the Bank on December 7th were reported, and it was stated that the arrears of annual subscriptions for 1937 amounted to £557.

A communication from the Chemical Council was read stating that a loan of £1500 had been advanced to the Society to meet the overdraft at the Bank, and that a grant of £800 had been made towards the cost of the Society's publications for 1937, in addition to the £80 already granted for including summaries with papers in the *Journal*. It further reported on the arrangements made for printing and paper contracts. The Treasurer was directed to express thanks for the action taken.

The desirability of augmenting the services already rendered by the Society in acting as an Information Bureau was considered, and a Committee was appointed to explore the possibility of extending this to matters relating to research.

The Council appointed a number of representatives of the Society on other Bodies, and it was agreed that a list of such representatives should be announced at the Ordinary Scientific Meeting that evening.

OTHER NOTICES

Board of Trade.

The Treasury have made an order under Section 10 (5) of the Finance Act, 1926, continuing the exemption of radium compounds from Key Industry duty till August 31st, 1938.

The Treasury Order, which will be entitled The Safeguarding of Industries (Exemption) No. 11 Order, 1937, will shortly be published by the Stationery Office.

Glass Convention, 1938.

The Fifth Glass Convention will be held at the Norbury House Hotel, Droitwich, from May 18th to 21st, 1938. The Presidential Address entitled "Craftsmanship in Industry" will be given on May 18th, at 6 p.m., by Mr. H. S. Williams-Thomas, and will be followed by a discussion, which Professor W. E. S. Turner, O.B.E., D.Sc., will lead. Technical Sessions arranged by the Society of Glass Technology will be held during the Convention, the subjects being "Glass Finishing Processes" and "Plastics and their Relation to the Glass Industry."

Further particulars can be obtained from the Honorary Secretary, Glass Convention, Norwich House, 13, Southampton Street, Strand, London, W.C. 2.

PAPERS RECEIVED

List of papers, or abstracts thereof, received between December 16th, 1937, and January 20th, 1938. (This list does not include the titles of papers which have been read at an Ordinary Scientific Meeting, or which have appeared in the *Journal*).

- "Kinetics of the catalysed polymerisation of styrene. Part I. Experimental methods and some general features of stannic chloride catalysis." By G. WILLIAMS.
- "Aldol condensation products." By (MISS) M. M. T. PLANT.
- "Studies on vitamin-E. Part III. Observations on the structure of α - and β -tocopherol." By F. BERGEL, A. R. TODD, and T. S. WORK.
- "A modified Grignard reaction in the synthesis of hydrocarbons." By J. W. OLDHAM and A. R. UBBELOHDE.
- "The constitution of the nitrosopentamine cobalt salts." By (MRS.) J. L. MILWARD, W. WARDLAW, and W. J. R. WAY.
- "The oxidation of certain alkyl tellurides." By M. P. BALFE, C. A. CHAPLIN, and H. PHILLIPS.

- "Derivatives of *cis*-3-hydroxy- Δ^5 -cholenic acid." By G. A. D. HASLEWOOD.
- "Estimation of carbon and hydrogen." By F. B. STRAUSS.
- "The kinetics of iodine addition to olefinic compounds." By N. J. BYTHELL and P. W. ROBERTSON.
- "The structure of the 'nitrenes.'" By T. W. J. TAYLOR, J. S. OWEN, and D. WHITTAKER.
- "Constitution of the purine nucleosides. Part VI. Adenine deoxyriboside, adenic glucoside, and a route to the synthesis of the naturally occurring nucleosides." By J. M. GULLAND and L. F. STORY.
- "Some addition reactions of the azomethinic grouping." By D. PHILPOTT and W. J. JONES.
- "Acid catalysis in non-aqueous solvents. Part V. The inversion of menthone in chlorobenzene solutions." By R. P. BELL and E. F. CALDIN.
- "The configuration of heterocyclic compounds. Part VIII. The configuration of anthracene, 9:10-dihydroanthracene, phenazine, 9:10-dimethyl-9:10-dihydrophenazine, thianthren, and selenanthren." By (Miss) I. G. M. CAMPBELL, (MRS.) C. G. LE FÈVRE, R. J. W. LE FÈVRE, and E. E. TURNER.
- "Methylene." By T. G. PEARSON, R. H. PURCELL, and G. SAIGH.
- "The resolution of *n*-propylpropenyl carbinol, the refractivity of optical rotatory dispersion of some substituted allyl alcohols." By C. L. ARCUS and J. KENYON.
- "Aliphatic substitution and the Walden inversion. Part III. Comparison, using radioactive bromine, of the rates of inversion and substitution in the reaction of bromide ions with α -bromopropionic acid." By W. A. COWDREY, E. D. HUGHES, T. P. NEVELL, and C. L. WILSON.
- "The action of alkali on rotenone and related substances and the composition of Derris extract." By R. S. CAHN, R. F. PHIPERS, and J. J. BOAM.
- "Benzanthrones. Part I. The mechanism of Bally's reaction." By F. G. BADDAR and F. L. WARREN.
- "The associating effect of the hydrogen atom. Part II. Substituted anilides and related substances." By H. O. CHAPLIN and L. HUNTER.
- "Some symmetrical acylarylureas." By E. N. ABRAHART.
- "Usnic acid. Part VI. The synthesis of *O*-dimethylpyrousnic acid." By H. F. BIRCH and A. ROBERTSON.
- "The stereochemistry of metallic derivatives of pyrrromethenes." By C. R. PORTER.

FORMS OF RECOMMENDATION FOR FELLOWSHIP

THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, FEBRUARY 17th, 1938.

ADAMSON, DONALD WALLACE, Magdalen College, Oxford. British. Research Chemist. B.Sc. (Tech.), M.Sc. (Tech.), Ph.D. [all at Manchester University]. Lately Demonstrator in Manchester University, College of Technology. *J.C.S.*, 1934, 838; 1935, 286; 1937, 1551 (jointly with Professor J. Kenner, F.R.S.). (*Signed by*) R. Robinson, J. Walker, H. N. Rydon.

BATTY, JOHN WOOLLEY, 359, King's Road, Ashton-under-Lyne, Lancs. English. Chemist. B.Sc., London, External. Assistant to Mr. N. Strafford during his researches on Qualitative and Quantitative Colorimetric Analysis. A Research Assistant to Professor I. M. Heilbron on Studies in the Synthesis of Vitamin-A. *J.C.S.*, 1937, 755. (*Signed by*) I. M. Heilbron, W. E. Jones, E. Clark.

BURNS, WILLIAM, Carbrook Vicarage, Sheffield 9. British. Student. Student at Oxford reading for an Honours Degree in Chemistry. (*Signed by*) G. D. Parkes, S. G. P. Plant, D. Ll. Hammick.

COOKE, GEORGE WILLIAM, "Kirby Holt," Milton, Derby. British. Research Student. B.Sc. (London), Research Student at University College, Nottingham. Date of birth January 6th, 1916. (*Signed by*) J. Masson Gulland, J. B. Firth, B. D. Shaw.

DAINTON, FREDERICK SYDNEY, Sidney Sussex College, Cambridge. British. Research Student. B.A. (Oxon.), 1st Class Hons., Chemistry, 1937. Joint paper with H. W. Thompson

Trans. Faraday Soc., 1937, **33**, 1456—1555. Date of birth November 11th, 1914. (*Signed by*) R. G. W. Norrish, E. J. Buckler, C. H. Bamford.

DEUTSCH, ADAM, Physiology Department, University New Buildings, Edinburgh. Hungarian. Research Chemist. Diploma in Chemical Engineering (Zurich), D.Tech.Sc. (Zürich). Published Papers: R. Kuhn and A. Deutsch, *Berichte*, **65**, 43, 817; **66**, 883; R. Kuhn, E. Lederer, and A. Deutsch, *Hoppe-Seyler*, **220**, 229; K. Hausser, R. Kuhn, A. Smakula, and A. Deutsch, *Z. physikal. Chem.*, (B) **29**, 378; A. Deutsch and P. Eggleton, *Biochem. J.*, 1938; A. Deutsch, M. G. Eggleton, and P. Eggleton, *ibid.*, 1938. Assistant in the Dept. of Physiology, The University, Edinburgh, from Oct. 1936 till Oct. 1937. (*Signed by*) W. O. Kermack, C. G. Anderson, Edgar Stedman.

DEWAR, MICHAEL JAMES STEUART, Balliol College, Oxford. British. Student of Chemistry. Date of birth September 24th, 1918. (*Signed by*) Ronald P. Bell, J. H. Wolfenden, F. E. King.

DOWNING, ERIC GORDON, 151, Sherwood Park Road, Mitcham, Surrey. British. Works Chemist. B.Sc., London University. Four years apprenticeship to Messrs. Condy U'Reu & Son, M.P.S., Pharmacists. Two years experience as senior assistant in Pharmacy. Nine months experience as manager in Pharmacy. (*Signed by*) Frank Royle, Cyril E. Gill, L. H. N. Cooper.

EASSON, LESLIE HILTON, "Croftlands," Petheril Road, Upperby, Carlisle. British. Biochemist, Cumberland Infirmary. B.Sc. (Edin.); Ph.D. (Edin.). Late Assistant in the Dept. of Medical Chemistry, University of Edinburgh. Publications include "The Absolute Activity of Choline-esterase" (*Proc. Roy. Soc., B*, **121**, 142); "Molecular Dissymmetry and Physiological Activity," *J.C.S.*, 1933, 1094. (*Signed by*) George Barger, Edgar Stedman, C. P. Stewart.

EDISBURY, JOSEPH RATCLIFFE, "Erddig," Broad Green Road, Roby, near Liverpool. British. Research Chemist and Spectroscopist. B.Sc., Ph.D. (Liverpool University). Contributions to the chemistry and spectroscopy of biological products, mainly vitamin-A and related substances. Cf. *Biochem. J.*, 1932-37, **26**, 1164; **27**, 1451, 1461; **29**, 899, 1645; **31**, 258, 416. *Nature*, 1933, **131**, 618; 1937, **140**, 234, 276. (*Signed by*) R. A. Morton, T. P. Hilditch, A. Robertson.

GARNER, JOHN ERNEST, 6, Kingfield Road, Ealing, W. 5. British. Student. I am a Student at the Royal College of Science and Technology, South Kensington. Date of birth May 6th, 1919. (*Signed by*) James C. Philip, H. J. Emeléus, George Fowles, P. C. Bull.

GIBSON, GEOFFREY MOORHOUSE, "Heathcote," 623, Stonegate Road, Moortown, Leeds. British. Research Student. B.Sc. (Hons.), Leeds. Date of birth December 8th, 1916. (*Signed by*) Frederick Challenger, S. Blackburn, Joseph Bruce, H. Burton.

GOODWAY, NORMAN FREDERICK, 35, Kings Drive, Surbiton, Surrey. British. Lecturer in Chemistry. Sir John Cass Technical Institute. Ph.D., M.Sc. (London). Five years industrial experience, South Metropolitan Gas Company. Teaching at Sir John Cass Technical Institute since 1929. Part author of following: *Berichte*, 1930, **63**, 472, 1690, 3048; 1931, **64**, 2185. *J.C.S.*, 1929, 813, 1754; 1930, 1348. (*Signed by*) A. R. Martin, H. J. S. Sand, R. A. E. Galley.

GOVER, HAROLD JOSEPH, "Outwood," 283, South Lane, New Malden, Surrey. British. Chief Chemist to Messrs. Wm. Harland & Son, Merton, S.W. 19. No degrees, but have studied up to B.Sc. Final Standard and it has been due to my business responsibilities which have prevented my actual sitting for examination. Lecturer in Technical Chemistry of Cellulose Lacquers, Pigments and Synthetic Finishes at the Regent Polytechnic and the Borough Polytechnic for past four years. Author of many articles in Technical periodicals. (*Signed by*) J. O. Cutter, D. R. Duncan, S. H. Bell.

HANSON, THOMAS KENNETH, 18, Ladbroke Gardens, W. 11. British. Chemical Research Worker. B.A., B.Sc. (Chemistry), Oxford. First-class Hons. School of Natural Science Oxford. B.Sc., 1931-35. Paper in *J.C.S.*, 1933. Paper to be published on photochemical research. Now working on I.C. engine research. *Proc. Roy. Soc.*, **163**, 90. Inst. Mech. Eng. Lubrication Conference, contribution to "The Science of Petroleum." *J.C.S.*, 1933, 669. Date of birth June 1st, 1913. (*Signed by*) Alfred C. Egerton, D. M. Newitt, D. Ll. Hammick.

HAY, NORMAN CHARLES BAILIE, c/o George Henderson & Co., Ltd., 101/1 Clive Street, Calcutta, India. Scottish. Chief Chemist to above company. B.Sc. (Lond.), A.R.C.S. 1926-35, Works Chemist, Dyehouse Manager, Assistant Works Manager Messrs. Courtaulds, Ltd., Essex, and at Coventry, England. 1935 to date, Chief Chemist and Plant Manager to above Company. (*Signed by*) James C. Philip, R. P. Linstead, H. J. T. Ellingham.

HAYASHI, TARO, Tokyo Higher Normal School for Women, 35, Otsuka-machi, Koishikawa, Tokyo, Japan. Japanese. Prof. of the Tokyo Higher Normal School for Women (1927 to date). B.Sc. (Imperial University. Tokyo, Japan). "On the Hydrogenation of Carbonyl Groups in the Presence of Copper under Pressure." "On the Configuration of Tervalent Nitrogen Com-

pounds." "Studies of the Raman Effect of Organic Compounds." (Scientific Papers and the *Bulletin of the Institute of Physical and Chemical Research*). (Signed by) Chika Kuroda, Masuo Murakami, Sin'iti Kawai.

HOBDAV, GORDON IVAN, 43, Curzon Street, Long Eaton, Notts. British. Research Student. B.Sc. (London). Research Student, University College, Nottingham. Date of birth February 1st, 1916. (Signed by) J. Masson Gulland, J. B. Frith, B. D. Shaw.

ILIFF, NEIL ATKINSON, 90, North End House, Fitzjames Avenue, W. 14. British. Student. Major (Vintner) Scholar, King's College, Cambridge. Class I, Natural Science Tripos, Pt. I., 1937. Date of birth May 23rd, 1916. (Signed by) R. G. W. Norrish, W. H. Mills, H. McCombie, Peter Maitland.

JANZ, HEINRICH, Bad Soden am Taunus, Parkstrasse 42. Deutscher. Chemiker. Dr. phil. Universität München. The candidate obtained his degree of Doctor of Philosophie at the University of Munich January 1922, by a dissertation entitled, "Ueber Versuche zur Darstellung von Methylenchinonen." Candidate is a Research-chemist employed by Messrs. I. G. Farbenindustrie A.G., Frankfurt (Main)-Höchst since March 1922. (Signed by) Georg Kranzlein, Karl Zahn, Kurt Moers.

LAMB, IVAN DOUGLAS, 9, Baldwyns Park, Bexley, Kent. British. Research Chemist, Burroughs Wellcome & Co., Dartford, Kent. B.Sc., Tech. (Manchester), M.Sc., Tech. (Manchester), A.I.C. Part author of the following papers in the *J.C.S.*, 1924, 706; 1936, 442. (Signed by) Sydney Smith, R. Lindsay Grant, G. E. Foster.

LEICESTER, JAMES, c/o Mrs. Tipping, 36, Cavendish Road, Didsbury, Manchester. British. Demonstrator, College of Technology, Manchester. M.Sc., Sheffield. I am desirous of keeping in touch with chemical research in order that I may carry out research in connection with the above occupation. Date of birth December 23rd, 1915. (Signed by) J. Kenner, W. Bradley, G. Baddeley.

MCANALLY, RACHEL ANNE, 3, Pembroke Villas, W. 8. British. University teacher. B.Sc., London (Bedford College); Ph.D., London (Lister Institute). Publications: *Biochemical Journal*, 28, 495; 29, 1872, 2236; 31, 72. Lecturer and demonstrator, King's College. Household and Social Science, 1934. (Signed by) Ida Smedley Maclean, C. K. Tinkler, E. M. W. Lavington.

MCDONAGH, JAMES EUSTACE RADCLIFFE, 42, Wimpole Street, W. 1. British. Medicine. F.R.C.S. (Eng.). Articles on Chemo-therapy in medical journals and in *The Nature of Disease*. Member Chemical Warfare Gas Committee. (Signed by) Charles Alex. Hill, H. B. Fraser, Francis H. Carr.

MARTIN, DAVID CHRISTIE, 13, Kidd Street, Kirkcaldy, Fife. British. Research Student. B.Sc. (Hons. Chemistry), Edinburgh University. I am studying Chemistry at Edinburgh University and graduated B.Sc. with 1st Class Hons. in Chemistry in June 1937. I hope to obtain a Ph.D. degree. Date of birth October 7th, 1914. (Signed by) J. A. V. Butler, E. G. V. Percival, E. B. Ludlam.

MICHAELIS, ROBERT, Medical Chemistry Department, Teviot Place, University New Buildings, Edinburgh. German. Research Chemist. Dr. phil. nat., Frankfurt a/Main. Assistant to Prof. v. Braun (Frankfurt a/Main). Lintig-Stipendium. Papers with v. Braun, *Berichte*, 65, 888; 70, 1241. *Annalen*, 490, 1989; 507, 1, 14. Co-worker of Prof. F. Kögl, Utrecht (Holland). Paper: Hoppe Leyler's *Zeitschr. f. physiolog. Chemie*, 1935, 235, 181. *J.C.S.*, 1935, 1404; 1936, 1571; 1937, 109, 628 (all with A. Schönberg). (Signed by) C. P. Stewart, Edgar Stedman, G. Barger.

MURDEN, PERCY GEORGE, 267, High Holborn, W.C. 1. British. Radiology. Denta Practitioner. Registered dentist. Member of British Institute of Radiology. Fellow Royal Astronomical Society. Student. Reasons for desiring to become Fellow: To keep in touch with the progress of Chemistry, and receive the *Journal*. (Signed by) Jason Lewkowitsch, James Foster, J. Stanley White.

PATTERSON, JAMES BRUCE ERIC, Staple, Totnes, S. Devon. British. Chemist. M.Sc., University College, London; A.I.C. 1927-1929, Assistant in Department of the War Department Chemist, Woolwich Arsenal. 1929-1931, Assistant Chemist, Dartington Hall, Ltd. Totnes. 1931-present time, Chief Chemist. *Empire J. Expt. Agric.*, 1935, 3, 144. (Signed by) S. J. Watson, W. K. Slater, F. A. Freeth.

PHILLIPS, HENRY WILFRED LEWIS, "Glencoin," West Avenue, Stockton Heath, Warrington. British. Deputy Chief Metallurgist, British Aluminium Co., Ltd. B.A. (Cantab.) 1916; A.I.C., 1918. Nat. Sci. Tripos, Pt. 1, 1915 (1st Class); Pt. 2, Chem., 1916 (2nd). Chemist, Chance & Hunt, Ltd., Oldbury, 1916-18. Physical Chemist Research Laboratories, British

Aluminium Co., Warrington, 1919—25. Head of Physical Metallurgical Section, Research Labs. B.A. Co. 1925—Feb. 1937. Deputy Chief Metallurgist, Oct. 1935 to date. Publications, with Dr. A. G. C. Gwyer, Chief Metallurgist, British Aluminium Co., Ltd.: "Constitution of Commercial Al-Si Alloys," *J. Inst. Met.*, 1926, **36**, 283; "Constitution of Alloys of Al with Si and Fe," *ibid.*, 1928, **38**, 29; "Constitution of Alloys of Al with Cu, Si and Fe," *ibid.*, 1930, **40**, 297. (*Signed by*) W. J. Pope, W. H. Mills, W. G. Palmer.

PULLEY, CHARLES ALEXANDER, 77, West Street, Oundle, Near Peterborough. British. Research Student. B.Sc. (Chem.), London. Two years as a research student in chemistry at University College, Nottingham. (*Signed by*) F. S. Kipping, J. Masson Gulland, B. D. Shaw.

ROBINSON, FREDERICK JOHN, 46, Laitwood Road, Balham, S.W. 12. English. Senior Laboratory Assistant. Nine years laboratory assistant at Battersea Polytechnic, 1925—34. Senior Laboratory Assistant at Bedford College from 1934 to present date. (*Signed by*) James F. Spencer, Corona G. Trew, Winifred R. A. Hollens, Margaret H. C. Wiseman, E. E. Turner Mary S. Leslie.

ROCCA, JOSEPH ESCOTT, 30, Greenbank Drive, Edinburgh, 10. British. Research Student in Chemistry. B.Sc. (1st Class Hons. in Chemistry) of Edinburgh University. Engaged in research in organic chemistry for Ph.D. at Edinburgh University. Date of birth January 30th, 1915. (*Signed by*) H. Gordon Rule, Neil Campbell, J. A. V. Butler.

SMALL, CHESTER WOODLEIGH, Acadia University, Wolfville, N.S., Canada. British (Canadian). Associate Professor of Chemistry, Acadia University. B.Sc. (Acadia), M.A. (Toronto). Assistant in Chemistry, Cornell University, Ithaca, N.Y., 1923—24. Industrial Assistant, Brit. Nickel Co., Copper Cliff, Ont., 1924 (May—Sept.). Holder of Bursary, Nat. Research Council of Canada, Toronto University, 1924—25. Demonstrator in Chem. (full-time), Dept. Chem. Engineering, University of Toronto, 1925—26. Assistant Professor and Assoc. Professor of Chemistry, Acadia University, Wolfville, N.S., Can., 1926—1937. (*Signed by*) E. J. King, G. Haslewood, J. C. Drummond.

SMITH, FREDERICK DAVID PERRIN, Ramblers, Ledbury Road, Hereford. British Subject by birth. Manufacturing Chemist. Member of Pharmaceutical Society. Medallist London College of Pharmacy. Fellowship desired to keep in touch with latest research, etc. (*Signed by*) W. Ramsay Sibbald, George Dalrymple, H. Humphrey Jones.

SMITH, JOHN OLIVER, "Wyndhurst," Heymoor Common, Shepley, near Huddersfield. English. Research Student. B.Sc., Leeds. Desire to keep in touch with the progress of chemistry. Date of birth December 11th, 1915. (*Signed by*) Frederick Challenger, Frank R. Goss, W. A. Wightman, E. Rothstein.

SNOW, GEORGE ALAN, 275, Wanstead Park Road, Ilford, Essex. British. Nutrition Chemistry. B.Sc. (1st Class Hons.), London. Past experience in photographic chemistry and research on sensitising dyes. At present engaged on biochemical research. Date of birth June 27th, 1915. (*Signed by*) S. S. Zilva, E. de Barry Barnett, C. A. Lawrence.

STEPHENS, DOUGLAS SANDFORD, "Sandford," Moss Lane, Bramhall, Cheshire. British. Research Student. B.Sc. Tech. (London), Faculty of Technology, University of Manchester. Date of birth December 28th, 1915. (*Signed by*) J. Kenner, W. Bradley, G. Baddeley.

STOCKEN, LLOYD ARTHUR, Dept. of Biochemistry, Oxford. British. Chemist. B.Sc., London; A.I.C. Nuffield Assistant in Dept. of Biochemistry, Oxford. (*Signed by*) R. A. Peters, H. M. Sinclair, A. Cohen.

STRAUSS, FRITZ BENEDICT, 4, Islip Road, Oxford. German. Partner in the firm "Dr. G. Weiler, Dr. F. B. Strauss, Microanalytical Laboratory." Dr. phil., Leipzig Univ. Research Student at Leipzig and Oxford. Published with Professor B. Helferich: *Ber.*, **66**, 380; *Journ. f. pr. Chemie*, **142**, 13. "Über Derivate des Phenolglucosids und die Frage ihrer Spaltbarkeit durch Emulsin," Thesis, Leipzig 1933. Research on quantitative micro methods since 1934. (*Signed by*) H. N. Rydon, T. W. J. Taylor, R. Robinson.

TEBBETT, ROBERT WILSON, 236, Quinton Road, Harborne, Birmingham, 17. British. Student. Passed the examinations for the Degree of B.Sc., Univ. of Birmingham. Analyst for Jack Tar Soap Co. Nine weeks laboratory experience, Messrs. Joseph Lucas. I wish to join the Society in order to be conversant with the latest developments in chemistry. Date of birth February 17th, 1917. (*Signed by*) W. N. Haworth, E. G. Cox, C. R. Porter, S. R. Carter.

THOMSON, THOMAS GORDON HAND, 7, Tollgate, Brucefield, Dunfermline, Fife. British. Chemist. B.Sc., Hons. Chemistry, Edinburgh 1937. Engaged in research work for Ph.D. degree at Edinburgh University. Date of birth November 27th, 1914. (*Signed by*) E. G. V. Percival, Neil Campbell, J. A. V. Butler.

TULLO, JAMES WILSON, St. Brendan's Coolock, co. Dublin. British. Chief Chemist

Messrs. A. Guinness, Son & Co., Dublin. B.Sc. (Edin.), F.I.C. (*Signed by*) T. J. Nolan, A. G. G. Leonard, E. A. Werner, Kenneth C. Bailey.

WALDSCHMIDT-LEITZ, ERNST, U nemocnice 5, Prague II, Czechoslovakia. Czechoslovakian. Professor of Chemistry, German University, Prague. Dr. phil., Univ. of Munich. Author of many scientific publications, Director of the Chemical Dept., German University of Prague. (*Signed by*) Robert Robinson, H. Raistrick, F. G. Hopkins.

WATT, ARCHIBALD, 6, Marchhall Crescent, Edinburgh 9. British. Whole-time Director of T. & H. Smith, Ltd., Manufacturing Chemists, Edinburgh. Chartered Accountant. (*Signed by*) James Kendall, Leonard Dobbin, James Watt.

WELLS, FREDERIC VICTOR, "Turestina," The Street, West Horsley, Surrey. British. Technical Journalist. Editor, "Soap, Perfumery and Cosmetics," London. Assistant Editor, "Dairy Industries." Contributor to "Encyclopædia Britannica" and to English and American technical publications dealing with the manufacture of foodstuffs, perfumes, cosmetics, soaps and allied preparations. Formerly associated with *The Manufacturing Chemist* and *Food Manufacture* and technical editor of *The Canning and Food Trade Journal* (now incorporated in *Food*). Has private laboratory for cosmetic and perfumery research. Member of Society of Chemical Industry. (*Signed by*) W. H. Simmons, Herbert A. Berens, Neil R. Fisk.

WYLLIE, DAVID, Castlemains, Gifford, East Lothian, Scotland. Scottish. Research Chemist. B.Sc., 1st Class Hons. in Chemistry (Edinburgh). I obtained the above degree in June 1937 and am now engaged in research in Edinburgh with a view to becoming a Doctor of Philosophy. Date of birth September 18th, 1916. (*Signed by*) James Kendall, J. A. V. Butler, E. B. Ludlam.

YOULE, PHILIP VINCENT, Crewe Hall, Clarkehouse Road, Sheffield 10. British. Research Student. M.Sc. (University of Sheffield). I apply for election so that I may be better able to keep in touch with the progress of Chemistry. Date of birth October 17th, 1915. (*Signed by*) G. M. Bennett, S. Glasstone, J. C. Speakman, Brynmor Jones, T. B. Smith, Arthur W. Chapman.

Forms of Recommendation for Fellowship accepted by the Council under Bye-Law I (2).

HUNSDIECKER, HEINZ, Cologne-Braunsfeld, Wiethasestrasse 21, Germany. German. Chemist and partner of Dr. Vogt and Co., chemical works, Cologne. Dr. phil. at Cologne 1929. Patents conc. org. a. anorg. pigments, textil assistants, org. a. cosmetic products. f. ex. : Brit.P. 416,658, 421,862, 426,554, 444,740, 456,565, 428,988, 424,717, 425,188, 426,508, 422,461, 428,091. (*Signed by*) Robert Dodd.

HUTCHINSON, RAYMOND CHARLES, c/o Commonwealth Health Laboratory, Townsville, Queensland, Australia. British. Biochemist. B.Sc., University of Tasmania. I have been employed for two years as the biochemist at the Commonwealth Health Laboratory, Townsville, and previous to this I was employed at the Commonwealth Serum Laboratories, Melbourne. (*Signed by*) E. A. Rogerson.

MEUNIER, FRANCIS A., Hyon, Belgium, 7, Rue de Mons. Belgian. Professor at the Faculté Polytechnique de Mons. Ingenieur Metallurgiste. "Sur tension électrolytique de l'H₂," *Bull. Acad. Roy. de Belgique*, 1923; *ibid.*, *Journal de Chim. Phys.*, 1925; "Préparation électrolytique des Amalgames," *Chim. et Ind.*, 1926; *ibid.*, *Bull. Acad. Roy. Belg.*, 1927; "Passivité des Métaux," *Bull. Soc. Chim. Belg.*, 1927; "cinétique de décomposition des bicarbonates alcalino tertiux," *Chim. et Ind.*, 1930; "Corrosion des soudures," *C.R. Acad. des Sci.*, Paris, 1933; "Potential du fer en solution désaérée," *Chim. et Ind.*, 1933; "Reactivité et perméabilité du Coke," *ibid.*, 1933; "Dissociation Thermique de F₂O₃," *Chim. et Ind.*, 1935; "Dissociation du CO cinétique," *Congres de Metallurgie*, Paris, 1935. (*Signed by*) W. J. Pope.

MILLER, SIDNEY EDWARDS, 801, East River Road, Minneapolis, Minnesota, U.S.A. Citizen, United States of America. Research Chemist for General Mills Inc. B.S. and M.S., University of Oklahoma; Ph.D., University of Minnesota. Publication: "The Structure of Hydroxyazo Compounds" (W. M. Lauer and S. E. Miller, *J. Amer. Chem. Soc.*, 1935, 57, 520). Teaching assistant, University of Minnesota, 1930—34; at present Research Chemist for General Mills, Inc. (*Signed by*) Lee Irwin Smith, C. Frederick Koelsch.

VAN MOLL, JAN ADOLPH MARIA, Poststraat 10, Tilburg, Holland. Dutch. Chief Chemist, N.V. Volt Tilburg. Lid v.h. Kon. Inst. v. Ingenieurs. Geass. Lid v.d. Nederl. Chem. Ver. Grad. M. of the I.Chem.E., F.R.M.S., A.I.S.E. Desire to receive the publications of the Society, to attend the meetings, and to use the Library. (*Signed by*) A. de Graaf.

RAYMOND, ALBERT L. 4741 N. Paulina, Chicago, Illinois, U.S.A. American. Research Chemist, Director of Research, G. D. Searle and Co., Chicago, Illinois, U.S.A. B.S., M.S., Ph.D. (all from California Institute of Technology, Pasadena, California, U.S.A. Teacher, Calif. Inst. of Tech., and Univ. of Calif. National Research Fellow, Rockefeller Inst. for Medical Research, New York City, N.Y. Assistant and Associate on staff of Rockefeller Institute. Publications mostly in *Journal of Biological Chem.* (U.S.A.). (Signed by) R. Stuart Tipson.

ADDITIONS TO THE LIBRARY.

I. Donations.

COPPER DEVELOPMENT ASSOCIATION. Copper in cast steel and iron. London [1937]. pp. 134. ill. (*Recd.* 16/12/37.)

From the Director.

DEGERING, ED. F. [and others]. An outline of organic chemistry. Revised edition. New York 1937. pp. xviii + 317. \$2.25. (*Recd.* 30/12/37.)

From the Publishers: Messrs. Barnes & Noble, Inc.
DUPONT, G. Cours de chimie industrielle. Vol. V. Industries organiques. (Suite.) Paris 1938. pp. iv + 279. ill. 70 fr. (*Recd.* 10/1/38.)

From the Publishers: MM. Gauthier-Villars.
EICHWALD, EGON. Mineralöle. Dresden 1925. pp. viii + 151. M. 6. (*Recd.* 30/12/37.)

From Dr. E. W. Maddison.

ENZYMOLOGIA. Vols. III and IV. (Neuberg Festschrift.) Den Haag 1937. pp. xiv + 300, viii + 268. ill.

From Dr. E. F. Armstrong, F.R.S.

JENKNER, ADOLF. Analytische Methoden und Tabellen für die Überwachung und den Betrieb der Benzolfabrik von Kokereien und Gaswerken. Halle 1937. pp. viii + 96. ill. M. 7.30. (*Recd.* 20/12/37.)

From the Publisher: Herr Wilhelm Knapp.

MELLON, M. G. Methods of quantitative chemical analysis: an introduction to their theory and technic. New York 1937. pp. x + 456. ill. 12s. 6d. net. (*Recd.* 16/12/37.)

From the

London Publishers: Messrs. Macmillan & Co.

SCHUSTER, FRITZ. Laboratoriumsbuch für Gaswerke und Gasbetriebe aller Art. Part I. Untersuchung fester und flüssiger Stoffe. Halle 1937. pp. viii + 168. ill. M. 11.60. (*Recd.* 20/12/37.)

From the Publisher: Herr Wilhelm Knapp.

SCHWEIZERISCHER VEREIN ANALYTISCHER CHEMIKER, EIDGENÖSSISCHEN GESUNDHEITSAMT, and SCHWEIZERISCHE GESELLSCHAFT FÜR BALNEOLOGIE UND KLIMATOLOGIE. Die Mineral- und Heilquellen der Schweiz. Bern 1937. pp. viii + 201. ill. (*Recd.* 16/12/37.)

From Dr. A. Keller.

II. By purchase.

BAILLEUL, G., HERBERT, W., and REISEMANN, E. Aktive Kohle und ihre Verwendung in der chemischen Industrie. 2nd edition. Stuttgart 1937. pp. viii + 114. ill. M. 9.20. (*Recd.* 6/1/38.)

BITTER, FRANCIS. Introduction to ferromagnetism. New York 1937. pp. xii + 314. ill. \$4. (*Recd.* 16/12/37.)

BURN, J. H. Biological standardization. London 1937. pp. xviii + 288. ill. 21s. net. (*Recd.* 16/12/37.)

CAMPBELL, CLYDE H. Campbell's book: canning, preserving and pickling. Revised edition. New York 1937. pp. viii + 848. ill. \$10. (*Recd.* 23/12/37.)

ERGEBNISSE DER VITAMIN- UND HORMONFORSCHUNG. Vol. I, etc. Leipzig 1938 +. (*Reference.*)

FANSTONE, ROBERT M. Colour sensitive materials. London [1937]. pp. viii + 127. ill. 8s. 6d. net. (*Recd.* 16/12/37.)

GARRATT, D. C. Drugs and galenicals, their quantitative analysis. London 1937. pp. xiv + 422. (*Reference.*) 25s. net.

HARRISON, G. A. Chemical methods in clinical medicine. 2nd edition. London 1937. pp. xii + 585. ill. 21s. net. (*Recd.* 16/12/37.)

HEALD, FREDERICK DEFOREST. Introduction to plant pathology. New York 1937. pp. xii + 579. ill. \$4. (*Recd.* 16/12/37.)

HILDITCH, T. P., and HALL, C. C. Catalytic processes in applied chemistry. 2nd edition. London 1937. pp. xxii + 478. 25s. net. (*Recd.* 16/12/37.)

KRAUSE, ERICH, and GROSSE, ARISTID VON. Die Chemie der metall-organischen Verbindungen. Berlin 1937. pp. xvi + 926. ill. M. 58.20. (*Recd.* 6/1/38.)

MAYNARD, LEONARD A. Animal nutrition. New York 1937. pp. xiv + 483. ill. \$4. (*Recd.* 16/12/37.)

NIGGLI, PAUL. Das Magma und seine Produkte. Vol. I. Physikalisch-chemische Grundlagen. Leipzig 1937. pp. xii + 379. ill. M. 34. (*Recd.* 6/1/38.)

PHYSIKALISCHE METHODEN im chemischen Laboratorium. (From *Angew. Chem.*, 1935-37, 48-50.) Berlin 1937. pp. viii + 267. ill. M. 3.60. (*Recd.* 6/1/38.)

SCHWAB, GEORG-MARIA. Catalysis from the standpoint of chemical kinetics. Translated . . . with additions from the recent literature by the author, by HUGH S. TAYLOR and R. SPENCE. New York 1937. pp. xii + 357. ill. \$4.25. (*Recd.* 23/12/37.)

SOBOTKA, HARRY. Physiological chemistry of the bile. [Baltimore] 1937. pp. xii + 202. \$3. (*Recd.* 16/12/37.)

TANNER, FRED WILBUR. Bacteriology: a text-book of micro-organisms. 3rd edition. New York 1937. pp. xiv + 510. ill. \$3.50. (*Recd.* 20/12/37.)

TREADWELL, F. P. Analytical chemistry. 9th edition. Vol. I. Qualitative analysis. Translated and revised by WILLIAM T. HALL. New York 1937. pp. x + 630. ill. \$4.50. (*Recd.* 16/12/37.)

UNITED STATES TARIFF COMMISSION. Report No. 114. 2nd series. Chemical nitrogen. A survey of processes, organization, and international trade, stressing factors essential to tariff consideration. Washington 1937. pp. xii + 300. ill. 25c. (*Recd.* 17/12/37.)

WHITMORE, FRANK C. Organic chemistry. [New York] 1937. pp. x + 1080. \$7.50. (*Recd.* 16/12/37.)

III. Pamphlets.

ASOCIACIÓN QUÍMICA ARGENTINA. 25 aniversario (1912-1937). Actos celebrados. Buenos Aires 1937. pp. 35. ill.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Forensic chemistry in the criminal courts. By C. AINSWORTH MITCHELL. London 1938. pp. 17. ill.

LEPPELMANN, PAUL. Über Funkenentladungen in Flüssigkeiten. Münster i Westf. 1905. pp. 63.

NORLIN, EVERT. Researches on transformer insulating oils. I. Stockholm 1924. pp. 46. [In Swedish. English summary.]

SCHLAEPFER, RUDOLF. Beiträge zur Kenntnis der Verschlammung von Transformatorenölen. Weida i Thür. 1925. pp. vi + 76. ill.

VEER, WILLEM LOUIS CONSTANTIJN. Derivaten van N,N'-diphenyl-trimethyleendiamine. Leiden 1937. pp. xvi + 160.

March 1938

PROCEEDINGS OF THE CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, April 28th, 1938, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 5th, 1938, at 8 p.m.

The **Lecture** on "Some Carbohydrate Problems," by Professor W. N. Haworth, D.Sc., Ph.D., F.R.S., arranged for May 5th, 1938, **has been unavoidably postponed** until the Autumn. Arrangements for the Ordinary Scientific Meeting will be announced later.

Thursday, May 19th, 1938, at 8 p.m.

Discussion on "Organic Intermolecular Complexes," to be opened by Professor G. M. Bennett, M.A., Sc.D.

MEETINGS OUTSIDE LONDON.

NEWCASTLE AND DURHAM.

April 22nd, 1938, at 7.30 p.m. **Annual N.E. Coast Chemical and Allied Industries Dinner**, in the University Union, Newcastle-on-Tyne, 2.

May 19th, 1938, at 6.45 p.m. **Bedson Lecture** entitled "The Impact of Chemistry on Biological Science" by Sir Henry H. Dale, C.B.E., M.A., M.D., F.R.S., in the Chemistry Lecture Theatre at King's College, Newcastle-upon-Tyne, 2.

SOUTH WALES.

April 29th, 1938, at 5.45 p.m. **Lecture** on "Some Recent Developments in the Reactions of Surfaces," by Professor E. K. Rideal, M.B.E., D.Sc., F.R.S., in the Lecture Theatre of the Physiology Institute, Newport Road, Cardiff. Joint meeting with the Chemical and Physical Society of the University College of South Wales and Monmouthshire.

PAGES MISSING FROM 13 TO 20

PROCEEDINGS
OF THE
CHEMICAL SOCIETY.

Minutes of an
ORDINARY SCIENTIFIC MEETING
at Burlington House, London, W. 1, on March 3rd, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The visitors present were welcomed by the PRESIDENT.

The minutes of the Ordinary Scientific Meeting of February 17th, appearing in the Proceedings for February, were taken as read, and were confirmed and signed.

The PRESIDENT referred to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
Frank G. Wait	1888	August 18th, 1935.
Alfred E. Williamson	1930	March 17th, 1938.

The following announcement was made :

NOMINATIONS FOR VACANT PLACES ON THE COUNCIL.

The following list of nominations for vacant places on the Council was read :

Vice-Presidents who have filled the office of President (three vacancies) :

*P. F. FRANKLAND.

*J. F. THORPE.

*G. G. HENDERSON.

Ordinary Members of Council :

Town Members (*i.e.* those resident within a radius of 50 miles from Charing Cross) (two vacancies) :

†ARTHUR G. FRANCIS.

*R. J. W. LE FÈVRE.

Country Members (*i.e.* those resident beyond a radius of 50 miles from Charing Cross) (four vacancies) :

†H. McCOMBIE.

†F. M. ROWE.

†E. B. R. PRIDEAUX.

†H. B. WATSON.

†J. REILLY.

†F. J. WILSON.

* Nominated by Council under Bye-Law VI.

† Nominated by Fellows under Bye-Law VI.

FORMAL ADMISSION OF FELLOWS.

The following were formally admitted Fellows of the Society : J. E. R. McDonagh, Percy Murden, T. P. Nevell, S. Hunn, M. G. Church, I. C. Whitfield, (Miss) H. E. Georgiadis, and E. G. N. Greaves.

APPOINTMENT OF SCRUTATORS.

Mr. C. S. Salmon and Mr. L. S. Theobald were appointed Scrutators to assist in the counting of votes recorded for the election of Ordinary Members of Council (Country).

Forms of Recommendation for Fellowship were read for the first time in favour of :

Harold Barnes, B.A., B.Sc., Ashville College, Harrogate.
 John Metcalfe Johnson, B.Sc., A.I.C., The County School, Saltash, Cornwall.
 Leonard James Kay, M.A., B.Sc., 8, Minard Road, Catford, S.E. 6.
 Nora Innes McGhee, B.Sc., A.I.C., 57, Cresswell Street, Glasgow, W. 2.
 Reuben Hillel Sapiro, M.Sc., Ph.D., 51, Village Way, Pinner, Middlesex.
 Herbert Scoville, jun., B.S., 10, Barton Road, Cambridge.
 Ida Beatrice Harcourt Vernon, M.Sc., A.I.C., 2, Campden Hill Gardens, W. 8.
 Basil Edmund Waye, M.Sc., A.R.C.S., A.I.C., 5, Clydach Road, Enfield, Middlesex.

and for the second time in favour of 14 candidates.

The following papers were read :

- “ The electrochemistry of the rusting-process along a scratch-line on iron.” By R. S. THORNHILL and U. R. EVANS.
 “ Reaction kinetics and the Walden inversion. Parts I—VI. Experiments on the replacement of $\cdot\text{Hal.}$ by $\cdot\text{OR}$ in β -*n*-octyl halides, α -phenylethyl halides, and α -bromopropionic acid (also its methyl ester and anion), and a statement of general principles.” By C. K. INGOLD, W. A. COWDREY, E. D. HUGHES, S. MASTERMAN, and A. D. SCOTT.
 “ Aliphatic substitution and the Walden inversion. Part III. The reaction of bromide ions with α -bromopropionic acid.” By W. A. COWDREY, E. D. HUGHES, T. P. NEVELL, and C. L. WILSON.
 “ The *cis*-form of azobenzene and the velocity of the thermal *cis* \longrightarrow *trans* conversion in azobenzene and some 4-substituted derivatives.” By G. S. HARTLEY.

**Minutes of an
ORDINARY SCIENTIFIC MEETING**

at Burlington House, London, W. 1, on March 17th, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The visitors present were welcomed by the President.

The minutes of the Ordinary Scientific Meeting of March 3rd were taken as read, and were confirmed and signed.

The PRESIDENT referred to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
Alfred Edward Sibson	1889	March 8th, 1938.
Henry Simmonds	1889	January 4th, 1938.
Hermann Theodore Vulté	1885	December 10th, 1937.

The following announcements were made :**1. CONGRATULATIONS.**

The congratulations of the Society have been conveyed to Professor Charles E. Munro, who has completed 50 years of Fellowship.

2. ACKNOWLEDGEMENTS.

The Council has conveyed its cordial thanks to Mr. D. Agnew Griffith, who has sent a contribution of £5 on completing 50 years of Fellowship, to Sir Prafulla C. Rây for a contribution of £3 to the Library Fund, and to Messrs. F. P. Dunn and Hugh Main for copies of the Society's publications.

3. DELEGATES.

The President, the Treasurer, Professor G. Barger, Dr. F. H. Carr, Dr. J. J. Fox, Professor C. N. Hinshelwood, Professor C. K. Ingold, Sir Gilbert Morgan, and Sir Robert

Robertson have been appointed to represent the Society at the 10th International Congress of Chemistry to be held in Rome from May 15th to 21st, 1938. Mr. B. D. Porritt has agreed to represent the Society at the Rubber Technology Conference to be held in London from May 23rd to 25th, 1938.

Forms of Recommendation were read for the first time in favour of :

George Edward Bessey, M.Sc., A.I.C., 14, Garston Drive, Watford.
 Frederic James Bolton, B.Sc., 8, Royal Terrace, Edinburgh.
 Eric Boyland, Ph.D., D.Sc., 154, Campden Hill Road, W. 8.
 Richard Moore Mumford, 5, Westminster Court, Aberdeen Place, N.W. 8.
 Albert Neuberger, Ph.D., M.D., 7, Bentinck Street, W. 1.
 Robert Scott, 7, Grace Street, Dunston-on-Tyne, Gateshead 11.
 Kurt Wallersteiner, Fitzwilliam House, Cambridge.
 Leslie Alfred Wiles, M.Sc., Royal Military Academy, Woolwich, S.E. 18.

and also of the following whose applications have been accepted by the Council under Bye-Law I (2) :

Douglas Watt Duthie, M.A., Ph.D., F.I.C., Department of Agriculture, Georgetown, British Guiana.
 Henry Bernhardt Froning, Prof., A.M., University of Notre Dame, Indiana, U.S.A.
 Robert Freeborn Ruthruff, M.S., Ph.D., 14, Maple Place, Nutley, N.J., U.S.A.

Forms of Recommendation for Fellowship were read for the second time in favour of eight candidates.

JOINT DISCUSSION WITH THE PHYSICAL SOCIETY

A Joint Discussion with the Physical Society on "Electron Diffraction and Surface Structure" was held, and the President was supported on the platform by Professor Allan Ferguson, President of the Physical Society.

The Discussion was opened by Professor G. I. Finch, M.B.E., F.R.S., and the following also took part :—Dr. R. Beeching, Dr. A. G. Quarrell, Dr. W. Cochrane, Dr. W. H. J. Vernon, Mr. J. A. Darbyshire, Dr. H. Wilman, and Dr. R. O. Jenkins.

MEETINGS OUTSIDE LONDON

LECTURE AT UNIVERSITY COLLEGE, CARDIFF.

A meeting of the Society was held jointly with the Cardiff and District Section of the Institute of Chemistry at 7 p.m. on Friday, March 11th, 1938, in the Chemistry and Physics Lecture Theatre of University College, Cardiff. The Chair was taken by Mr. S. B. Watkins, chairman of the local section of the Institute of Chemistry. Dr. C. W. Davies delivered a lecture on "Strong Electrolytes," in which, after a survey of the salient features of the interionic attraction theory, he explained how deviations from the physical theory of "ideal" strong electrolytes could be accounted for quantitatively by the assumption of incomplete dissociation, and presented striking evidence in favour of this view. A vote of thanks to Dr. Davies was proposed by Professor J. E. Coates and seconded by Dr. J. F. J. Dippy.

LECTURE AT EDINBURGH.

A joint meeting of the Society with the local sections of the Society of Chemical Industry and the Institute of Chemistry was held at the North British Hotel, Edinburgh, on March 14th, 1938, when Professor N. V. Sidgwick, C.B.E., D.Sc., F.R.S., delivered a lecture on "Multiple Links."

Dr. J. A. V. Butler was in the Chair, and after an interesting discussion, in which Dr. E. B. Ludlam, Mr. A. M. Cameron, Dr. N. Campbell, Professor J. Kendall, Mr. G. E. Dodds, Dr. W. O. Kermack, Mr. Bolton, and the Chairman took part, a hearty vote of thanks to the Lecturer was proposed by Dr. N. Campbell and carried with acclamation.

**Summary of Proceedings of a
COUNCIL MEETING**

held on 17th February, 1938.

(No reference is made to matters which have already been reported in the *Proceedings for February and March.*)

Professor F. G. DONNAN was in the Chair, and 26 members were present.

A report of the Publication Committee dealing with "Numbering of the Rings in Benzthiazole and Similar Compounds" was adopted.

A paper received from a non-Fellow for publication in the *Journal* was considered, and it was agreed that in view of special circumstances the paper should be considered for publication in the *Journal*.

The report of the Bureau of Chemical Abstracts for 1937 was received, and its inclusion as an appendix in the Report of Council for 1937 was approved.

On the recommendation of the Finance and General Purposes Committee, the Council strongly supported a proposal that the publication of a Quinquennial Index for 1933 to 1937 should be undertaken by the Bureau of Chemical and Physiological Abstracts. It was agreed that the Council's views should be communicated to the Society of Chemical Industry, and that the Chemical Council should be consulted on the project.

On the recommendation of the Finance and General Purposes Committee, it was agreed to accept an offer from the Physiological Society that it should transfer back numbers of *Physiological Abstracts* to Messrs. R. Clay & Sons, Ltd., and that orders for these back numbers should be dealt with by the Chemical Society in future, and that after paying cost of storage and distribution, 25% of the balance should be credited to Section A III of the Abstracts and the remainder handed to the Physiological Society.

The following statistics were given :

(a) The number of pages and cost of printing the *Journal* and *Abstracts* from January to December were :

	1937.		1936.	
	Pages.	Cost.	Pages.	Cost.
<i>Journal</i>	2016	£3342	1862	£3021
<i>Abstracts</i>	1670	£3185	1572	£2698

(b) Sales of *Journal*, *Abstracts*, and *Annual Reports* for January amounted to £4719 (which included £1339 on account of A III) in 1938 as against £3515 for 1937.

(c) Net proceeds from advertisements for January amounted to £36 in 1938 as against £38 in 1937.

The Secretaries were directed to convey the thanks of the Council to Professor R. Kuhn for delivering the Sixth Pedler Lecture and to Professor J. D. Bernal for opening the Discussion on "Associated Liquids."

The annual report of the Joint Library Committee for 1937 was approved, and it was agreed that this should be included in the Report of Council.

The report of the Honorary Auditors approving the Accounts for 1937 was received. The Accounts were adopted, subject to slight amendment.

The draft Report of Council for 1937 was adopted subject to certain amendments.

The Council agreed on the following procedure for the election of Fellows in future, if the draft Bye-Laws received approval at the Annual General Meeting :

1. The name, address, occupation and status of each candidate, shall be published in the *Proceedings* and the date of the election shall be announced at the same time.

2. The election of Fellows shall take place normally at the next Council Meeting after publication of names in the *Proceedings*, but there shall be a period of not less than 10 days between the publication of the names and the date of the election, during which time it shall be competent for any Fellow to lodge objection to any candidate, or candidates, with the Honorary Secretaries such objection being treated as strictly confidential and for the use of the Council only. Any objection thus lodged shall be brought to the notice of the Council.

3. Forms of recommendation shall be displayed in the Library as at present and placed on the Council table.

4. The Council shall have power to modify the wording of the form of recommendation which shall not be prescribed by the Bye-Laws as at present.

The proposed draft Bye-Laws were then considered, and it was agreed that, subject to certain alterations they should be submitted to Fellows for consideration and (if approved) for adoption by Fellows at the Annual General Meeting on March 31st, 1938.

The resignations of 12 Fellows were accepted, and two candidates were reinstated as Fellows.

OTHER NOTICES

XTH INTERNATIONAL CONGRESS OF CHEMISTRY.

The Xth International Congress of Chemistry will be held in Rome from May 15th to 21st, 1938.

The subjects to be discussed have been divided into 11 sections.

The following programme has been arranged :

Saturday	May 14th, evening :	Reception to welcome all the members of the Congress and their families.
Sunday	„ 15th, morning :	Opening meeting.
	afternoon :	Tour of the city of Rome and reception at the Palatine.
Monday	„ 16th, morning :	Two general conferences.
	afternoon :	One general conference. Papers read dealing with each section.
	evening :	Concert.
Tuesday	„ 17th, morning :	Excursion to Ostia. Visit to the ruins and modern sea front. Dinner.
	afternoon :	Two general conferences. Papers read dealing with each section.
Wednesday	„ 18th, morning :	Two general conferences.
	afternoon :	One general conference. Papers read dealing with each section.
		Reception.
Thursday	„ 19th :	Excursion.
Friday	„ 20th, morning :	Two general conferences.
	afternoon :	One general conference. Papers read dealing with each section.
	evening :	(to be decided).
Saturday	„ 21st, morning :	Closing of the Congress.
	evening :	Banquet.

The 13th Conference of the Union Internationale de Chimie will be held during this week.

Tours of inspection to industrial plants and tours of general interest will take place after the close of the Congress.

Enrolment.

Those wishing to attend the Congress can obtain forms of application from the Assistant Secretary, The Chemical Society, Burlington House, W.1. The application should be accompanied by an enrolment fee of 250 Liras for each delegate and of 100 Liras for each member of a delegate's family accompanying him. These fees entitle participation in all the

activities of the Congress and to all tourist and travel facilities accorded to those attending the Congress.

The subscription and the payment of the respective fee can be effected a so through the Offices and Correspondents of the CIT in the principal towns of the world.

Sections.

SECTION I.—Chemistry and scientific thought.

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|---------------------------|--|
| (a) History of chemistry. | (e) Analytical chemistry. |
| (b) Physical chemistry. | (f) Training of the young chemist. |
| (c) Inorganic chemistry. | (g) The problems of intellectual property. |
| (d) Organic chemistry. | (Patents.) |

SECTION II.—Basic chemical products.

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|----------------------------------|---------------------------|
| (a) Metals. | (f) Rubber. |
| (b) Solid fuels. | (g) Cellulose. |
| (c) Liquid fuels and lubricants. | (h) Plastic products. |
| (d) Nitrogen products. | (i) Building materials. |
| (e) Mineral chemical industries. | (j) Paints and varnishes. |

SECTION III.—Chemistry and the utilisation of the various forms of energy.

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| (a) Chemistry and heat (thermotechnics, fuel technology, etc.). | (c) Chemistry and radiant energy (applications of photochemistry, etc.). |
| (b) Chemistry and electricity (electrothermics, electrometallurgy, insulating materials, etc.). | |

SECTION IV.—Chemistry and alimentation.

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|----------------------------------|---------------------------|
| (a) The science of alimentation. | (c) Foodstuff industries. |
| (b) Foodstuff analysis. | |

SECTION V.—Chemistry and house. Chemistry and clothing.

The house.

- (a) Chemistry and building.
 (b) Chemistry and decoration.
 (c) Chemistry and housekeeping.

Clothing.

- (d) Chemistry and textiles.
 (e) Chemistry and dyestuffs.
 (f) Hides and leather.

SECTION VI.—Chemistry and health. Chemistry and hygiene. Chemistry and beauty culture.

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| (a) Pharmaceutical chemistry (inorganic, organic, biological). | (c) Pharmaceutical industries. |
| (b) Pharmaceutical technique. | (d) The industries of hygiene and beauty culture (soaps, perfumes, etc.). |

SECTION VII.—Chemistry and documentation. Chemistry and advertising. Chemistry and recreation.

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|---|-----------------------------|
| (a) The press industries (paper, inks, etc.). | (d) Gramophone and records. |
| (b) Photography and photographic chemistry. | (e) Optical glass. |
| (c) Cinema. | |

SECTION VIII.—Chemistry and agricultural production.

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| (a) Agricultural chemistry. | (c) Agricultural industries and agricultural chemical technology. |
| (b) Fertilisers and fertilising technique. | |

SECTION IX.—Chemistry and industry.

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| (a) Chemical plants and machinery. | (b) Chemistry in non-chemical industries. |
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SECTION X.—Chemistry and transports.

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|--------------|-------------|
| (a) By land. | (c) By air. |
| (b) By sea. | |

SECTION XI.—Chemistry and defence.

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|-----------------------------------|----------------------------|
| (a) Explosives. | (c) Chemistry and weapons. |
| (b) Chemical warfare and defence. | (d) Surrogates. |

Travelling Facilities.**Accommodation.**

The organising Committee of the Congress has made arrangements with the Compagnia Italiana di Turismo " CIT " in order to help the Members of the Congress in making hotel reservations in Rome.

These reservations can be made by applying to the Central Office of the CIT in Rome, Piazza Esedra, n. 68, or directly, at the Office or Correspondents of the CIT.

Reduction of Fares.

The reduction of fares on certain railway, sea and airlines have been secured, and such reductions will apply both to journeys starting from any point within the system itself as well as to journeys on transit.

Steps have been taken to obtain fare reductions also on other railways.

In order to benefit by the reductions already stated herein, Congress members who have duly subscribed, will receive in due course the necessary membership-cards and vouchers accompanied by all particular indications which might be of use.

Foreign Motor Cars Travelling in Italy.

Cars driven by foreigners are allowed to enter Italy if the travelling documents of the countries they come from or the Italian T.C.I. and R.A.C.I. " Trittico " or a " Carnet de passage en douane " can be presented to the specially appointed frontier officers.

If these documents are not available, the motor-car owners can apply to the R.A.C.I. for the card of temporary import (5 days validity, price Lire 18), or the short-time " trittico " (for ten days Lire 25; for 60, Lire 50), or else the " trittico," which lasts one year (Lire 60) and allows its possessor to go in and out of Italy as many times as he wishes.

Tourist Lira.

The Congress Members can buy at a reduced rate in the official exchange at all the CIT Offices or the Correspondents, and at several Banking Firms, tourist's credit letters and tourist's cheques in Italian Liras which can be paid with foreign free currencies (French francs, Swiss francs, U.S.A. dollars, Pounds sterling, Swedish crowns, Austrian shillings, Danish crowns, Luxembourg francs, Belgian francs, Egyptian pounds, South African pounds).

Facilities for Petrol.

Members of the Congress coming from abroad can buy petrol at a reduced rate; the amount of the reduction of the normal price can be ascertained by applying to the CIT Offices or Correspondents, already mentioned.

BRITISH STANDARDS INSTITUTION.

Copies of draft British Standard CE (C) 6951 dealing with disinfectant powder have been received from the British Standards Institution, 28, Victoria Street, London, S.W. 1., for technical comment. These have been placed in the Library, and Fellows are requested to send their comments to the Director of the British Standards Institution by September 3rd, 1938.

BOARD OF TRADE.

Representation has been made to the Board of Trade regarding the exemption of " Oxy-acetophenone " from the duty imposed by the Safeguarding of Industries Act, 1921. Communications should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London, S.W. 1., before April 16th, 1938.

PAPERS RECEIVED

List of papers, or abstracts thereof, received between February 17th, 1938 and March 17th, 1938. (This list does not include the titles of papers which have been read at an Ordinary Scientific Meeting, or which have appeared in the *Journal*.)

- "The preparation of 4:6-dimethyl altrose and 2:4:6-trimethyl altrose from glucose." By G. J. ROBERTSON and (Miss) H. G. DUNLOP.
- "A note on *cyclohexylideneacetic acid*." By (Mrs.) C. G. LE FÈVRE and R. J. W. LE FÈVRE.
- "The action of hydrogen chloride on isoprene." By W. J. JONES and H. W. T. CHORLEY.
- "The transition temperatures of lithium chloride hydrates." By M. P. APPLEBEY and R. P. COOK.
- "Formation of the indene nucleus. Part III." By (the late) (Mrs.) O. BLUM-BERGMANN.
- "Remarks on the reaction between ketens and ethylene compounds." By E. BERGMANN and (the late) (Mrs.) O. BLUM-BERGMANN.
- "Further experiments on the thermolysis of cholesteryl chloride." By E. BERGMANN and F. BERGMANN.
- "Remarks on the fine structure of naphthalene." By E. BERGMANN and T. BERLIN.
- "Relationships between the parachor values and the physical constants of homologous series." By D. T. LEWIS.
- "The anomalous reactions of the sodium salt of 4-nitro-1-thiolnaphthalene with 2-chloro-1-nitronaphthalene and 2-chloro-1-nitrobenzene." By H. H. HODGSON and E. LEIGH.
- "The retardation of chemical reactions. Part VIII. The darkening of alkaline solutions of sodium salicylate." By J. HILTON and K. C. BAILEY.
- "Pectic substances. Part I. The araban and pectic acid of the peanut." By E. L. HIRST and J. K. N. JONES.
- "Fused carbon rings. Part XIV. Synthesis of dicyclic compounds with an angular methyl group from substances containing a *n*-pentenyl side-chain." By G. H. ELLIOTT and R. P. LINSTEAD.
- "Fused carbon rings. Part XV. Synthesis of derivatives of 8-methylhydrindane and of perhydroanthracene from substances containing a *n*-butenyl side-chain. Dehydrogenation of 8-methylhydrindane." By K. D. ERRINGTON and R. P. LINSTEAD.
- "Thixotropic behaviour of silica gels." By H. FREUNDLICH and D. W. GILLINGS.
- "The preparation and therapeutic properties of certain acridine derivatives. Part II. Derivatives of *s*-(6-amino-2-quinolyl)-5-acridylethenes." By W. L. GLEN, (Miss) M. M. J. SUTHERLAND, and F. J. WILSON. With a note on trypanocidal action by C. H. BROWNING, P. BROWNING, R. GULBRANSEN, and J. V. M. ROBB.
- "New derivatives of *p*-arsanilic acid. Part VIII. *p*-Arsono-oxanilic and *p*-arsono-hexadecanedicarboxylanilic acids and related compounds." By G. T. MORGAN and E. WALTON.
- "Studies in the growth of metal trees in gels. Part I. The morphology of the lead tree." By A. KING and N. STUART.
- "The extent of dissociation of salts in water. Part VII. The conductivity of mixtures." By C. W. DAVIES.
- "Kationoid reactivity of aromatic compounds. Part V. Fission of arylsulphones by means of sodamide and piperidine." By W. BRADLEY.
- "A convenient method for preparing γ -picoline." By G. R. CLEMO and W. M. GOURLAY.
- "Catalytic toxicity and chemical structure. Part III. The influence of various factors on the toxicity of sulphur compounds." By E. B. MAXTED and H. C. EVANS.
- "Di-imidochlorides. Part I. Synthesis of diquinolyl and phenanthroline derivatives from di-imidochlorides." By H. K. S. RAO and T. S. WHEELER.
- "The development of certain electronic theories in organic chemistry." By R. ROBINSON.
- "A contribution to the stereochemistry of anils." By V. DE GAOUCK and R. J. W. LE FÈVRE.
- "An investigation of the reaction between hydrazine hydrate and 4-chloroquinoline derivatives." By O. G. BACKEBERG and C. A. FRIEDMANN.

- "Amides of *p*-arsonophenylacetic acid." By E. WALTON.
- "The solvent factor in catalytic hydrogenation." By E. B. MAXTED and V. STONE.
- "The polymerisation of methylglyoxal." By L. DE V. MOULDS and H. L. RILEY.
- "The molecular volumes and parachors of mercuric halides and allied compounds." By E. B. R. PRIDEAUX and J. R. JARRATT.
- "Synthesis of polycyclic compounds related to the sterols. Part VI." By G. A. R. KON and E. S. NARRACOTT.
- "Influence of directing groups on nuclear reactivity in oriented aromatic substitutions. Part III. Nitration of ethyl benzoate." By C. K. INGOLD and (MISS) M. S. SMITH.
- "Influence of directing groups on nuclear reactivity in oriented aromatic substitutions. Part IV. Nitration of the halogenobenzenes." By (MISS) M. L. BIRD and C. K. INGOLD.
- "Influence of directing groups on nuclear reactivity in oriented aromatic substitutions. Part V. A dilatometric investigation of the kinetics of aromatic nitration, especially in nitromethane solution." By G. A. BENFORD and C. K. INGOLD.
- "The kinetics of two ionic exchange reactions of the methyl halides in water." By E. A. MOELWYN-HUGHES.
- "The introduction of the -MgBr group into anisole and phenetole." By F. CHALLENGER and S. A. MILLER.
- "Reduction of the carbonyl group in unsaturated ketones and the interconversion of geometrical isomerides during such reduction." By C. L. ARCUS and J. KENYON.
- "Steroids and related compounds. Part II. The dehydration of cholestanetriol." By V. A. PETROW, O. ROSENHEIM, and W. W. STARLING.
- "Long-chain alkylpyridines and their derivatives. New examples of liquid crystals." By G. A. KNIGHT and B. D. SHAW.
- "Methylglucosaminide, its structure, and the kinetics of its hydrolysis by acids." By R. C. G. MOGGRIDGE and A. NEUBERGER.
- "Determination of the vapour densities of indigo and other organic compounds by means of a spring manometer." By C. E. DENT and R. P. LINSTEAD.
- "Studies in dielectric polarisation. Part XXII. The series effect on the dipole moments of some alkyl halides in solution." By E. G. COWLEY and J. R. PARTINGTON.
- "Studies in chemisorption on charcoal. Part X. Hydrolytic adsorption." By H. H. CHAMBERS and A. KING.
- "Studies in chemisorption on charcoal. Part XI. Some electrokinetic properties of activated charcoal." By H. L. BENNISTER and A. KING.
- "Polycyclic aromatic hydrocarbons. Part XVII. Completion of the synthesis of the twelve monomethyl-1:2-benzanthracenes." By J. W. COOK and (MRS.) A. M. ROBINSON.
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ADDITIONS TO THE LIBRARY.

I. *Donations.*

BRITISH PLASTICS YEAR BOOK, 1938. London 1938. pp. 596. ill. (*Reference.*) 15s. net. From the Publishers: Plastics Press.

HALLIBURTON, W. D., HEWITT, J. A., and ROBSON, W. The essentials of chemical physiology. 13th edition. London 1936. pp. xii + 350. ill. 9s. (*Recd.* 24/2/38.)

From Dr. W. Robson.

HOPKIN & WILLIAMS LTD. Organic reagents for metals and for certain acid radicals. 3rd edition. London 1938. pp. 156. (Two copies.) From the Publishers: Messrs. Hopkin & Williams.

KRCZIL, FRANZ. Technische Adsorptionsstoffe in der Kontaktkatalyse. Leipzig 1938. pp. xxxii + 726. M. 40.

From Dr. E. F. Armstrong, F.R.S.

ROTH, CECIL. The Jewish contribution to civilisation. London 1938. pp. xvi + 357. ill. 7s. 6d. net. (*Recd.* 14/2/38.)

From Sir Robert Mond, F.R.S.

SIEGEL, W. [Editor.] Die Verfahren der anorganisch-chemischen Industrie. Vol. II. Berlin 1937. pp. xvi + 591. ill. (Second copy.) From Dr. E. F. Armstrong, F.R.S.

II. *By purchase.*

ANDERSON, C. G. An introduction to bacteriological chemistry. Edinburgh 1938. pp. viii + 278. ill. 10s. 6d. net. (*Recd.* 17/2/38.)

CLARK, A. J. Applied pharmacology. 6th edition. London 1937. pp. x + 678. ill. 18s. net. (*Recd.* 17/2/38.)

CLERC, L. P. Photography, theory and practice. 2nd edition. Edited by GEORGE E. BROWN. London 1937. pp. xvi + 590. ill. 35s. net. (*Recd.* 17/2/38.)

COMBER, A. W. Magnesite as a refractory. London 1937. pp. xii + 114. ill. 4s. net. (*Recd.* 17/2/38.)

COWARD, KATHARINE H. The biological standardisation of the vitamins. London 1938. pp. viii + 227. ill. 12s. 6d. net. (*Recd.* 17/2/38.)

CURIE, EVE. Madame Curie. Translated by VINCENT SHEEAN. London 1938. pp. xiv + 411. ill. 18s. net. (*Recd.* 17/2/38.)

DREWS, KURT, and GEUTHER, THEODOR. Die technischen Ammoniumsälze. (Sammlung, N.F. Heft 38.) Stuttgart 1938. pp. 200. ill. (*Reference.*) M. 13.80.

HACKH, INGO W. D. Chemical dictionary. 2nd edition. With the collaboration of JULIUS GRANT. [Philadelphia 1937.] pp. x + 1020. ill. (*Reference.*) \$12.

JONES, W. D. Principles of powder metallurgy, with an account of industrial practice. London 1937. pp. xii + 199. ill. 15s. net. (*Recd.* 17/2/38.)

KING, ALEXANDER. Inorganic preparations: a systematic course of experiments. London 1936. pp. xii + 164. ill. 5s. 6d. net. (*Recd.* 17/2/38.)

KLEMENC, ALFONS. Die Behandlung und Reindarstellung von Gasen. Leipzig 1938. pp. xii + 215. ill. M. 16.80. (*Recd.* 7/3/38.)

KURTENACKER, ALBIN. Analytische Chemie der Sauerstoffsäuren des Schwefels. (Die chemische Analyse, Vol. XXXVIII.) Stuttgart 1938. pp. xii + 216. ill. (*Reference.*) M. 19.60.

MEYER, HANS. Lehrbuch der organisch-chemischen Methodik. Vol. III. Synthese der Kohlenstoffverbindungen. Part 1. Offene Ketten und Isocyclen. 2 vols. Wien 1938. pp. xvi + 720, iv, 721 to 1483. (*Reference.*) M. 139.50.

MOTTRAM, V. H., and RADLOFF, ELLEN M. Food tables. London 1937. pp. 63. (*Reference.*) 5s. net.

ROJAHN, C. A. Vorschriften zur Darstellung chemischer, pharmazeutischer und phytochemischer Präparate. 3 vols. Berlin 1936-37. pp. 180, xiv + 230, 149. M. 20.80. (*Recd.* 5/3/38.)

RUPP, HENRIETTE. Die Leuchtmassen und ihre Verwendung. Eine Einführung in Fluoreszenz und Phosphoreszenz der festen Körper. Berlin 1937. pp. vi + 163. ill. M. 8. (*Recd.* 7/3/38.)

SOUCI, S. W. Die Chemie des Moores mit besonderer Berücksichtigung der Huminsäuren unter Bezugnahme auf die balneotherapeutische Verwendung des Moores. Stuttgart 1938. pp. xii + 214. ill. M. 15.60. (*Recd.* 7/3/38.)

STENGER, E., and STAUDE, H. Fortschritte der Photographie. Leipzig 1938. pp. xiv + 415. ill. M. 35. (*Recd.* 7/3/38.)

VOGEL, OTTO [and others]. Handbuch der Metallbeizelei. [Vol. I.] Nichteisenmetalle. Berlin 1938. pp. xii + 262. ill. M. 22. (*Recd.* 7/3/38.)

WRIGHT, E. C. BARTON. General plant physiology. London 1937. pp. 539. ill. 15s. net. (*Recd.* 17/2/38.)

III. *Pamphlets.*

AUSTRALIA, COMMONWEALTH OF. Council for Scientific and Industrial Research. Pamphlet No. 74. Studies on the chemotropic

behaviour of sheep blowflies. By MARTIN R. FRENEY. Melbourne 1937. pp. 24. ill.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 209—1937. Fuel oils for Diesel engines (petroleum and shale oils) including methods of test. (Revised July, 1937.) pp. 31. ill.

— — Nos. 284—288—1937. Black (carbon) pigments for paints. (Forming five of a series of standard specifications for paints, varnishes and paint ingredients). (Revised September, 1937.) pp. 24.

— — Nos. 306 and 339—1937. Black and purple oxides of iron for paints. (Forming two of a series of standard specifications for paints, varnishes and paint ingredients). (Revised September, 1937.) pp. 16.

— — Nos. 312, 313, 319 and 337—1937. Earth colours for paints. (Forming four of a series of standard specifications for paints, varnishes and paint ingredients). (Revised September, 1937.) pp. 21.

— — No. 742—1937. Fuel oils for burners (petroleum and shale oils) including methods of test. pp. 31. ill.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 769—1938. Methods for the chemical analysis of butter. pp. 24. ill.

— — No. 770—1938. Methods for the chemical analysis of cheese. pp. 14. ill.

— — No. 771—1938. Synthetic resin (phenolic) moulding materials and mouldings. pp. 32. ill.

— — No. 773—1938. Ostwald-Folin pipettes. pp. 13. ill.

— — No. 783—1938. Japanese and/or Korean sardine oil (pale). pp. 16. ill.

GNEZDA, JULIUS. Anwendung der Affinitätszahlen "Viravale." Zagreb 1937. pp. 25.

SULPHONATED OIL MANUFACTURERS ASSOCIATION. Handbook of data relating to sulfonated (sulfated) oils and other products of this industry. New York 1935. pp. [23.]

VLÈS, F. Sur les propriétés des métaux dans l'échelle des pH, et la notion de point isopotential. Monaco 1937. pp. 9. ill.

WALDKÖTTER, KAREL FREDERIK. De inwerking van oxyaethylamine op halogeen-nitrobenzolen. Leiden 1938. pp. xvi + 132.

April 1938

PROCEEDINGS OF THE CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, May 5th, 1938, at 8 p.m.

The **Lecture** on "Some Carbohydrate Problems," by Professor W. N. Haworth, D.Sc., Ph.D., F.R.S., arranged for May 5th, 1938, **has been unavoidably postponed** until the Autumn.

It has been arranged that a **Lecture** on "Nucleic Acids" will be delivered by Professor J. Masson Gulland, M.A., D.Sc., at 8 p.m. on that date.

Thursday, May 19th, 1938, at 8 p.m.

Discussion on "Organic Intermolecular Complexes," to be opened by Professor G. M. Bennett.

Thursday, June 2nd, 1938, at 8 p.m.

Scientific Meeting.

MEETINGS OUTSIDE LONDON.

NEWCASTLE AND DURHAM.

May 19th, 1938, at 6.45 p.m. **Bedson Lecture** entitled "The Impact of Chemistry on Biological Science," by Sir Henry H. Dale, C.B.E., M.A., M.D., F.R.S., in the Chemistry Lecture Theatre at King's College, Newcastle-upon-Tyne, 2.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

ANNIVERSARY MEETINGS.

The Anniversary Meetings were held in Manchester on March 31st and April 1st, 1938.

Thursday, March 31st.

At 2.30 p.m. A meeting of the Local Representatives was held in the Council Chamber of the University of Manchester, at which reports of Local Representatives and other matters concerning the activities of the Society outside London were considered.

At 4 p.m. The 97th Annual General Meeting, preceded by tea at 3.30 p.m., was held in the Staff House of the University, followed by the Presidential Address, which was delivered in the Chemistry Lecture Theatre. (A report appears in the *Journal* for April.)

At 7 for 7.30 p.m. The Anniversary Dinner was held at the Midland Hotel, Manchester, and the President, Professor F. G. Donnan, C.B.E., D.Sc., LL.D., F.R.S., presided over a company of 221. The Right Honourable Lord McGowan, K.B.E. (Chairman of Imperial Chemical Industries, Ltd.), was the principal guest of the evening. Among other official guests present were the Lord Mayor and Lady Mayoress of Manchester, the Lord Bishop of Manchester, the Vice-Chancellor of the University of Manchester, and Mrs. Stopford, representatives of Industry and the Presidents of many Scientific Societies and Institutions.

After the loyal toasts had been honoured, the following toasts were proposed :

The City of Manchester.

By Professor J. C. Philip, O.B.E., M.A., D.Sc., F.R.S.

Response : The Right Worshipful The Lord Mayor of Manchester, Alderman Joseph Crookes Grime, O.B.E., J.P.

The University of Manchester.

By Sir Robert Pickard, D.Sc., Ph.D., F.R.S.

Response : The Vice-Chancellor of the University of Manchester, Professor John S. B. Stopford, M.D., Sc.D., F.R.S.

The Chemical Society.

By the Right Honourable Lord McGowan, K.B.E., D.C.L., LL.D.

Response : The President, Professor F. G. Donnan, C.B.E., D.Sc., LL.D., F.R.S.

The Guests.

By Professor I. M. Heilbron, D.S.O., D.Sc., Ph.D., F.R.S.

Response : Dr. A. P. M. Fleming, C.B.E., Vice-President of the Institution of Electrical Engineers.

Friday, April 1st, 1938.

The following visits which had been arranged were well attended by Fellows and their guests :

- (a) To the Shirley Institute (British Cotton Industry Research Association), Didsbury.
- (b) To the Research and Service Laboratories of Imperial Chemical Industries, Ltd. (Dyestuffs Group), Blackley.
- (c) To the Research Laboratories of Imperial Chemical Industries, Ltd. (Alkali Group), Northwich.

At 4.15 p.m. A Memorial Lecture on "The Life and Work of Amé Pictet" was delivered by Professor G. Barger, D.Sc., F.R.S., in the Central Library, St. Peter's Square, Manchester. A vote of thanks to the Lecturer was proposed by Professor J. F. Thorpe, F.R.S., and seconded by Dr. T. A. Henry. After Dr. K. W. Kay, Professor T. J. Nolan, and Professor J. Reilly, old students of Professor Pictet, had given their personal reminiscences of him, the vote was put to the meeting and carried with acclamation.

At 8.15 p.m. A reception by the Council of the University of Manchester was held in the Whitworth Hall of the University. The guests were received by the Vice-Chancellor and Mrs. Stopford, and by the Chairman of Council and Miss Needham. During the evening there was music and dancing, and light refreshments were provided.

ANNOUNCEMENTS

LOCAL REPRESENTATIVES.

Australia.

The Council has appointed Dr. T. Iredale as Local Representative in Australia.

Liverpool.

The Council has accepted with regret the resignation of Dr. R. A. Morton from the office of Local Representative for Liverpool, and has expressed its high appreciation of the services he has rendered to the Society. It has appointed Dr. A. McGookin to this office.

MEETINGS OUTSIDE LONDON

LECTURE AT ST. ANDREWS UNIVERSITY.

A meeting under the auspices of the Society was held jointly with the St. Andrews University Chemical Society in the Chemistry Lecture Theatre of the University of St. Andrews on Friday, February 26th, 1938, at 5 p.m. The Chair was taken by Mr. D. Gall, M.A., B.Sc. Professor G. M. Bennett delivered a lecture on "Crystallography as a Chemical Tool." A discussion followed, in which Professor J. Read, Dr. R. Roger, and Mr. W. Whitehead took part. A vote of thanks to the Lecturer was proposed by Dr. H. G. Dunlop and carried with acclamation.

Summary of Proceedings of a COUNCIL MEETING held on March 17th, 1938.

(No reference is made to matters which have already been reported in the Proceedings for March or April.)

In the absence of the PRESIDENT, Professor N. V. SIDGWICK was in the Chair, and 26 members were present.

The following decisions of the Publication Committee regarding the *Annual Reports* for 1938 were adopted :

- (1) Each section is to contain a short general introduction, in language as little specialised as possible, indicating in general terms the directions in which fundamental progress has been made.
- (2) The specialised articles forming the main body of the Report are each to have a brief introduction, indicating the point of departure of the work described in it.
- (3) The subjects to be dealt with in the specialised articles, and the choice of their authors, are to be decided by the Committee after receiving suggestions from a meeting of all the Chief Reporters.

The following statistics were given :

- (a) The number of pages and cost of printing the *Journal* and *Abstracts* for January were :

	1938.		1937.	
	Pages.	Cost.	Pages.	Cost.
<i>Journal</i>	168	£316	195	£349
<i>Abstracts</i> A I and A II	88	£182	92	£187
" A III	86	£169	52	£94

- (b) Net proceeds from advertisements to the end of February amounted to £75 in 1938, as against £63 in 1937.

It was reported that Sir Henry Tizard had accepted the Council's invitation to give the Rutherford Memorial Lecture.

The Secretaries were directed to convey the thanks of the Council to Professor A. Findlay for delivering the Franklin Memorial Lecture on February 17th.

It was stated that the Officers of the Royal Society had received the Officers of the Chemical Society as a deputation to discuss the question of further accommodation for library and administration purposes. The Officers were directed to proceed further in the matter.

Consideration of a proposal that steps should be taken to enable Fellows residing in Australia and New Zealand to pay their annual subscriptions in the currency of those two Dominions was deferred until after the proposed new Bye-Laws had been considered by Fellows at the Annual General Meeting.

A suggestion that later in the year a meeting under the auspices of the Society should be held to commemorate the Centenary of the birth of Sir William H. Perkin was agreed in principle and was referred to the Officers for report.

It was stated that the arrears of annual subscriptions for 1937 and previous years amounted to £375 10s.

The resignations of 11 Fellows were accepted, and one candidate was reinstated as a Fellow.

OTHER NOTICES

BRITISH STANDARDS INSTITUTION

Copies of draft British Standard CE (C) 7549, dealing with the Method of Test for Toxicity of Wood Preservatives, have been received from the British Standards Institution, 28, Victoria Street, London, S.W. 1, for technical comment. These have been placed in the Library, and Fellows are requested to send their comments to the Director of the British Standards Institution by September 29th, 1938.

FIFTH GLASS CONVENTION, DROITWICH, MAY, 1938.

The Fifth Glass Convention will be held in Droitwich from May 18th to 21st, 1938. The theme of the Conference is to be "The Trade Cycle." Full particulars can be obtained from Mr. Geoffrey Marchand, Honorary Secretary, "Glass Convention, Droitwich, 1938," Norwich House, 13, Southampton Street, London, W.C.1.

PAPERS RECEIVED

List of papers, or abstracts thereof, received between March 17th and April 21st, 1938. (This list does not include the titles of papers which have been read at an Ordinary Scientific Meeting, or which have appeared in the *Journal*.)

"Reaction kinetics in films. The active agents in the aqueous halogenation of long-chain phenols." By A. E. ALEXANDER.

"Analogues of ascorbic acid containing six-membered rings." By W. N. HAWORTH, E. L. HIRST, and J. K. N. JONES.

- "The condensation of *p*-toluenesulphinic acid and its esters with acetone." By C. L. ARCUS and J. KENYON.
- "The constitution of complex metallic salts. Part VII. The structure and configuration of the bridged derivatives of trimethylarsine with palladous halides." By F. G. MANN and A. F. WELLS.
- "The triterpene group. Part I. On β -boswellic acid." By J. C. E. SIMPSON and N. E. WILLIAMS.
- "The methylation and ease of ring-fission of rotenone and related substances." By R. S. CAHN, R. F. PHIPERS, and J. J. BOAM.
- "Complex formation between polynitro-compounds and aromatic hydrocarbons. Part IV. The interaction of trinitromesitylene and trichlorotrinitrobenzene with hexamethylbenzene and with naphthalene." By D. LL. HAMMICK and A. HELLICAR.
- "The preparation of some *cis*-azo-compounds." By A. H. COOK.
- "Syntheses in the phenanthrene series. Part IX. 6-Methoxy-1-methylphenanthrene." By H. PLIMMER, W. F. SHORT, and (in part) P. HILL.
- "The activation energy of organic reactions. Part I. Electronic theories of organic chemistry from the standpoint of chemical kinetics." By C. N. HINSHELWOOD, K. J. LAIDLER, and E. W. TIMM.
- "The activation energy of organic reactions. Part II. The formation of quaternary ammonium salts." By K. J. LAIDLER and C. N. HINSHELWOOD.
- "The activation energy of organic reactions. Part III. The kinetics of acid hydrolysis of esters." By E. W. TIMM and C. N. HINSHELWOOD.
- "Complex formation between polynitro-compounds and aromatic hydrocarbons. Part V. The effect of methylation on the stability of tetranitromethane complexes." By T. T. DAVIES and D. LL. HAMMICK.
- "Inversion reactions associated with anionotropy. Some reactions of *d*-(+)- $\alpha\gamma$ -dimethylallyl hydrogen phthalate and benzoate." By H. W. J. HILLS, J. KENYON, and H. PHILLIPS.
- "Union of aryl nuclei. Part III. 3'-Hydroxymesobenzanthrone." By I. M. HEILBRON, D. H. HEY, and R. WILKINSON.
- "A preparation of *m*-dimethylaminobenzaldehyde. Part II." By W. COCKER, J. O. HARRIS, and (in part) J. V. LOACH.
- "Chemiluminescent organic compounds. Part VI. The isolation of peroxide derivatives of phthalaz-1 : 4-diones." By H. D. K. DREW and R. F. GARWOOD.
- "The influences of alkyl groups in carbonyl compounds." By E. E. AYLING.
- "The nitration of benzenesulphonyl chloride and fluoride." By G. M. BENNETT and P. V. YOULE.
- "A comparison of the rates of formation of six- and seven-membered ring compounds from ω -chlorosulphides." By G. M. BENNETT and (Miss) E. G. TURNER.
- "The synthesis of phenyl- and pyridyl-glyoxalines." By G. R. CLEMO, T. HOLMES, and (Miss) G. C. LEITCH.
- "The configuration of certain diphenyl compounds indicated by their dipole moments." By R. J. W. LE FÈVRE and H. VINE.
- "Mobility of groups containing sulphur. Part V." By D. T. GIBSON.
- "The constitution of croweacin." By A. R. PENFOLD, G. R. RAMAGE, and J. L. SIMONSEN.
- "The constitutions of eremophilone, hydroxyeremophilone, and hydroxydihydroeremophilone. Part II." By A. E. BRADFIELD, N. HELLSTRÖM, A. R. PENFOLD, and J. L. SIMONSEN.
- "*dl*-2 : 2-Dimethylcyclohexylacetic acid." By P. S. ADAMSON, A. M. MARLOW, and J. L. SIMONSEN.
- "A comparison of the rates of hydrolysis of methyl, ethyl, *isopropyl*, and *tert.*-butyl bromides in acetone : water catalysis in such reactions." By W. TAYLOR.
- "Studies in the sterol group. Part XXXVI. The oxidation of *i*-cholesterol and its derivatives." By I. M. HEILBRON, J. HODGES, and F. S. SPRING.
- "An improved method for the preparation of α -chlorocrotonic acid." By J. C. ROBERTS.
- "2 : 2-Dimethylcyclohexylacetic acid." By G. H. ELLIOTT and R. P. LINSTAD.

- "2 : 6-Dimethyl glucose." By D. J. BELL and R. L. M. SYNGE.
- " β -Methylglucoside 2 : 3 : 6-trinitrate." By D. J. BELL and R. L. M. SYNGE.
- "Manganese perchlorate and perrhenate." By J. G. F. DRUCE.
- "The constituents of natural phenolic resins. Part X. Structure of *l*-matairesinol dimethyl ether and observations on the condensation of reactive methylene groups with *O*-methyleugenol oxide." By R. D. HAWORTH and J. R. ATKINSON.
- "The constituents of natural phenolic resins. Part XI. Synthesis of 2- and 3-methyl-1-veratryl-6 : 7-dimethoxyphenylnaphthalenes." By R. D. HAWORTH and D. WOODCOCK.
- "The hydrogenation of simple sulphur compounds. Part I. Nickel subsulphide as a catalyst." By R. H. GRIFFITH and S. G. HILL.
- "The hydrogenation of simple sulphur compounds. Part II. Reactions of carbon disulphide and sulphur dioxide." By B. CRAWLEY and R. H. GRIFFITH.
- "Organic antimonials of therapeutic activity." By G. M. DYSON.
- "On a new gravimetric method for palladium determination." By R. SCHÖNTAL.
- "Constitution of the purine nucleosides. Part VII. Guanosine and guanine deoxy-ribose." By J. M. GULLAND and L. F. STORY.
- "1-Methyl-2-*n*-propylphenanthrene." By G. A. R. KON, E. S. NARRACOTT, and C. REID.
- "Liquid-phase reactions at high pressures. Part III. The esterification of acetic acid." By S. P'ENG, R. H. SAPIRO, R. P. LINSTEAD, and D. M. NEWITT.
- "New ethylidene compounds of α - and β -methylglucosides." By H. APPEL, W. N. HAWORTH, and (in part) E. G. COX and F. J. LLEWELLYN.
- "The synthesis of compounds related to the antirachitic vitamins. $\alpha\beta$ -Di- Δ^1 -cyclohexenylethylene." By G. N. BURKHARDT and N. C. HINDLEY.
- "Studies in the sterol group. Part XXXVII. The structure of lumisterol and its stereoisomers." By I. M. HEILBRON, T. KENNEDY, F. S. SPRING, and G. SWAIN.
- "Chenopodium oil. Part III. Ascaridole." By H. PAGET.
- "Catalytic toxicity and chemical structure. Part IV. The relative toxicity of simple phosphorus, arsenic, antimony, and bismuth compounds." By E. B. MAXTED and A. MARSDEN.
- "Decomposition reactions of the aromatic diazo-compounds. Part IV. A new synthesis of aromatic antimony compounds. By F. B. MAKIN and W. A. WATERS.
- "Synthetic experiments in the rubrene series." By E. BERGMANN.
- "Studies in stereochemical structure. Part IX. The stereochemical relationship of the α - and β -forms of substituted hydrobenzoin. (*b*) Ethyl-hydrobenzoin (β -form)." By R. ROGER.

FORMS OF RECOMMENDATION FOR FELLOWSHIP

THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, MAY 5th, 1938.

BARNES, HAROLD, Ashville College, Harrogate. British. Schoolmaster. B.Sc., B.A. (Oxon), Inter B.Sc. (London). Research in Biochemistry with Professor Peters at Oxford. Publications: *Biochem. J.*, 1932, **26**, 2035, 2203. (*Signed by*) Frederick Challenger, W. A. Wightman, E. Rothstein.

BESSEY, GEORGE EDWARD, 14, Garston Drive, Watford, Herts. British. Research Chemist. M.Sc. (London), A.I.C. Papers on cement and other building materials. *J. Soc. Chem. Ind.*, 1932, **51**, 91-94T; 1933, **52**, 219-222T, 287-293T, 443-447T. "The Conductivity and p_H Values of Calcium Hydroxide Solutions" (with F. M. Lea), *J.C.S.*, 1937, 1612-15. (*Signed by*) Millicent E. Nottage, F. M. Lea, Joseph Lones.

BHIDE, BALWANT VASUDEV, S.P. College, Poona, India. Indian (British subject). Professor of Physical Chemistry, S.P. College. M.Sc. (Bombay). Papers published on Esterification in *J.I. Institute Sci.*, 1925, **8**, A, 89; *J. Ind. Chem. Soc.*, 1930, **7**, 575. Taught Physical Chemistry since 1928; Dip. in Chem.Eng., U.C. London, 1932-33. (With H. E. Watson)

- "Esterification in Mixed Solvents," *J.C.S.*, 1927, 2101. (*Signed by*) V. K. Bhagwat, K. Venkataraman, R. B. Forster.
- BOLTON, FREDERIC JAMES, 8, Royal Terrace, Edinburgh. British. Works Chemist. B.Sc. (London), 2nd Class Hons. in Chemistry. At present Works Chemist, Messrs. J. F. Macfarlan & Co., Fine Chemical Manufacturers, Edinburgh, previously Chief Chemist, Messrs. C. R. Harker, Stagg & Morgan, Ltd., Manufacturing Pharmaceutical Chemists, Mile End, London. (*Signed by*) D. J. G. Ives, George W. Ferguson, T. Slater Price.
- BONDI, JONAS, 133, Highbury New Park, N. 5. German. Research Chemist. Ph.D. (Berlin). Investigations with regard to the constitution of carbohydrates. Effect of ferments on starch. (*Signed by*) A. R. Martin, E. de Barry Barnett, Henry J. S. Sand.
- BOYLAND, ERIC, 154, Campden Hill Road, W. 8. British. Biochemist. Ph.D. (London), D.Sc. (Manchester). Work on metabolism of yeast and animal tissues, 1928—38 (*Biochem. J.*). Reader in Biochemistry of London University at the Royal Cancer Hospital (Free). Lecturer in Biochemistry at the Sir John Cass Technical Institute. (*Signed by*) C. Hewett, Alfred A. Levi, E. L. Kennaway, J. W. Cook.
- BRUCE, DUNCAN, 10, Holly Terrace, West Hill, Highgate, N. 6. British. Student. B.Sc. (London). Class I, Part I, Natural Sciences Tripos. Senior Science Scholar, Caius College, Cambridge. Date of birth January 16th, 1916. (*Signed by*) F. P. Bowden, F. B. Kipping, R. G. W. Norrish.
- COPPOCK, JOHN EDWARD, 173, Croxted Road, W. Dulwich, S.E. 21. British. Assistant Analytical Chemist and Bacteriologist. Member of The Royal Sanitary Institute. 15 years engaged in chemical and bacteriological examinations of waters, foods, etc. Student, Sir John Cass Institute, Chelsea Polytechnic. (*Signed by*) Robert Walton, P. M. Mooney, Henry J. S. Sand.
- FAIRWEATHER, DAVID ALEXANDER WHYTE, Belmont, Knutsford Road, Wilmslow, Manchester. British. Research Chemist. Ph.D. (Edinburgh), D.Sc. (Edinburgh). Assistant at Chem. Dept., Edin. Univ., 1920—26. Research Chemist with Imp. Chem. Industries, Ltd., 1926 to date. Publications: *Proc. Roy. Soc. Edin.*, **45**, 23, 283; **46**, 71; *Phil. Mag.* [7], 1, 944. *Brit. Pat. Specs.*: 309,902, 312,243, 312,404, 324,935, 330,215, 332,907, 333,146, 333,506, 333,507, 334,902, 334,921, 338,891, 340,983, 347,120, 350,499, 359,889, 363,668, 363,669, 369,674, 371,420, 385,307, 385,984. *J.C.S.*, 1926, 3111. (*Signed by*) H. A. Piggott, S. Coffey, K. H. Saunders.
- FITZGIBBON, MAURICE, 9, Haverbreaks Place, Lancaster. British. Director and Works Manager, Lunevale Products, Ltd., Lancaster. Associateship Institute of Chemistry. "Determination of Arsenic," *Analyst*, No. 689, Aug. 1933, pp. 469—470. "Volumetric Determination of Mercury," *ibid.*, No. 738, Sept. 1937, pp. 654—656. Patents: E.P. 3910/34, 13,445/37, 8270/37, complete 438,022, 1935. Sodium Arsenite, "Colloidal Sulphur" and Insoluble Co-ordination Compounds containing Nicotine, respectively. (*Signed by*) William French, C. F. Allpress, J. E. G. Harris.
- GREEN, HENRY FRANK, 2, Court Lane Gardens, Dulwich, S.E. 21. British. Chemist. M.A. (Cantab.), A.I.C. 18 years Chemist in Fur-dyeing Industry. Investigation of special problems. No published work. (*Signed by*) Dorothy Jordan Lloyd, C. H. Spiers, H. M. Spiers.
- GROVE, WALTER PATRICK, 77, Surbiton Hill Park, Surbiton, Surrey. English. University Teacher. B.Sc., London (Hons. Chem.). A.I.C. Assistant Lecturer at University College, London (Department of Chemistry). Previous industrial appointments held with Messrs. May & Baker, Ltd., and with Messrs. Johnson Matthey & Co., Ltd. Date of birth May 17th, 1914. (*Signed by*) S. Sugden, O. J. Walker, C. W. Davies.
- HARRIS, IVAN, 8, Wyndham Avenue, Exeter, Devon. British. 3rd-year Student in Chemistry at University College, Exeter. 3rd-year Student taking B.Sc. (Special) degree in Chemistry (London external) in June 1938. Date of birth May 11th, 1915. (*Signed by*) H. T. S. Britton, L. L. Bircumshaw, Wesley Cocker, R. King.
- HEYS, HARRY LAW, 61, Claremount Road, Wallasey, Cheshire. British. Assistant Master. M.A. (Cantab.), 2nd Class Hons., Natural Sciences Tripos (Part I). Since 1930, Head of the Chemistry Department at Liverpool Collegiate School. Previously, Science Master at Royal Masonic School. Author of "Physical Chemistry for Schools" (Harrap). (*Signed by*) H. M. Hutton, jr., R. A. Morton, W. F. Higgins.
- JOHNSON, JOHN METCALFE, The County School, Saltash, Cornwall. British. School-master. B.Sc. (Hons. in Organic Chemistry), Liverpool, 1930. Hardwick Prize, Liverpool, 1929. Editor *Chemical Society Magazine*, Liverpool Univ., 1930. Associate of Institute of Chemistry, 1932. Chemistry Master at above school for last 6½ years. (*Signed by*) I. M. Heilbron, F. S. Spring, A. McGoekin.

JORDAN, DENIS OSWALD, 22, Oakfield Road, Southgate, N. 14. British. Junior Research Chemist. B.Sc. (London). Research Chemist at the British Launderers Research Asscn. Publications (part author): "The Application of the Glass Electrode to Measurement of p_{H} in Alkaline Solution," *J.S.C.I.*, 1937, 56, 133 T. "The Hydrolysis of Soap Solutions as Determined by p_{H} Glass Electrode Measurements," *Trans. Faraday Soc.* (In press.) Date of birth September 23rd, 1914. (Signed by) F. Courtney Harwood, Henry J. S. Sand, A. J. H. Gauge.

KAY, LEONARD JAMES, 8, Minard Road, Catford, S.E. 6. British. Teacher of Chemistry, the School of Building, S.W. 4. M.A. (London), B.Sc. (London). (Signed by) L. W. Godward, Wm. Wardlaw, R. E. Machin.

LAKE, WILLIAM HENRY GEORGE, 71, Hingeston Street, Brookfields, Birmingham 18. British. Research Student, Birmingham University. B.Sc. (1st Class Hons.), Birmingham. Date of birth October 4th, 1915. (Signed by) Stanley Peat, L. N. Owen, H. Kitchen.

LOVELUCK, RHYS JENKIN, Kerse View, Dalgrain Road, Grangemouth, Stirlingshire. Welsh. Research Chemist. M.Sc. (Wales). A.I.C. (1923), F.I.C. (1937). Engaged in Research (I.C.I., Ltd.) since 1925. Publications: British Patents 321,192, 331,537, 343,449, 345,277, 347,613, 356,728, 366,990, 375,848, 391,209, and 442,209. Br. Appln. 23,265/36. F.P. 752,272. Also Equivalents. (Signed by) R. Fraser Thomson, E. H. Rodd, C. W. Davies.

LYTHGOE, BASIL, 89, Manchester Road, Leigh, Lancashire. British. Research Chemist. B.Sc., Ph.D. (Manchester). 1st Class Hons., B.Sc. Examination, 1934; 3 years research in Organic Chemistry, Ph.D. 1936. Research Assistant to Prof. I. M. Heilbron, F.R.S., 1936—37. Appointed Chemist to I.C.I. (Dyestuffs Group), August, 1937. "Studies in Pyrone Series, Pts. II and III," Heilbron, Hey, and Lythgoe, *J.C.S.*, 1934, 1581; 1936, 295. "Carotenoid Pigments of Oscillatoria Rubrescens," Heilbron and Lythgoe, *ibid.*, 1936, 1376. Date of birth August 18th, 1913. (Signed by) A. E. GILLAM, I. M. Heilbron, E. N. Abraham.

MCGHEE, NORA INNES, 57, Cresswell Street, Glasgow, W. 2. British. Demonstrator. B.Sc. (2nd Class Hons. App. Chem. Glasgow), A.I.C. Research Assistant, Tech. Chem. Dept., Royal Technical College, Glasgow, 1933 to 1935. Teaching Scholar, Chemistry Dept., Royal Technical College, Glasgow, 1935 to 1937. Demonstrator, Chemistry Dept., Royal Technical College, Glasgow, from Sept., 1937. (Signed by) F. J. Wilson, I. Vance Hopper, A. B. Crawford.

MCGINNIS, NORAH AILEEN, Lady Margaret Hall, Oxford, England. Canadian. Student. B.A. (Queen's University, Kingston, Ontario, Canada), A.M. (Harvard University, Cambridge, Mass., U.S.A.). Date of birth October 30th, 1914. (Signed by) H. N. Rydon, Francis McQuillin, James Walker.

MCLROY, ROBERT JOSEPH, 11, Second Avenue, Selly Park, Birmingham. British. Research Chemist. M.Sc. (New Zealand), A.I.C., A.N.Z.I.C. Research Chemist, Birmingham University, 1936. Research Chemist, Chem. Lab., N.Z. Dept. of Agriculture, 1935—36 (on leave at present). Research Chemist, Dairy Research Institute (N.Z.), 1934—35. Secretary, N.Z. Inst. of Chemistry and Member N.Z. Dairy Science Asscn., 1935—36. Publications: "Detection of Cu by *p*-Phenylenediamine," *Analyst*, Feb., 1934. "Metallic Contamination of Dairy Products," *N.Z. J. of Science and Technology* (1936), XVII, 5, 710. "Some Thiocyanate Co-ordination Compounds," *J. of N.Z. Inst. of Chemistry*, Jan., 1936. (Signed by) S. R. Carter. M. Stacey, Stanley Peat.

MUMFORD, FRANK ROBERT, University College, University Park, Nottingham. British. Demonstrator. B.Pharm. (London), B.Sc. (London), Ph.C. Demonstrator and Research Student. Date of birth June 4th, 1913. (Signed by) J. B. Firth, J. E. Driver, John C. Roberts.

MUMFORD, RICHARD MOORE, 5, Westminster Court, Aberdeen Place, N.W. 8. British. Student. Open Scholarship in Chemistry; at Corpus Christi College, Oxford. Date of birth December 15th, 1917. (Signed by) Ronald P. Bell, D. Ll. Hammick, W. H. C. Simmonds.

KALLA, NEELAKANTAM, (in London), 9, Torrington Square, W.C. 1; (in India) Lecturer in Chemistry, Andhra University, Waltair, S. India. British Indian. Post-graduate Student (Chemistry) in the Royal College of Science, S. Kensington. M.A. (Madras) in Chemistry, Ph.D. (Andhra). Lecturer in Chemistry since July, 1934. Published five papers on the Pigments of Cotton Flowers: *Proc. Ind. Acad. Sci.*, 1935, 1, 887; *ibid.*, 1935, 2, 490; *ibid.*, 1936, 4, 54; *ibid.*, 1937, 5, 357; and *ibid.*, 1937, 6, 12. (Signed by) L. S. Theobald, T. G. Pearson, H. F. Harwood.

NETTLETON, MARGARET REDMAYNE, 6, Southern Road, Fortis Green, N. 2. British. B.Sc., at Birkbeck College, London. Research Student at Birkbeck College for the past two years. (Signed by) Wm. Wardlaw, F. Barrow, D. J. G. Ives.

NEUBERGER, ALBERT, 7, Bentinck Street, W. 1. German. Research Biochemist (Beib

- Memorial Research Fellow). Ph.D. (London), M.D. (Würzburg). Publications in *Proc. Roy. Soc.* and *Biochem. J.* (Signed by) C. R. Harington, C. F. Goodeve, Rosalind Pitt Rivers.
- OLIVIER, SIMON CORNELIS JOHANNES, Wageningen (Holland), 14 Berglaan. Netherlander. Professor in Organic Chemistry in the Agricultural University of Wageningen. Chemical Engineer, Doctor of Science (Delft). President Netherlands Chemical Society, 1927—29. President of the editorial staff of the *Recueil des Travaux chimiques des Pays-Bas*. Papers in the *Recueil d. trav. chimiques*, etc. (Signed by) J. F. J. Dippy, H. B. Watson, D. P. Evans.
- PARKINSON, DOUGLAS NOEL, Brasenose College, Oxford. British. Student. B.A. (Oxon). Working on diazo pyroles and diazo indoles for Part II B.A. and B.Sc., continuing the work of Angeli, Angelico, Calvello, Marchetti, and Wagner (see *Atti della Reale Accademia dei Lincei Rendiconti*, 1905). Date of birth December 13th, 1915. (Signed by) T. W. J. Taylor, D. Ll. Hammick, Ronald P. Bell.
- RAMSAY, WILLIAM NELSON MITCHELL, 11, Saxe-Coburg Place, Edinburgh 3. British. Biochemist. B.Sc. (Edinburgh). Assistant to Professor of Physiology, Royal (Dick) Veterinary College, Edinburgh 9. Date of birth February 8th, 1915. (Signed by) J. A. V. Butler, E. B. Ludlam, James Kendall.
- RAPER, BERNARD ARTHUR, 131, Douglas Road, Birmingham 27. British. Graduate Research Student (Chemistry). B.Sc. (1st Class Hons.), July, 1937, Birmingham Univ. Date of birth July 29th, 1916. (Signed by) Maurice Stacey, F. Smith, Stanley Peat.
- SAPIRO, REUBEN HILLEL, 51, Village Way, Pinner, Middlesex. British. Research Assistant. M.Sc. (Chem.), Univ. of S. Africa, Ph.D. (Chem.), Univ. of London. Demonstrator, Rhodes U.C., Grahamstown, S. Africa, 1926—27. Research Assist. to Prof. W. A. Bone, F.R.S., 1930—36. Research Assist. to Assist.-Prof. D. M. Newitt, D.Sc., 1936—present. Papers: "Some Derivatives of Thiazole" (*Trans. Roy. Soc. S.A.*, 1929, 18, 229). "Constitution of Coal" (*Proc. Roy. Soc.*, 1935, 148, 492). *J.C.S.*, 1937, 876, 1784. (Signed by) Donald T. A. Townend, D. M. Newitt, R. P. Linstead.
- SCOTT, ROBERT, c/o 7, Grace Street, Dunston-on-Tyne, Gateshead 11. British. Analytical Chemist. Intermediate B.Sc. (London) (External). 6 years Analytical Chemist with Co-operative Wholesale Society, Ltd., Soap Works, Dunston-on-Tyne, Gateshead 11. Date of birth September 30th, 1914. (Signed by) E. C. Edgar, J. W. Dutton, Geo. Watson Young.
- SCOVILLE, HERBERT, Jr., 10, Barton Road, Cambridge. U.S.A. Student of Research, Cambridge University. B.S., Yale University. Date of birth March 16th, 1915. (Signed by) R. G. W. Norrish, E. J. Buckler, E. A. Moelwyn-Hughes.
- SPITTLE, DAVID WILLIAM WEIR, 3, Eltisbury Avenue, Cambridge. British. Undergraduate. Undergraduate reading Chemistry in Natural Sciences Tripos, Cambridge University. Hon. Treasurer, C.U. Chemical Society. Date of birth May 23rd, 1919. (Signed by) F. B. Kipping, M. L. Tomlinson, H. McCombie, P. Maitland.
- STANIER, JOHN EDGAR, 8, Gower Street, Newcastle-under-Lyme. British. Deputy Gas Engineer. Associate Member Institute of Chemical Engineers. 25 years' experience in the Chemistry and Engineering of Gas & Coking & By-Product Works, Manufacture and Refining of Tar and Ammonia Products, etc., as Chemist and Manager. (Signed by) J. P. O'Callaghan, James Bridge, R. H. Clayton.
- VERNON, IDA BEATRICE HARCOURT, 2, Campden Hill Gardens, W. 8. British. M.Sc. (Sheffield), A.I.C. Research Student. (Signed by) W. P. WYNNE, M. A. WHITELEY, G. M. Bennett, Arthur W. Chapman.
- WALLERSTEINER, KURT, Fitzwilliam House, Cambridge. German. Student. Date of birth January 27th, 1919. (Signed by) R. G. W. Norrish, E. Friedmann, E. A. Moelwyn-Hughes, Robert E. D. Clark, F. P. Bowden.
- WAYE, BASIL EDMUND, 5, Clydach Road, Enfield, Middlesex. British. Research Chemist. B.Sc. (London), A.R.C.S., M.Sc. (London), A.I.C. Attended Imperial College of Science and Technology, 1928—31. Assistant Chemist to Research Association of British Rubber Manufacturers, 1931—32. Technical Assistant to Edison Swan Electric Co., 1932—36. Research Chemist to A. C. Cossor, Ltd., 1936 to date. Carried out research in Physical Chemistry at Birkbeck College, 1934—36. (Signed by) S. Sugden, F. Barrow, D. J. G. Ives.
- WILES, LESLIE ALFRED, Royal Military Academy, Woolwich, S.E. 18. English. Lecturer in Science. M.Sc. (London), by Research in Organic Chemistry, B.Sc. (London), 1st Class Hons. Chem. Senior Chemistry Master, Royal Grammar School, High Wycombe, Bucks, 1931—35. Since August, 1935, Lecturer in Science (Physics and Chemistry) at the Royal Military Academy, Woolwich. "Methoxy Derivatives of Xanthone and Thioxanthone" (joint paper), *J.C.S.*, p. 1792. (Signed by) Samuel Smiles, E. W. McClelland, D. W. G. Style.

WILSON, GEORGE ERNEST, 106, Lenton Boulevard, Nottingham. British. General Manager, Textile factory. B.Sc. (Vict.), ord. degree in Chemistry. I desire to receive the publications of the Society, to attend the meetings, and to use the library. (*Signed by*) J. Masson Gulland, B. D. Shaw, F. C. Laxton, E. Tidd.

Forms of Recommendation for Fellowship accepted by the Council under Bye-Law I (2) :

DUTHIE, DOUGLAS WATT, Department of Agriculture, Georgetown, British Guiana. British. Chemist to Dept. of Agriculture, B.G. M.A., B.Sc., Ph.D. (Aberdeen), F.I.C. Lecturer in Chemistry, Imperial College of Tropical Agriculture, Trinidad, B.W.I., 1931—37. (*Signed by*) Frederick Hardy.

FRONING, HENRY BERNHARDT, University of Notre Dame, Notre Dame, Indiana, P.O. Box 146. American. Professor of Chemistry. A.B., 1908, St. Joseph College, Rensselaer, Ind., A.M., 1912, Ohio State U., Columbus, O. Teacher of Chem. (and Bacteriology) since 1911, with a two-year interruption as Director of Research in the industries, at Catholic U. of America, Wash., D.C., Ohio State U., and the U. of Notre Dame; Head, Depts. of Chem. and Chem. E. since 1920. (*Signed by*) S. Glasstone.

RHODEHAMEL, HARLEY WESLEY, Eli Lilly and Company, Indianapolis, Indiana, U.S.A. American. Research Chemist. B.S., Purdue University, 1907. See 1938 ed. *American Men of Science* for memberships in other chemical organisations (Director of Research Development, Eli Lilly and Co.). (*Signed by*) George H. A. Clowes.

RUTHRUFF, ROBERT FREEBORN, 14, Maple Place, Nutley, New Jersey, U.S.A. United States. Research Chemist. B.S. (Chem.), M.S. (Chem.), Ph.D. All from University of Michigan. Work concerned mainly with Thermal and Catalytic Pyrolysis, Polymerisation, Hydrogenation, Dehydrogenation, etc., of Hydrocarbons. (*Signed by*) Hugh S. Taylor.

ADDITIONS TO THE LIBRARY

I. Donations.

ADAM, NEIL KENSINGTON. The physics and chemistry of surfaces. 2nd edition. Oxford 1938. pp. x + 402. ill. 22s. 6d. net. (*Recd.* 7/4/38.) From the Author.

AMERICAN CAN COMPANY. *Nutrition Laboratory*. Nutritive aspects of canned foods: a bibliography of scientific reports and helpful tables of food data. [New York] 1937. pp. 112. ill. (*Recd.* 29/3/38.) From the Director.

LE FÈVRE, R. J. W. Dipole moments: their measurement and application in chemistry. London 1938. pp. vi + 110. ill. 3s. 6d. net. (*Recd.* 17/3/38.)

From the Publishers: Messrs. Methuen & Co.

MEDICAL RESEARCH COUNCIL. Special Report Series, No. 230. The chemistry of antigens and antibodies. By J. R. MARRACK. London 1938. pp. 194. ill. (*Reference.*) 3s. net. From the Council.

MLADENTSEV, M. N., and TISHCHENKO, V. E. Dmitri Ivanovich Mendelyeev, his life and work. Vol. I, Parts 1 and 2. Moscow 1938. pp. xii + 268. ill. [In Russian.] (*Recd.* 21/3/38.)

From Professor Dr. B. N. Menshutkin.

VIALARD-GODOU, ANDRÉ. Contribution à l'étude de l'acide perchlorique. Action sur les composés organiques. Lille 1937. pp. 127. (*Recd.* 21/3/38.) From the Author.

WRIGHT, C. HAROLD. Agricultural analysis: a handbook of methods excluding those for soils. London 1938. pp. x + 343. ill. 16s. net. (*Recd.* 9/4/38.)

From the Author.

II. By purchase.

INSTITUTION OF MECHANICAL ENGINEERS. Proceedings of the general discussion on lubrication and lubricants, 13th-15th October 1937. 2 vols. London [1938]. (*Reference.*)

SOCIÉTÉ DE CHIMIE INDUSTRIELLE and CENTRE DE PERFECTIONNEMENT TECHNIQUE. Journées de la lutte chimique contre les ennemis des cultures. (*Chimie & Industrie*, 1937, 38, Special No.) pp. 254. ill. (*Reference.*) Fr. 70.

III. Pamphlets.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. Nos. 255, 260, 281, and 301-1938. Extenders for paints. (Revised February, 1938.) pp. 21.

— — Nos. 331 and 332-1938. Driers for paints. (Revised February, 1938.) pp. 17. ill.

— — No. 370-1938. Venetian red for paints. (Revised February, 1938.) pp. 13.

— — No. 756-1937. Apparatus for the determination of small quantities of water by distillation with an immiscible liquid. pp. 13. ill.

— — No. 757-1937. Methods for testing gelatines. pp. 34. ill.

VIS, BASTLAAN. Inwerking van hydrazine, methylhydrazine en dimethylhydrazine op enkele halogeen-nitrobenzolen. Leiden 1938. pp. xvi + 152.

DAVIS, W. A. Methods of analysis of molasses used in the fermentation industries: a contribution towards the unification of methods of sugar analysis from the Research Laboratories of the Distillers Company, Limited, Epsom. [1938.] pp. 16.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Food Investigation*. Special Report No. 46. Rancidity in animal fats. By C. H. LEA. London 1938. pp. vi + 230. ill.

— *Fuel Research*. Technical Paper No. 44. The action of hydrogen upon coal. Part iii.—The development of a small-scale liquid-phase continuous plant. By N. BOOTH, F. A. WILLIAMS, and J. G. KING. London 1938. pp. vi + 27. ill.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications. Series A. No. 73. "Frostiness" in plumbers' solder. By F. A. RIVETT. London 1938. pp. 11. ill.

— — Series B. No. 7. The hot-tinning of fabricated articles. By E. J. DANIELS. (From the *Proc. Swansea Tech. Coll. Met. Soc.*, 1938.)

PAGES MISSING FROM 43 TO 52

PROCEEDINGS
OF THE
CHEMICAL SOCIETY.

Minutes of a
SCIENTIFIC MEETING

at Burlington House, London, W. 1, on June 2nd, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The minutes of the Scientific Meeting of May 19th, 1938, appearing in the Proceedings for May, were taken as read, and were confirmed and signed.

The PRESIDENT referred to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
Joseph William Mellor	1902	24th May, 1938.
Glyn Owen	1928	21st July, 1937.

ACKNOWLEDGEMENTS.

The PRESIDENT announced that the Council had conveyed its cordial thanks to Dr. Otto Rosenheim for presenting to the Society a bronze medal of Paul Karrer and to Mr. R. Taylor and the British Xylonite Co., Ltd. for presenting copies of the Society's publications.

FORMAL ADMISSION OF FELLOWS.

The following were formally admitted Fellows of the Society : Ida Harcourt-Vernon, C. H. Bamford, Herbert Scoville, C. L. Arcus.

The following papers were read :—

“ Methylene.” By T. G. PEARSON, R. H. PURCELL, and G. S. SAIGH.

“ The hydrogenation of simple sulphur compounds.” By R. H. GRIFFITH. (With S. G. HILL and B. CRAWLEY.)

“ Primary photochemical reactions. Parts X, XI, and XII.” By R. G. W. NORRISH. (With C. H. BAMFORD.)

OTHER NOTICES

LIBRARY.

From July 16th until September 30th the Library will open daily from 10 a.m. to 5 p.m., except during the fortnight August 1st to August 13th inclusive, when it will be entirely closed for revision and cleaning.

RESEARCH FUND.

A meeting of the Research Fund Committee will be held in November next. All persons, therefore, who have received grants, and whose accounts have not been declared closed by the Council, are informed that reports must be received by the Society not later than **Tuesday, November 1st, 1938.**

Applications for grants, to be made on forms obtainable from the Assistant Secretary, must be received on or before **Tuesday, November 1st, 1938**. Applications from Fellows will receive prior consideration.

Attention is drawn to the fact that the income arising from the Donation of the Worshipful Company of Goldsmiths is principally devoted to the encouragement of research in Inorganic and Metallurgical Chemistry, and that the income from the Perkin Memorial Fund is to be applied to investigations relating to problems connected with the Coal Tar and Allied Industries.

HARRISON MEMORIAL PRIZE.

In accordance with the Trust Deed governing the Harrison Memorial Fund, the Selection Committee consisting of the Presidents of the Chemical Society, the Institute of Chemistry, the Society of Chemical Industry and the Pharmaceutical Society, will proceed to make an award of the Harrison Memorial Prize in December next.

The Prize, of the value of about £150, will be awarded to the chemist of either sex, being a natural born British subject and not at the time over thirty years of age, who, in the opinion of the Selection Committee, during the previous five years has conducted the most meritorious and promising original investigations in any branch of pure or applied chemistry and published the results of those investigations in a scientific periodical or periodicals.

Provided that, in the opinion of the Selection Committee, there is a candidate of sufficient distinction to warrant an award of the Prize, the next award will be made in December, 1938.

Applications, five copies of which must be submitted, should contain the following information :

- (a) Name (in full).
- (b) Age (Birth certificate must accompany application).
- (c) Degrees (name of University where obtained).
- (d) Other qualifications.
- (e) Experience.
- (f) Titles of published papers, with authors' names, including full references to publication.
- (g) Where research was carried out.
- (h) Testimonials or references.
- (i) Any other particulars bearing on the application.

The Selection Committee is prepared to receive applications, nominations, or information as to candidates eligible for the Prize. Any such communication must be received by

The President,
The Chemical Society,
Burlington House,
Piccadilly,
London, W. 1.,

not later than **Thursday, December 1st, 1938**.

BOARD OF TRADE.

The Treasury have made an Order under Section 10 (5) of the Finance Act, 1936, exempting Alphanaphthyl isothiocyanate from Key Industry Duty from June 22nd, 1938, until December 31st, 1938.

The Treasury Order, which will be entitled The Safeguarding of Industries (Exemption) No. 3 Order, 1938, will shortly be published by H.M. Stationery Office.

**Summary of Proceedings of the
COUNCIL MEETING
held on May 26th, 1938.**

(No reference is made to matters which have already been reported in the Proceedings for May or June.)

The PRESIDENT, Professor F. G. DONNAN, was in the Chair, and 18 members were present.

It was agreed that in view of special circumstances a paper received from a non-Fellow should be considered for publication in the *Journal*.

It was reported that the Council of the Society of Chemical Industry had welcomed the suggestion to co-operate with the Chemical Society in the delivery of a Sir William H. Perkin Centenary Lecture.

The Council expressed its thanks to Professor J. M. Gulland for his lecture on "Nucleic Acids" on May 5th, and to Professor G. M. Bennett for opening the Discussion on "Organic Intermolecular Complexes" on May 19th.

The dates of Council and Scientific Meetings for the session 1938—1939 were approved, and it was decided that the Annual General Meeting should be held in London on March 30th, 1939. Preliminary consideration was also given to the arrangements for lectures, discussions, and other meetings for the coming session, and the Council expressed approval of the suggestion made at the meeting of Local Representatives in Manchester on March 31st that at least two official meetings of the Society should be held outside London in the Spring and Autumn of each year if the Council received invitations from Local Representatives.

The report of Messrs. W. B. Keen & Co. (Chartered Accountants) on the audit of the Society's accountants for the first three months of 1938 and stating that all was found to be in order was received.

It was stated that Sir James Irvine had agreed to represent the Society at the Ceremonies of the Unveiling of the Benjamin Franklin Statue held in Philadelphia from May 19th to 21st, 1938.

The Council had under consideration the preparation of obituary notices of Fellows who had recently died.

The resignation of one Fellow was accepted and one candidate was reinstated as a Fellow.

**Summary of Proceedings of the
COUNCIL MEETING
held on June 16th, 1938.**

The PRESIDENT, Professor F. G. DONNAN, was in the Chair, and 18 members were present.

It was announced that the congratulations of the Council had been conveyed to the following Fellows, whose names appeared in the Birthday Honours list:

Professor T. H. Easterfield, K.B.E.	
Dr. J. J. Fox,	C.B.
Mr. R. O'F. Oakley	O.B.E.

The President agreed to convey the congratulations of the Council to Mr. B. Mouat Jones, D.S.O. on his appointment as Vice-Chancellor of the University of Leeds, and to Professor Irvine Masson on his appointment as Vice-Chancellor of the University of Sheffield; also to Mr. William R. Cripser, who would complete 60 years of Fellowship on June 20th, and to Sir Henry Miers, who would complete 50 years of Fellowship on June 21st.

It was agreed that, in view of special circumstances, two papers received from non-Fellows should be submitted to the Publication Committee for consideration for publication in the *Journal*.

An offer from the Court of the Salters' Company for the use of their hall for some function in connection with the Centenary Celebrations of the Society in 1941 was received with thanks.

It was decided that the Anniversary Dinner of the Society on March 30th, 1939, should be held at Grosvenor House, Park Lane.

The Council expressed its thanks to the Biochemical Society for the contribution of Twenty Guineas to the Library for 1938.

The Council appointed a General Committee to make arrangements for the Centenary Celebrations of the Society to be held in April 1941.

It was decided to invite Professor R. Truszkowski to represent the Society at the IVème Congrès de la Chimie Pure et Appliquée and the Centenary of the death of Jędrzej Sniadecki organised by the Polish Chemical Society, to be held at Wilno at the end of June.

The Council had under consideration the preparation of obituary notices of Fellows who have died recently.

26 candidates for Fellowship were elected Fellows of the Society.

The resignations of three Fellows were accepted; the names of twenty Fellows were removed from the List of Fellows for non-payment of annual subscriptions under the action of Bye-Law IV, and one candidate was re-instated as a Fellow.

PAPERS RECEIVED

List of papers, or abstracts thereof, received between May 19th, and June 16th, 1938. (This list does not include the title of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- "The occurrence of ursolic acid in *Escallonia tortuosa*. Conversion of ursolic acid into α -amyrin." By J. A. GOODSON.
- "Researches on amines. Part IX. Diaquo- and hydroxoquo-diammines of bivalent platinum." By H. J. S. KING.
- "Note on the interaction between anthracene and succinic anhydride." By E. BERGMANN and (MISS) A. WEIZMANN.
- "The configuration of heterocyclic compounds. Part IX. The optical resolution of 8-chloro-10-phenylphenoxarsine-2-carboxylic acid." By (MISS) M. S. LESSLIE.
- "Dipole moments and molecular structure. The dipole moment of nitron." By F. L. WARREN.
- "The attempted resolution of phenyl $\alpha\beta$ -dideuteroethyl ketone by an indirect method." By J. B. M. COPPOCK, J. KENYON, and S. M. PARTRIDGE.
- "A reaction of certain diazosulphonates derived from β -naphthol-1-sulphonic acid. Part XVIII. 1:4-Diketo-3-(aminoaryl)tetrahydrophthalazines and related compounds." By F. M. ROWE, M. A. LÉCUTIER, and A. T. PETERS.
- "Studies in electrolytic oxidation. Part X. The anodic oxidation of ester-acid salts: the mechanism of the Brown-Walker synthesis in aqueous solution." By A. HICKLING and J. V. WESTWOOD.
- "A constituent of *Citrus nobilis* Lour termed nobiletin. Part I." By K. F. TSENG.
- "Nobiletin. Part II." By R. ROBINSON and K. F. TSENG.
- "On soaps and similar long-chain derivatives as simple half-strong electrolytes in dilute solution." By J. W. MCBAIN.
- "The preparation of 2:3-anhydro-, 3:4-anhydro-, and 3:6-anhydro-methylhexosides from 3-*p*-toluenesulphonyl methylglucoside." By S. PEAT and L. F. WIGGINS.
- "Decomposition reactions of the aromatic diazo-compounds. Part V. Reactions of benzenediazonium chloride with sulphur, selenium, and tellurium." By W. A. WATERS.

- "The crystal structure of 9:10-dihydroanthracene and 9:10-dihydro-1:2:5:6-dibenzanthracene." By J. BALL.
- "A source of error in micro-cataphoretic measurements with a cylindrical-bore cell." By D. C. HENRY.
- "Studies in tar hydrocarbons. Part II. Derivatives of 2:3-dimethylnaphthalene." By E. A. COULSON.
- "Chemical constitution and the dissociation constants of monocarboxylic acid. Part X. Saturated aliphatic acids." By J. F. J. DIPPY.
- "Comparison of the effect of hydrogen, deuterium, and helium on the lower explosion limit of phosphorus-oxygen mixtures." By D. W. KING and E. B. LUDLAM.
- "The associating effect of the hydrogen atom. Part III. Further examples of steric interference between vicinal groups." By H. O. CHAPLIN and L. HUNTER.
- "On monolayers of isomeric unsaturated compounds." By J. MARSDEN and E. K. RIDEAL.
- "Kinetics of the catalysed polymerisation of styrene. Part II. Inhibition of stannic chloride catalysis by hydrogen chloride." By G. WILLIAMS.
- "The catalytic phenylation of α -naphthylamine." By H. H. HODGSON and E. MARSDEN.
- "The relative effect of inhibitors on adsorption and on catalytic activity. Part I." By E. B. MAXTED and (the late) C. H. MOON.
- "The electric polarisations of some metallic acetylacetonates." By A. E. FINN, G. C. HAMPSON, and L. E. SUTTON.
- "The electric dipole moments of *p*-benzoquinone and related compounds." By D. LL. HAMMICK, G. C. HAMPSON, and G. I. JENKINS.
- "Measurements of the electric polarisations of the vapours of some substances having anomalous dipole moments, and their bearing on the theory of atom polarisation." By I. E. COOP and L. E. SUTTON.
- "The constitution of Damson Gum. Part I. Composition of Damson Gum and structure of an aldobionic acid (glycuroosido-2-mannose) derived from Damson Gum." By E. L. HIRST and J. K. N. JONES.
- "Fractional distillation of mixtures of constant boiling point." By R. WRIGHT.
- "Electron diffraction and surface structure." By G. I. FINCH.
- "The relation between the force constant and the heat of rupture of a linkage." By J. J. FOX and A. E. MARTIN.
- "Cyclic 1:3-diazalines." By SIR GILBERT MORGAN and (MISS) J. STEWART.
- "Experiments on the synthesis of substances related to the sterols. Part XX. Preparation of two tricyclic ketones." By F. J. MCQUILLIN and R. ROBINSON.
- "Note on the stability of the formic acid dimer." By E. A. MOELWYN-HUGHES.
- "Physical properties and chemical constitution. Part III. *cyclopentane*, *cyclohexane*, *cycloheptane*, and some derivatives. The multiplanar structure of the methyl-*cyclohexane* ring." By A. I. VOGEL.
- "Strychnine and brucine. Part XXXVII. Conversion of dihydrostrychnidine-D into dihydrostrychnidine-A." By O. ACHMATOWICZ and R. ROBINSON.
- "Strychnine and brucine. Part XXXVIII. Exhaustive methylation of *N*₆-methylchanodihydroneostrychnidine and its dihydro-derivative." By O. ACHMATOWICZ.
- "Strychnine and brucine. Part XXXIX. Final stages of the Hofmann degradation of dihydrostrychnidine-A. Elimination of trimethylamine and isolation of a base C₂₁H₂₃ON, termed desazastrychnidine-C." By O. ACHMATOWICZ and C. DYBOWSKI.
- "Strychnine and brucine. Part XL. A note on Hofmann elimination of dimethyldebrucidine." By O. ACHMATOWICZ and C. DYBOWSKI.
- "The octahydropyridocoline-norpulnane relationship. Part II." By G. R. CLEMO, J. G. COOK, and R. RAPER.
- "The action of benzaldehyde on *o*-, *m*-, and *p*-xylene in the presence of aluminium chloride." By H. ELLISON and D. H. HEY.
- "Polysaccharides. Part XXVII. The 'end-group' method as applied to cellulose." By F. J. AVERILL and S. PEAT.

- "Polysaccharides. Part XXVIII. The 'end-group' method as applied to starch. An improved method for the estimation of tetramethyl glucose in admixture with trimethyl glucose." By E. L. HIRST and G. T. YOUNG.
- "The influence of alkyl groups upon reaction velocities in solution. Part II. The base-catalysed prototropy of phenyl alkyl ketones." By D. P. EVANS and J. J. GORDON.
- "The influence of alkyl groups upon reaction velocities in solution. Part III. The alkaline hydrolysis of ethyl esters of saturated aliphatic acids." By D. P. EVANS and J. J. GORDON.
- "The influence of alkyl groups upon reaction velocities in solution. Part IV. Some factors leading to departures from the theoretical polar sequence." By D. P. EVANS and H. B. WATSON.
- "The cyclic methyleneamines. Hydrolysis of quaternary compounds. Preparation of aliphatic secondary amines. Part I." By J. GRAYMORE.
- "Alkylene derivatives of cyclic bases. Part I. Derivatives of 2-aminopyridine." By T. M. SHARP.
- "Leptospermone. Part I." By L. H. BRIGGS, A. R. PENFOLD, and W. F. SHORT.
- "The resinols. Part V. β -Amyrenonol and dehydro- β -amyrenol; the location of the unsaturated centres of the α - and β -amyrenols." By J. H. BEYNON, K. S. SHARPLES, and F. S. SPRING.
- "Polycyclic aromatic hydrocarbons. Part XVIII. A general method for the synthesis of 3:4-benzphenanthrene derivatives." By C. L. HEWETT.
- "1:2:5:6-Dibenzphenanthrene." By E. BERGMANN.
- "Mercury derivatives of symmetrical dichloroethylene." By M. FITZGIBBON.
- "A reply to the work of Hinkel, Richards, and Thomas: 'Studies on hydrogen cyanide. Part X. The tetrapolymer.'" By E. G. TROCHIMOWSKY.
- "The chemistry of natural rubber. Comments on a paper of the above title by Roberts (*J.C.S.*, 1938, 219)." By J. W. HAEFELE and E. M. MCCOLM.

ERRATUM

Page 46, line 2, for "Swansea" read "Cardiff."

ADDITIONS TO THE LIBRARY.

I. Donations.

BERRY, A. J. Qualitative inorganic analysis. Cambridge 1938. pp. viii + 147. 6s. net. (*Recd.* 16/6/38.) From the Author.

BRITISH ALUMINIUM CO., LTD. Light Metals Research. Vol. VI, Nos. 14, 16, etc. London 1938 + (*Reference.*) [In mimeograph form.]

— Light Metals Review. Vol. IV, No. 15, etc. London 1938 +. (*Reference.*) [In mimeograph form.] From the Director.

DEFIZE, J. C. L. On the Edeleanu process for the selective extraction of mineral oils. Amsterdam 1938. pp. viii + 310. ill. *Fl.* 12.50. (*Recd.* 4/6/38.)

From the Publisher: Heer D. B. Centen.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Water Pollution Research*. Technical Paper No. 7. Estuary of the River Mersey. The effect of the discharge of crude sewage into the Estuary of the River Mersey on the amount and hardness of the deposit in the Estuary. London 1938. pp. xviii + 337. ill. (*Reference.*) 30s. net.

From the Department.

DUMAS, J. B. Leçons de philosophie chimique. (Classiques de la découverte scientifique.) Paris 1937. pp. xxviii + 270. ill. 21 fr. (*Recd.* 4/6/38.)

From the Publishers: MM. Gauthier-Villars.

EMELÉUS, H. J., and ANDERSON, J. S. Modern aspects of inorganic chemistry. London 1938. pp. xii + 536. ill. 25s. net. (*Recd.* 27/5/38.) From the Publishers: Messrs. George Routledge & Sons.

HOFFERT, W. H., and CLAXTON, G. Motor benzole, its production and use. [2nd edition.] London 1938. pp. xxvi + 933. ill. 42s. net. (*Recd.* 14/6/38.) From the Authors.

LAVOISIER, A. L. *Traité élémentaire de chimie*. (Classiques de la découverte scientifique.) Paris 1937. pp. xxxviii + 191. ill. 21 fr. (*Recd.* 4/6/38.)

From the Publishers: MM. Gauthier-Villars.

MORGAN, SIR GILBERT T., and PRATT, DAVID DOIG. British chemical industry, its rise and development. London 1938. pp. xii + 387. ill. 21s. net. (*Recd.* 26/5/38.)

From the Publishers: Messrs. Edward Arnold & Co.

SCHREINEMAKERS, F. A. H. Lectures on osmosis. The Hague 1938. pp. xii + 266. ill. *Fl.* 8.50. (*Recd.* 13/6/38.)

From the Publisher: Heer G. Naeff.

SIVADJIAN, JOSEPH. La chimie des vitamines et des hormones. [2nd edition.] Paris 1938. pp. 239. 50 fr. (*Recd.* 13/6/38.)

From the Publishers: MM. Gauthier-Villars.

WILSON, CECIL L. An introduction to microchemical methods for senior students of chemistry. London 1938. pp. xii + 196. ill. 7s. 6d. net. (*Recd.* 13/6/38.)

From the Publishers: Messrs. Methuen & Co.

WÖHLER, F., [and others.] *La synthèse totale en chimie organique*. (Classiques de la découverte scientifique.) Paris 1937. pp. viii + 145. ill. 21 fr. (*Recd.* 4/6/38.)

From the Publishers: MM. Gauthier-Villars.

II. By purchase.

ANSLEY, A. J. An introduction to laboratory technique. London 1938. pp. xiv + 313. ill. 12s. 6d. net. (*Recd.* 16/6/38.)

BAYER, FRITZ. Gasanalyse. Neuere Methoden der Arbeitspraxis unter Berücksichtigung der physiologischen Wirkungen der Gase. (Die chemische Analyse, Vol. XXXIX.) Stuttgart 1938. pp. x + 175. ill. (*Reference.*) *M.* 16.60.

CHEMIE-INGENIEUR, DER. Vol. III. Part 2. Apparative Durchführung chemischer Operationen. Allgemeiner Teil. Edited by A. EUCKEN. Leipzig 1938. pp. xiv + 523. ill. *M.* 52. (*Recd.* 3/6/38.)

DUSHMAN, SAUL. The elements of quantum mechanics. New York 1938. pp. xiv + 452. ill. \$5. (*Recd.* 16/6/38.)

ECCLES, HENRY. Glass working for luminous tubes. London 1937. pp. 143. ill. 5s. (*Recd.* 16/6/38.)

FIELD, SAMUEL, and WEILL, A. DUDLEY. Electro-plating: a survey of modern practice. 3rd edition. London 1938. pp. x + 381. ill. 12s. 6d. net. (*Recd.* 16/6/38.)

HAMMER, BERNARD W. Dairy bacteriology. 2nd edition. New York 1938. pp. xiv + 482. ill. \$5. (*Recd.* 16/6/38.)

HEDVALL, J. ARVID. Reaktionsfähigkeit fester Stoffe. Leipzig 1938. pp. x + 234. ill. *M.* 19.20. (*Recd.* 16/5/38.)

JUSTI, E. Spezifische Wärme, Enthalpie, Entropie und Dissoziation technischer Gase. Berlin 1938. pp. vi + 157. ill. *M.* 19.80. (*Recd.* 16/5/38.)

KOHLRAUSCH, K. W. F. Der Smekal-Raman-Effekt. Ergänzungsband 1931-1937. Berlin 1938. pp. x + 288. ill. *M.* 25.60. (*Recd.* 16/6/38.)

KONINKLIJKE AKADEMIE VAN WETENSCHAPPEN TE AMSTERDAM. *Committee for the Study of Viscosity*. Second report on viscosity and plasticity. (From the *Verhandel. K. Akad. Wetensch. Amsterdam*, 1938, 16.) pp. viii + 287. ill. *Fl.* 12. (*Recd.* 16/6/38.)

LEWIS, BERNARD, and ELBE, GUENTHER VON. Combustion, flames and explosions of

gases. Cambridge 1938. pp. xvi + 415. ill. 21s. net. (*Recd.* 16/6/38.)

MARCHIONNA, FREDERICK. Latex and rubber derivatives and their industrial applications. Vols. II and III. New York 1937. pp. xxiv + 820, iv, 821 to 1670. (*Reference.*) \$20.

NASH, ALFRED W., and HOWES, DONALD A. The principles of motor fuel preparation and application. 2nd edition. Vol. I. London 1938. pp. xiv + 628. ill. 36s. net. (*Recd.* 16/6/38.)

NIEDERL, JOSEPH B., and NIEDERL, VICTOR. Micromethods of quantitative organic elementary analysis. New York 1938. pp. xvi + 271. ill. \$3. (*Recd.* 16/6/38.)

POULSSON, E. Text-book of pharmacology and therapeutics. 2nd English edition, revised by STANLEY ALSTEAD. London 1938. pp. xii + 557. ill. 25s. net. (*Recd.* 16/6/38.)

POWELL, GARFIELD. Laboratory manual for practical organic chemistry. New York 1937. pp. x + 166. ill. 15s. net. (*Recd.* 16/6/38.)

RITTER, FRANZ. Korrosionstabellen metallischer Werkstoffe. Wien 1937. pp. vi + 193. (*Reference.*) M. 19.80.

ROSE, MARY SWARTZ. The foundations of

nutrition. New York 1938. pp. xii + 625. ill. \$3.50. (*Recd.* 16/6/38.)

STILLWELL, CHARLES W. Crystal chemistry. New York 1938. pp. x + 431. ill. \$4.50. (*Recd.* 16/6/38.)

WOOSTER, W. A. A text-book on crystal physics. Cambridge 1938. pp. xxii + 295. ill. 15s. net. (*Recd.* 16/6/38.)

III. Pamphlets.

COWARD, H. F. Movement of firedamp in air. (From the *Trans. Inst. Min. Eng.*, 1937-38, 94-95.)

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. Report of test . . . on the Morgan rotary retort installed at Rodridge Hall, near Wingate, County Durham. Test carried out October 1936. London 1938. pp. iv + 22. ill.

— *Building Research*. Technical Paper No. 17. Experiments on the freezing of certain building materials. By W. N. THOMAS. London 1938. pp. x + 146. ill.

— *Chemistry Research*. Special Report No. 4. An investigation into the causes and prevention of the corrosion of tar stills. By D. D. PRATT, with H. C. K. ISON and R. G. WOOD. London 1938. pp. vi + 430. ill.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, October 20th, 1938.

An Extraordinary General Meeting to consider the recommendation of the Council that Fellows of the Society residing in Australia and New Zealand should be permitted to pay their Annual Subscriptions to the Society in the currency of these two Dominions, at 7.50 p.m.

Meeting for the reading of original papers, at 8 p.m.

Thursday, November 3rd, 1938, at 8 p.m.

Meeting for the reading of original papers.

Thursday, November 17th, 1938, at 8 p.m.

Lecture on "Some Carbohydrate Problems," by Professor W. N. Haworth, D.Sc., Ph.D., F.R.S. Nobel Laureate.

Tuesday, November 22nd, 1938, at 7 for 7.30 p.m.

Annual Chemical Dinner at the Connaught Rooms, Great Queen Street, London, W.C. 2.

Thursday, November 24th, 1938, at 5 p.m.

Public Lecture by Herbert Levinstein, M.Sc., Ph.D., F.I.C. This Lecture is under the auspices of the Society of Chemical Industry and the Chemical Society to commemorate the Centenary of the birth of Sir William Henry Perkin and will be delivered in the Leathersellers' Hall, St. Helen's Place, London, E.C. 3, by the courtesy of the Court of the Leathersellers' Company.

MEETINGS OUTSIDE LONDON.

EDINBURGH.

Tuesday, November 1st, 1938, at 7.30 p.m. **Lecture** on "Plastics and Polymerisation," by Professor R. G. W. Norrish, Sc.D., Ph.D., F.R.S. Joint Meeting of the Chemical Society and the Edinburgh University Chemical Society, to be held in the Medical Chemistry Theatre, Teviot Place.

GLASGOW.

Friday, November 18th, 1938, at 7.30 p.m. **Lecture** on "The Hydrogen Bond," by J. Monteath Robertson, M.A., D.Sc., at the Royal Technical College, 204, George Street.

LEEDS.

Friday, November 11th, 1938, at 7.30 p.m. **Lecture** on "The Structure of Films adsorbed at Solid Surfaces," by D. H. Bangham, M.C., M.A., D.Sc., in the Lecture Theatre of the new Chemistry Building of the University.

[Continued Over

LIVERPOOL.

Monday, November 7th, 1938, at 6 p.m. **Lecture** on "Recent Progress in the Chemistry of the Starches," by Professor E. L. Hirst, M.A., D.Sc., F.R.S., in the Chemistry Lecture of the University.

MANCHESTER.

Tuesday, November 15th, 1938, at 7 p.m. **Lecture** on "Camouflage in Nature and in War," by Hugh B. Cott, M.A., D.Sc., F.R.P.S. Annual Conjoint Meeting of Manchester Chemical Societies arranged this year by the Manchester Literary and Philosophical Society, to be held in the Reynolds Hall, College of Technology.

NEWCASTLE AND DURHAM.

Friday, October 14th, 1938, at 7.30 p.m. **Meeting for the reading of original papers.** Joint Meeting of the Chemical Society and the Local Section of the Society of Chemical Industry.

Friday, October 28th, 1938, at 6.45 p.m. **Bedson Lecture** : "Statistics in Chemistry and Physics," by Professor Max Born.

These meetings will be held in the Chemistry Lecture Theatre of King's College, Newcastle-on-Tyne, 2.

NORTH WALES.

Friday, November 25th, 1938, at 5.30 p.m. **Lecture** on "The Origins of the Atomic Theory," by Professor J. R. Partington, M.B.E., D.Sc. Joint Meeting of the Chemical Society and the University College of North Wales Chemical Society to be held in the Chemistry Lecture Theatre of the College, Bangor.

NOTTINGHAM.

Thursday, October 20th, 1938, at 5.15 p.m. **Lecture** on "The Chemistry of Podocarpic Acid," by W. F. Short, D.Sc.

Thursday, November 24th, 1938, at 5.15 p.m. **Lecture** on "Some Chemical Aspects of a Widespread Phenomenon—Biological Methylation," by Professor F. Challenger, D.Sc., Ph.D., F.I.C.

These lectures will be held under the auspices of the Chemical Society and the University College Nottingham Physical and Chemical Society, in the Chemistry Lecture Theatre of University College, University Park.

SOUTH WALES.

In Cardiff.

Wednesday, October 26th, 1938, at 6 p.m. **Lecture** on "Optical Activity as a Guide to Reaction Mechanism," by J. Kenyon, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the Technical College. Joint Meeting of the Chemical Society and the Cardiff Technical College Chemical Society.

Monday, November 28th, 1938, at 7 p.m. **Lecture** on "Some Topics in Inorganic Chemistry," by Professor W. Wardlaw, D.Sc., F.I.C., in the Chemistry and Physics Lecture Theatre, University College of South Wales and Monmouthshire. Joint Meeting of the Chemical Society and the Cardiff Section of the Institute of Chemistry.

In Swansea.

Thursday, November 10th, 1938, at 6 p.m. **Lecture** on "Chemical Carcinogenic Agents," by Professor J. W. Cook, D.Sc., Ph.D., F.R.S. Joint Meeting of the Chemical Society and the University College of Swansea Chemical Society to be held in the Chemistry Lecture Theatre of University College, Swansea.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of any of these candidates should communicate with the Honorary Secretaries not later than Monday, 17th October, 1938. Such objections will be treated as confidential. The forms of application are displayed in the Library.)

- Banks, Raymond**, B.A. (Oxon.) (permission to supplicate for B.Sc., but not yet taken), British, 17, Graham Avenue, Hessle High Road, Hull. Just completed Part II Chemistry. Future indefinite.
- Barnett, Adam John Guilbert**, Ph.D. (Edin.), A.I.C., F.R.S.E., British, Higher College, Yaba, Lagos, Nigeria. Lecturer in Chemistry, Education Department, Nigeria.
- Bergström, Karl Sune Detlof**, Med.Kand. (Stockholm), Swedish, Chemical Department, Karolinska Institute, Stockholm K. Demonstrator in the Karolinska Institute.
- Biggs, Norman Benjamin**, B.Sc. (Birm.), British, 122, Johns Street, Brierley Hill, Staffs. Works Chemist at Dudley Gas Co.
- Carman, Philip Crosbie**, M.Sc. (N.Z.), Ph.D. (Lond.), British, Chemistry Department, University of Cape Town, Rondebosch. Lecturer in Applied Chemistry at the University.
- Clements, William Raymond**, M.P.S., British, Westow, York. Student of Chemistry at Sunderland Technical College.
- Francis, Arthur Alfred Dalton**, National Advanced Technical Certificate (Chemistry), Associate Member South African Chemical Institute, British, Berea Hotel, Berea Road, Durban, Natal. Chemist and Druggist (S.A.), Examiner in Practical Pharmacy and Dispensing to S.A. Pharmacy Board 1936, 1937.
- Griffiths, Emlyn**, British, 10, Victor Street, Mountain Ash, Glam. Chief Chemist at C. and E. Collieries, Cwmgwrach, Neath. Responsible for the direction and control of the analytical and investigatory work on the plant and products of the company.
- Hess, Edgar**, B.Sc. (Lond.), A.R.C.S., German, 13, Grenville Street, W.C. 1. Student at Imperial College.
- Hopf, Peter Paul**, German, 25, Coram Street, W.C. 1. Student of Chemistry at University College, London.
- Hopper, Thomas Herbert**, M.P.S., British, 17, Coppice Road, Grove Hill, Middlesbrough. Analytical Chemist to Messrs. Middleton & Co., Ltd., Middlesbrough.
- Knight, George Thomas**, M.P.S., British, 47, Hugh Gardens, Benwell, Newcastle-on-Tyne. Student of Chemistry at Sunderland Technical College.
- Laidler, Keith James**, B.A. (Oxon.), British, 7, Dudlow Drive, Liverpool, 18. Research Student, Commonwealth Fellow elect at Princeton University, N.J., U.S.A.
- Le Roux, Lodewikus Jakobus**, M.Sc. (S. Africa), British, Woodberry Lake Hotel, 246, Green Lanes, N. 4 Assistant Lecturer; Student at University College, London.
- Martin, Richard**, Dip. Ing. Chim. (Geneva), Swiss, The Research Institute, The Royal Cancer Hospital, Fulham Road, S.W. 3. Research Student.
- Miller, George Charles**, B.Sc. (Lond.), British, 52, Heathcroft, Hampstead Way, N.W. 11.
- Munson, Robert George**, B.Sc. (Bristol), British, c/o British Alkaloids, Ltd., Atlas Works, Victoria Road, Willesden, N.W. 10. Chief Chemist and Bacteriologist to British Alkaloids, Ltd.
- Murray, Alice Rosemary**, B.A. and B.Sc. (Oxon.), British, Cadlington House, Horndean, Hants. Demonstrator at Royal Holloway College.

- Redies, Max Fred**, B.Sc. (Sydney), British, 25, Bond Street, Mosman, Sydney, N.S.W. Student at University of Sydney.
- Rodgers, William George**, Inter.B.Sc. (Lond.), British, 34, Broadway, Punchbowl, Sydney, N.S.W. Assistant Chemist at Maleable Castings, Ltd., Marickville, Sydney.
- Rundall, Frank Gordon**, B.Sc. (Lond.), A.R.C.S., British, 31, Lansdown Road, Sidcup. Research Student in Organic Chemistry at the Royal College of Science for degree of Ph.D.
- Rushworth, George Edward**, M.Sc. (Leeds), British, 27, Elizabeth Street, Armley, Leeds, 12. Research Chemist at Tokalon, Ltd., Acton, N.W. 10.
- Sharpe, Robert Davidson**, British, 2, Nether Close, Finchley, N. 3, Manager of the Pharmaceutical Department at Messrs. J. L. Morison, Son and Jones, Ltd., Finsbury Square, E.C. 2.
- Southerton, Alan Evelyn**, M.P.S., British, Kynance, Henley-in-Arden, Warwickshire. Works Manager and Chemist-in-charge at Messrs. B. C. Tipper and Son, Ltd., Veterinary Manufacturing Chemists, Birmingham.
- Spinks, Alfred**, B.Sc. (Lond.), British, 18, Victoria Street, Littleport, Cambs. Student at Imperial College, London.
- Staub, Gerard J. B.**, Serge, Diploma of the City and Guilds of London Institute (Sugar Technology), Diploma of Agriculture (Mauritius Agricultural College), British, The Royal Technical College, Glasgow. Taking course in Sugar Technology (Engineering) at the Royal Technical College, Glasgow.
- Stead, Donald Maurice**, B.Sc. (Leeds), Dyeing Diploma (Leeds Univ.), Le Blanc Medal, etc. British, 9, Green Lane, Cookridge, Horsforth, Leeds. Research Student at Leeds University.
- Venables, Percy Frederick Ronald**, Ph.D. (L'pool), F.I.C., British, 8, Berther Road, Hornchurch, Essex. Head of Science Department, South East Essex Technical College, Dagenham.
- Weller, William Thomas**, Inter.B.Sc. (Lond.), British, 9, Pier Head, Wapping, E. 1. Student at Royal College of Science.
- Whittet, Thomas Douglas**, M.P.S., British, 84, Eamont Gardens, West Hartlepool. Student of Chemistry at Sunderland Technical College.
- Wilson, David James Baikie**, B.Sc. (Lond.), British, 42, Silkfield Road, Hendon, N.W. 9. Student in Chemistry at Birkbeck College.

UNDER BYE-LAW I (2):

Chorley, Francis Thomas, Member of British Association of Chemists, British, Uganda Drug and Chemical Co., P.O. Box 66, Kampala, Uganda. Partner in above firm of manufacturing chemists.

Signed by : J. Cofman-Nicoresi and Alexander H. Hayes.

Sloane, Alec Maurice, B.Sc. (University of South Africa), M.P.S., British, 24, Belmont Court, Banket Street, Hillbrow, Johannesburg. Just completed M.P.S. qualification; now working for A. B. Sciver, B.Sc., F.I.C., consulting chemist and bacteriologist, 28, Victoria Street, S.W. 1. Returning to South Africa on the 12th September.

Signed by : H. Lucas.

NOTICES

RESEARCH FUND.

A Meeting of the Research Fund Committee will be held in November next. Applications for grants, to be made on forms obtainable from the Assistant Secretary, must be received on or before **Tuesday, November 1st, 1938**. Applications from Fellows will receive prior consideration.

All persons who have received grants, the accounts of which have not been declared closed by the Council, are reminded that reports must be returned by **November 1st**.

Attention is drawn to the fact that the income arising from the Donation of the Worshipful Company of Goldsmiths is principally devoted to the encouragement of research in

Inorganic and Metallurgical Chemistry, and that the income from the Perkin Memorial Fund is to be applied to investigations relating to problems connected with the Coal Tar and Allied Industries.

HARRISON MEMORIAL PRIZE.

In accordance with the Trust Deed governing the Harrison Memorial Fund, the Selection Committee, consisting of the Presidents of the Chemical Society, the Institute of Chemistry, the Society of Chemical Industry, and the Pharmaceutical Society, will proceed to make an award of the Harrison Memorial Prize in December next.

The Prize, of the value of about £150, will be awarded to the chemist of either sex, being a natural born British subject and not at the time of the award over thirty years of age, who, in the opinion of the Selection Committee, during the previous five years has conducted the most meritorious and promising original investigations in any branch of pure or applied chemistry and published the results of those investigations in a scientific periodical or periodicals.

Provided that, in the opinion of the Selection Committee, there is a candidate of sufficient distinction to warrant an award of the Prize, the next award will be made in December, 1938.

Applications, five copies of which must be submitted, should contain the following information :

- (a) Name (in full).
- (b) Age (birth certificate must accompany application).
- (c) Degrees (name of University where obtained).
- (d) Other qualifications.
- (e) Experience.
- (f) Titles of published papers, with authors' names, including full references to publication.
- (g) Where research was carried out.
- (h) Testimonials and references.
- (i) Any other particulars bearing on the application.

The Selection Committee is prepared to receive applications, nominations, or information as to candidates eligible for the Prize. Any such communication must be received by :

The President,
The Chemical Society,
Burlington House,
Piccadilly,
London, W. 1,

not later than **Thursday, December 1st, 1938.**

BOARD OF TRADE.

A list of scientific apparatus and fine chemicals on which the exemption of the Key Industries Duty is under consideration by the Board of Trade has been received and has been placed in the Library.

Representation has been made to the Board of Trade regarding the exemption of cellulose triacetate from the duty imposed by the Safeguarding of Industries Act, 1921. Communications should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London, S.W. 1, before October 14th, 1938.

ADDITIONS TO LIBRARY

I. Donations.

AVOGADRO, AMEDEO [and others]. Détermination des poids moléculaires. (Classiques de la découverte scientifique.) Paris 1938. pp. xviii + 165. ill. *Fr.* 21. (*Recd.* 4/8/38.)

From the Publishers: MM. Gauthier-Villars.

COLEBY, LESLIE J. M. The chemical studies of P. J. Macquer. London 1938. pp. 132. 6s. net. (*Recd.* 15/9/38.) From the

Publishers: Messrs. George Allen & Unwin.

INDIAN LAC RESEARCH INSTITUTE. Lac cultivation in India. Being a 2nd edition of "A practical manual of lac cultivation." By P. M. GLOVER. Namkum 1937. pp. viii + 147. (*Reference.*) From the Director.

LAVOISIER, ANTOINE LAURENT [and others]. La dissolution. (Classiques de la découverte scientifique.) Paris 1938. pp. xviii + 148. ill. *Fr.* 21. (*Recd.* 4/8/38.)

From the Publishers: MM. Gauthier-Villars.

MANSCH, ANTON. Intellectual world: gallery of contemporaries in the realm of arts and sciences. [60 portraits, of which 56 are of chemists and physicists, with biographical details.] Berlin-Charlottenburg [1909]. Folio. (*Reference.*) From Miss Japp.

MATAGRIN, A. Manuel du savonnier. Paris 1938. pp. xviii + 268. ill. *Fr.* 30. (*Recd.* 15/8/38.)

From the Publishers: MM. Gauthier-Villars.

PILCHER, RICHARD B. The profession of chemistry. 4th edition. London 1938. pp. xii + 108. 2s. 6d. net. (*Recd.* 26/8/38.)

From the Institute of Chemistry.

SAINTE-CLAIRE DEVILLE, ÉTIENNE HENRI [and others]. Les métaux légers: aluminium, glucinium, magnésium, métaux alcalins. (Classiques de la découverte scientifique.) Paris 1938. pp. xx + 166. ill. *Fr.* 21. (*Recd.* 4/8/38.)

From the Publishers: MM. Gauthier-Villars.

SCHEELE, CARL WILHELM [and others]. Halogènes et composés oxygénés du chlore. (Classiques de la découverte scientifique.) Paris 1938. pp. xiv + 147. ill. *Fr.* 21. (*Recd.* 4/8/38.)

From the Publishers: MM. Gauthier-Villars.

TREADWELL, W. D. Tabellen und Vorschriften zur quantitativen Analyse. Gravimetrie, Elektroanalyse, Probierkunde der Edelmetalle und Gasanalyse. Leipzig 1938. pp. xii + 284. ill. *M.* 9. (*Recd.* 8/8/38.)

From the Publisher: Herr Franz Deuticke.

WOLFENDEN, J. H. Numerical problems in advanced physical chemistry. Oxford 1938. pp. xx + 227. 7s. 6d. net. (*Recd.* 21/6/38.)

From the Author.

II. By Purchase.

AMERICAN SOCIETY FOR TESTING MATERIALS. Symposium on corrosion testing procedures. Philadelphia 1937. pp. vi + 131. ill. (*Reference.*) \$1.25.

AMMON, ROBERT, and DIRSCHERL, WILHELM. Fermente, Hormone, Vitamine und die Beziehungen dieser Wirkstoffe zueinander. Leipzig 1938. pp. xvi + 451. ill. *M.* 32. (*Recd.* 29/6/38.)

DÉRIBÉRÉ, MAURICE. Les applications pratiques de la luminescence, fluorescence, phosphorescence, lumière noire. Paris 1938. pp. xiv + 263. ill. *Fr.* 65. (*Recd.* 25/6/38.)

FLIGL, FRITZ. Qualitative Analyse mit Hilfe von Tupfelreaktionen. 3rd edition. Leipzig 1938. pp. xii + 554. ill. *M.* 30. (*Recd.* 29/6/38.)

FREYTAG, HELMUTH. Raumexplosionen durch statische Elektrizität. Berlin 1938. pp. 115. *M.* 3.60. (*Recd.* 1/7/38.)

FRITZ, FELIX. Leinöl-Ersatzstoffe. Kunstharze, Natur- und Kunststoffe, Öle, Firnisse usw. Berlin-Steglitz 1938. pp. 144. *M.* 15. (*Recd.* 29/6/38.)

HARTMANN, HANS. Max Planck als Mensch und Denker. Berlin 1938. pp. 190. ill. *M.* 6. (*Recd.* 1/7/38.)

HESSE, ERICH. Die Rausch- und Genussgifte. Stuttgart 1938. pp. viii + 134. *M.* 8. (*Recd.* 1/7/38.)

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Izzo, ATTILIO. Guerra chimica e protezione antigas. 3rd edition. Milano 1938. pp. xvi + 613. ill. *L.* 35. (*Recd.* 29/6/38.)

KOEPPEL, CLAUS. Feuerfeste Baustoffe silikatischer und silikathaltiger Massen. Leipzig 1938. pp. xvi + 296. ill. *M.* 17. (*Recd.* 29/6/38.)

KREPS, THEODORE J. The economics of the sulfuric acid industry. Stanford University 1938. pp. xiv + 284. ill. \$5. (*Recd.* 8/9/38.)

LANGE, NORBERT ADOLPH. [Editor.] Assisted by GORDON M. FORKER. Handbook of chemistry. A reference volume . . . to chemical and physical data used in laboratory work and manufacturing. With an appendix of mathematical tables and formulas by RICHARD STEVENS BURLINGTON. 2nd edition. Sandusky, Ohio 1937. pp. xvi + 1501 + 249 + 30. (*Reference.*) \$6.

MCCULLOCH, A. Gas analysis. London 1938. pp. 166. ill. 7s. 6d. net. (*Recd.* 20/6/38.)

REILLY, JOSEPH. Explosives, matches and fireworks. London 1938. pp. xii + 172. ill. 7s. 6d. net. (*Recd.* 20/6/38.)

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SOUTHCOMBE, J. E. Lubricating oil tests and their significance. 5th edition. London 1938. pp. 100. ill. 3s. 6d. net. (*Recd.* 20/6/38.)

SULFRIAN, ALBERT, and PELTZER, JOSEF. Betriebs- und gesamtwirtschaftliche Probleme der chemischen Produktion. Ein wirtschaftschemischer Versuch. (Sammlung, N.F. Heft 39.) Stuttgart 1938. pp. 130. (*Reference.*)

[UNITED STATES] NATIONAL FIRE PROTECTION ASSOCIATION. National fire codes for flammable liquids and gases. Compiled by ROBERT S. MOULTON. Boston, Mass. 1938. pp. 360. ill. \$1.50. (*Recd.* 13/8/38.)

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WEBER, KARL. Inhibitorwirkungen, eine Darstellung der negativen Katalyse in Lösungen. (Die chemische Analyse, Vol. XL.) Stuttgart 1938. pp. xii + 191. ill. (*Reference.*)

III. Pamphlets.

ADDINALL, C. R. The story of vitamin B₁. Rahway, N.J. 1937. pp. 55. ill.

BAKELS, HANS ALBRECHT. Verband tusschen smaak en constitutie van carbonzuurhydriziden en derivaten. Leiden 1938. pp. 111.

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DEGERING, Ed. F. [Editor.] Co-operative objective tests in organic chemistry. West Lafayette 1938. pp. ii + 14.

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KRAFT, CARL FREDERICK. The chemical organization of living matter. [Washington] 1938. pp. 27.

LABRUYÈRE, WILLEM. G. J. Mulder (1802—1880). Leiden 1938. pp. 157. ill.

MCLACHLAN, THOMAS. The decay of building materials with special reference to microbiological agencies. London 1938. pp. 24.

PROCEEDINGS OF THE CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, November 3rd, 1938, at 8 p.m.

Meeting for the reading of original papers.

The following papers will be read :

- “ Isomeric change in certain stilbenes.” By T. W. J. TAYLOR and MISS A. R. MURRAY.
 “ Some reactions of β -boswellic acid, and their interpretation.” By J. C. E. SIMPSON
 and N. E. WILLIAMS.
 “ Catalytic properties of phthalocyanines.” By A. H. COOK.

Thursday, November 17th, 1938, at 8 p.m.

Lecture on “ Some Carbohydrate Problems,” by Professor W. N. Haworth, D.Sc., Ph.D.,
 F.R.S. Nobel Laureate.

Tuesday, November 22nd, 1938, at 7 for 7.30 p.m.

Annual Chemical Dinner at the Connaught Rooms, Great Queen Street, London, W.C.2.
 Applications for tickets (price 12s. 6d. each) should be made to Mr. F. A. Greene, The
 Chemical Club, 2, Whitehall Court, London, S.W. 1.

Thursday, November 24th, 1938, at 5 p.m.

Public Lecture entitled “ Sir William Perkin’s Adventure, and What Has Come of It,”
 by Herbert Levinstein, M.Sc., Ph.D., F.I.C. This Lecture is under the auspices of the
 Society of Chemical Industry and the Chemical Society to commemorate the Centenary
 of the birth of Sir William Henry Perkin and will be delivered in the Leathersellers’ Hall,
 St. Helen’s Place, London, E.C. 3, by the courtesy of the Master, Wardens and Court
 of the Leathersellers’ Company. Admission will be by ticket only, to be obtained on
 application either to the General Secretary, The Society of Chemical Industry, Clifton
 House, Euston Road, London, N.W. 1. or to the Assistant Secretary, The Chemical
 Society, Burlington House, Piccadilly, London, W. 1.

Thursday, December 1st, 1938, at 8 p.m.

Discussion on “ Aggregation of Ions in Paraffin-chain Salt Solutions,” to be opened by
 G. S. Hartley, D.Sc.

Thursday, December 15th, 1938, at 6 p.m.

Seventeenth Faraday Lecture entitled “ Monolayers on Solids,” by Irving Langmuir,
 M.A., D.Sc., LL.D., For.Mem.R.S. To be given in the Lecture Theatre of the Royal
 Institution, by the courtesy of the Managers. Admission will be by ticket only, to be
 obtained on application to the Assistant Secretary, Burlington House, Piccadilly,
 London, W. 1.

[Continued Over

MEETINGS OUTSIDE LONDON.

EDINBURGH.

Tuesday, November 1st, 1938, at 7.30 p.m. **Lecture** on "Plastics and Polymerisation," by Professor R. G. W. Norrish, Sc.D., Ph.D., F.R.S. Joint Meeting of the Chemical Society and the Edinburgh University Chemical Society, to be held in the Medical Chemistry Theatre, Teviot Place.

GLASGOW.

Friday, November 18th, 1938, at 7.30 p.m. **Lecture** on "The Hydrogen Bond," by J. Monteath Robertson, M.A., D.Sc., at the Royal Technical College, 204, George Street.

Friday, December 2nd, 1938, at 7 p.m. **The Ramsay Chemical Dinner**, at the Central Station Hotel.

LEEDS.

Friday, November 11th, 1938, at 7.30 p.m. **Lecture** on "The Structure of Films adsorbed at Solid Surfaces," by D. H. Bangham, M.C., M.A., D.Sc., in the Lecture Theatre of the new Chemistry Building of the University.

LIVERPOOL.

Monday, November 7th, 1938, at 6 p.m. **Lecture** on "Recent Progress in the Chemistry of the Starches," by Professor E. L. Hirst, M.A., D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

MANCHESTER.

Tuesday, November 15th, 1938, at 7 p.m. **Lecture** on "Camouflage in Nature and in War," by Hugh B. Cott, M.A., D.Sc., F.R.P.S. Annual Conjoint Meeting of Manchester Chemical Societies arranged this year by the Manchester Literary and Philosophical Society, to be held in the Reynolds Hall, College of Technology.

Monday, December 5th, 1938, at 7 p.m. **Meeting for the reading of original papers**, to be held in the Chemistry Lecture Theatre of the University.

NORTH WALES.

Friday, November 25th, 1938, at 5.30 p.m. **Lecture** on "The Origins of the Atomic Theory," by Professor J. R. Partington, M.B.E., D.Sc. Joint Meeting of the Chemical Society and the University College of North Wales Chemical Society to be held in the Chemistry Lecture Theatre of the College, Bangor.

NOTTINGHAM.

Thursday, November 24th, 1938, at 5.15 p.m. **Lecture** on "Some Chemical Aspects of a Widespread Phenomenon—Biological Methylation," by Professor F. Challenger, D.Sc., Ph.D., F.I.C.

This lecture will be held under the auspices of the Chemical Society and the University College Nottingham Physical and Chemical Society, in the Chemistry Lecture Theatre of University College, University Park.

SOUTH WALES.

In Cardiff.

Monday, November 28th, 1938, at 7 p.m. **Lecture** on "Some Topics in Inorganic Chemistry," by Professor W. Wardlaw, D.Sc., F.I.C., in the Chemistry and Physics Lecture Theatre, University College of South Wales and Monmouthshire. Joint Meeting of the Chemical Society and the Cardiff Section of the Institute of Chemistry.

In Swansea.

Thursday, November 10th, 1938, at 6 p.m. **Lecture** on "Chemical Carcinogenic Agents," by Professor J. W. Cook, D.Sc., Ph.D., F.R.S. Joint Meeting of the Chemical Society and the University College of Swansea Chemical Society to be held in the Chemistry Lecture Theatre of University College, Swansea.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY.

**Minutes of an
EXTRAORDINARY GENERAL MEETING**

at Burlington House, London, W. 1, on Thursday, October 20th, 1938, at 7.50 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The notice convening the meeting was read, announcing that the Council had recommended that Fellows of the Society residing in Australia and New Zealand should be permitted to pay their Annual Subscriptions to the Society in the currency of these two Dominions.

The senior Honorary Secretary stated the object of the proposed recommendation. The following resolution was then moved from the Chair, and carried unanimously :

“ That Fellows of the Society residing in Australia and New Zealand should be permitted to pay their Annual Subscriptions to the Society in the currency of these two Dominions.”

**Minutes of a
SCIENTIFIC MEETING**

at Burlington House, London, W. 1, on Thursday, October 20th, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair.

The visitors present were welcomed by the PRESIDENT.

The minutes of the Scientific Meeting of June 2nd, 1938, appearing in the *Proceedings* for June, were taken as read, and were confirmed and signed.

The loss sustained by the Society, through death, of the following Fellows was reported, the PRESIDENT referring in particular to the death of Mr. John Greenaway, who had served the Society as Sub-Editor, Editor and Joint Editor for a period of 40 years, and as Vice-President from 1924–1927, and stating that the Council had expressed its high appreciation of his valuable services to the science of chemistry and of his unselfish devotion to the work of the Society :

	Elected.	Died.
James A. Audley	1886	July 15th.
William Arthur Bone	1893	June 11th.
Neilson Brown	1926	Sept. 19th.
Matthew J. Cannon.....	1898	Sept. 29th.
Charles C. Carpenter	1917	Sept. 7th.
Edward C. Edgar	1909	Aug. 20th.
Arthur J. H. Gauge	1911	Aug. 4th.
Herbert J. Gover	1887	May 23rd
Alfred John Greenaway	1874	Aug. 25th.
Alan Haythornthwaite	1918	Sept. 7th.
George N. Huntly	1893	Aug. 2nd.
Alfred Hutchinson	1894	Aug. 20th.
Leon A. Jaloustre	1931	April 26th.
Patrick H. Kirkaldy	1895	Sept. 14th.
Alfred Courtney Luck	1905	June 21st.
John J. Pilley	1883	July 1st.
Bertram Prentice.....	1904	April 23rd.
Thomas Skurray	1892	June 22nd.
Maung Tin	1935	July 21st.
F. Woodland Toms	1877	July 20th.
Arthur Turner	1886	April 18th.
Alfred E. H. Tutton	1888	July 14th.
Hugh Woods	1892	July 3rd.

The following announcements were made :

1. ACKNOWLEDGEMENTS.

The Council has expressed thanks to the Royal Society for a grant of £600 from the Government Publications Grant; to the Manchester Hospitality Committee for a donation of £50 to the Centenary Fund; to Mr. W. R. Criper for a donation of £40 to commemorate his 50 years of Fellowship; to Professor A. Stansfield for a contribution to the Publications Fund; and to Messrs. B. H. Bowles and G. A. Dalrymple, and to Mrs. T. A. Dent and Mrs. J. I. Watts for copies of the Society's publications.

2. ELECTION OF FELLOWS.

The following candidates have been elected Fellows of the Chemical Society by the Council :

On June 16th, 1938.

Manibhai Bhailalbhai Amin.
George Fraser Anderson.
Timothy James Blight.
Philip Charles Bowes.
John Edmund Brimley.
Arthur George Catchpole.
John Torriano Edgerley.
Angus Fred Graham.
Robert Graham.
Prabhaker Vinayak Gupte.
Bernard George Harvey.
Geoffrey Richard Henry Holland.
Charles William Hyland.

Mary Elizabeth Kelly.
Arthur Whitcombe Marsden.
Francis Mathie.
Lyle Eugene Perrins.
Stuart Montagu Phillips.
John Hendry Ramsay.
Regine Schöntal.
Robert Roy Smith.
William Orr Swan.
Kwong-Fong Tseng.
Ralph Louis Wain.
Andrew Douglas Wilson.
Donald Peter Young.

On October 20th, 1938.

Raymond Banks.
Adam John Guilbert Barnett.
Karl Sune Detlof Bergström.
Norman Benjamin Biggs.
Philip Crosbie Carman.
William Raymond Clements.
Arthur Alfred Dalton Francis.
Emlyn Griffiths.
Edgar Hess.
Peter Paul Hopf.
Thomas Herbert Hopper.
George Thomas Knight.
Keith James Laidler.
Lodewikus Jakobus Le Roux.
Richard Martin.
George Charles Miller.

Robert George Munson.
Alice Rosemary Murray.
Max Fred Redies.
William George Rodgers.
Frank Gordon Rundall.
George Edward Rushworth.
Robert Davidson Sharpe.
Alec Maurice Sloane.
Alan Evelyn Southerton.
Alfred Spinks.
Gerard Jean Baptiste Serge Staub.
Donald Maurice Stead.
Percy Frederick Ronald Venables.
William Thomas Weller.
Thomas Douglas Whittet.
David James Baikie Wilson.

FORMAL ADMISSION OF FELLOWS.

Mr. Stuart M. Phillips was formally admitted a Fellow of the Society.

The following papers were read :

- “The relation between the force constant internuclear distance and the heat of rupture of a linkage.” By J. J. FOX and A. E. MARTIN.
“The electric dipole moments of diphenyl ether, and some derivatives, in the vapour phase; and a revision of the oxygen valency angle in these compounds.” By I. E. COOP and L. E. SUTTON.
“The oxidation of monogermene and digermene.” By H. J. EMELÉUS and E. R. GARDNER.
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MEETINGS OUTSIDE LONDON

MEETING AT NEWCASTLE-ON-TYNE.

A joint meeting of the Chemical Society with the local branch of the Society of Chemical Industry was held in the Chemistry Lecture Theatre of King's College, Newcastle-on-Tyne, on Monday, October 17th, 1938. Professor H. L. Riley was in the Chair and the meeting was attended by 41 members.

Six papers in all were read, each being followed by a discussion: "The occurrence of nickel and titanium in the ash of some vitrains," by J. H. Jones; "The natural phenolic resins. Part XII," by R. D. Haworth and J. R. Atkinson; "Complex ion formation in ammonium sulphate manufacture," by J. W. R. Rayner; "Decomposition reactions of aromatic diazo compounds. Parts IV and V," by W. A. Waters and F. B. Makin; "The polymerisation of dideuteroacetylene," by G. R. Clemo and A. C. Robson; and "The pyridine-acetic anhydride method of determining hydroxyl values," by N. H. Wilson.

The meeting was preceded by an informal dinner in the University Union.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of any of these candidates should communicate with the Honorary Secretaries not later than Monday, 14th November, 1938. Such objections will be treated as confidential. The forms of application are displayed in the Library.)

Badger, Geoffrey Malcolm, M.Sc. (Melbourne), Associate Australian Chemical Institute, British, 30, Nevern Square, S.W. 5. Postgraduate student at the Royal Cancer Hospital (Free), S.W. 3.

Signed by : Alice M. Robinson, J. W. Cook, C. Hewett.

Bell, George, British, 1, Boughton Street, Sunderland. Student of Chemistry at Sunderland Technical College.

Signed by : W. S. Patterson, R. J. Winterton, J. H. Wilkinson.

Berriman, John Alexander, B.A. (Cantab.), British, 24, Norwich Street, Cambridge. Research Student in Physical Chemical Laboratory, Cambridge.

Signed by : G. C. Barker, E. F. Brookman, H. P. Stout, G. B. B. M. Sutherland, R. G. W. Norrish.

Butler, Arnold, B.Sc. (Lond.), British, 1, Benjamin Road, High Wycombe. Research Student.

Signed by : C. K. Ingold, E. D. Hughes, F. Hiron.

Cullum, Thomas Vernon, B.Sc. (Lond.), special chemistry, British, 55, Lawrence Road, East Ham, E. 6. Research Student at Queen Mary College.

Signed by : J. R. Partington, H. D. K. Drew, W. F. Beech.

Dhar, Moti Lal, B.Sc. (Hons.) and M.Sc. (Punjab), Indian, 194, The Vale, N.W. 11. Research Student at University College, London.

Signed by : C. K. Ingold, E. D. Hughes, M. G. Church.

Finar, Ivor Lionel, B.Sc. and Ph.D. (Lond.), British, 42, Grove Lane, N. 16. Lecturer in Organic Chemistry at the South West Essex Technical College.

Signed by : J. C. Drummond, O. L. Brady, C. L. Wilson, E. H. Ingold.

Gospel, James Fred, B.Sc. Hons. (Lond.), British, c/o Mrs. Levers, 31, Warwick Avenue, Beeston. Research in Organic Chemistry at University College, Nottingham.

Signed by : J. Masson Gulland, E. B. R. Prideaux, B. D. Shaw.

Heywood, Basil Jason, B.Sc. (Lond.), A.R.C.S., British, 11, Manor Way, North Harrow. Research in Organic Chemistry at Royal College of Science.

Signed by : G. A. R. Kon, V. C. E. Burnop, I. M. Heilbron.

Hodkinson, William, Member of the Institute of Fuel, British, Fairholme, Moss Lane, Sale. Chief Technical Assistant and Chemist to United Kingdom Gas Corporation Ltd., Manchester.

Signed by : James Bridge, Harold Pickles, Thomas Crowdy.

- Hunter, Matthew Verden**, Ph.C., British, 19, Duddingston Crescent, Portobello, Edinburgh. Laboratory Manager and Director of Messrs. Raimés, Clark & Co., Ltd., Manufacturing Chemists, Leith. Examiner in Chemistry for Pharmaceutical Society.
Signed by : C. G. Anderson, E. G. V. Percival, J. A. V. Butler, James Kendall.
- Jones, Thomas Tyssul**, B.Sc. and Ph.D. (Wales), Welsh, Trinity College, Cambridge. Research Student at the Department of Colloid Science, Cambridge.
Signed by : H. W. Melville, J. K. Roberts, R. G. W. Norrish.
- Kay, Francis William**, M.Sc. (Manc.), Ph.D. (Berlin), British, Chemical Department, The University, Liverpool. Senior Lecturer in Organic Chemistry at the University of Liverpool.
Signed by : A. Robertson, A. McGookin, R. A. Morton.
- Minton, Arthur Sidney**, Inter.B.Sc. Standard, British, 53, Heol-y-Nant, Whitchurch. Manager and Chief Chemist to Messrs. Treharne and Duncan, Cardiff.
Signed by : F. S. Kernick, S. T. Bowden, N. T. Simmons.
- Morice, Isobel Murray**, M.Sc. (N.Z.), British, 121, St. George's Square, S.W. 1. Post graduate student of King's College, London.
Signed by : J. C. E. Simpson, G. M. Bennett, L. G. F. Dolley.
- Paterson, Robert Gordon**, Public Analyst's and Industrial Experience, British, 12, Lavender Sweep, S.W. 11. Assistant Research Chemist to Messrs. Crow, Catchpole & Co., Ltd., Tar Refiners and Distillers, S.W. 18.
Signed by : Raymond R. Butler, A. E. Findley, H. J. Evans.
- Skull, John Eric Joseph George**, B.Sc. (Lond.), British, 327, Durnsford Road, Wimbledon Park, S.W.19. Physical Chemical Research.
Signed by : J. C. Crocker, Charles Dorée, F. H. Lowe.
- Starr, James**, B.Sc., General degree of University of Reading, in Chemistry, Physics and Botany, conditional upon studying for another year at the University. British. Alcester, London Road, Wokingham. Student, studying for the Special Honours Degree in Chemistry, to be taken at the end of 1939, at the University of Reading.
Signed by : H. Bassett, Arthur K. Mills, D. Roy Maxted.
- Thompson, Henry**, Educated at Rutherford College, Skerry's College. Student at Rutherford Technical College, Newcastle-on-Tyne for Institute of Chemistry Examinations. British. 25, Percy Gardens, Whitley Bay. Assistant Chemist, Technical and Research Department (Chemistry Laboratory), Messrs. A. Reyrolle and Co., Ltd., Hebburn-on-Tyne.
Signed by : P. D. Ritchie, H. A. Scarborough, D. Foggan.
- Toop, William John**, B.Sc. (Lond.), Natural Sciences Tripos (Pt. I), 2nd class Hons. (Cantab.), British, The Lawrence College, Ghara Gali, Punjab. Lecturer in Chemistry at Lawrence College.
Signed by : H. McCombie, F. G. Mann, K. P. Harrison.
- Tuckett, Ronald Francis**, B.A. (Cantab.), British, 4, St. Clements Gardens, Cambridge. Research Student at Colloid Science Laboratory, Cambridge.
Signed by : H. W. Melville, J. K. Roberts, H. Campbell.
- Tuey, George Alfred Peter**, B.Sc. (Lond.), A.R.C.S., British, 28, St. John's Road, Westcliff-on-Sea. Organic Research Student at Royal College of Science.
Signed by : G. A. R. Kon, G. P. Pollard, D. F. Elliott.
- Walker, Robert Vincent**. Sometime science teacher at Prenton School, Birkenhead. Originator of adsorbent preparation for rheumatism, used and approved by Salford Royal Hospital, 1936. British. 112, Slade Lane, Levenshulme, Manchester. Assistant Chemist in the Research Department of Messrs. F. C. Calvert & Co., Ltd., Manufacturing Chemists, Manchester.
Signed by : W. Dales Oldham, G. N. Burkhardt, E. H. Rodd.
- Warner, Benjamin Frank**, B.Sc. (Lond.), British, Queen Mary College, Mile End Road, E. 1. Research Student at Queen Mary College.
Signed by : J. R. Partington, D. C. Jones, H. D. K. Drew.

Whalley, William Basil, B.Sc. (L'pool), 1st class Hons., Leverhulme Memorial Prize, 1938, British, 5, Curzon Avenue, Wallasey, Cheshire. Organic research at Liverpool University.

Signed by : A. Robertson, A. McGookin, R. A. Morton.

Wild, Frank, B.A. Hons. (Cantab.), British, Downing College, Cambridge. Research Student.

Signed by : F. B. Kipping, M. McCombie, B. C. Saunders.

Young, Hugh McCulloch, B.Sc. (Lond.), British, 17, Winchester Street, Sherwood, Nottingham. Research Student at University College, Nottingham.

Signed by : J. Masson Gulland, B. D. Shaw, John C. Roberts, F. C. Laxton.

UNDER BYE-LAW 2 :

Bhattacharya, Krishnalal, M.Sc. (Allahabad), Teaching applied chemistry and geology for twenty years. Has done many analyses, such as bitumen-water affinity tests of different types of Indian rocks, various building materials, etc. Hindu. Thomason Civil Engineering College, Roorkee. Lecturer in applied chemistry and geology. Head of chemical and geological departments of Thomason Civil Engineering College.

Signed by : P. P. Phillips.

Gardiner, Charles Graham Russell, Final Stage of the Chemistry Diploma of the Sydney Technical College, British, 228, Queen Street, Ashfield, N.S.W. Industrial Chemist at Messrs. C. C. Wakefield & Co. Ltd., Lubrication Specialists.

Signed by : R. W. Challinor, A. D. Ollé.

Luck, John Ryle Courtenay, Bachillor de Quimica, Fisica y Matematicas (Sarmiento College). Shall receive degree of Doctor of Chemistry in 1940 on presentation of Thesis. Argentine. Calle Guido 1542, Buenos Aires. Analytical Chemist. Partner of the late A. Courtenay Luck for last 4 years unofficially, and for last year officially.

Signed by : Venancio Deulofeu.

Sym, Ernest Alexander Teofil, Ph.D. (Warsaw), Veterinary Surgeon (Warsaw), Polish, Zaklad Chemji, Grochowska 77, Warsaw. Professor of Biochemistry. In charge of the Chemical and Biochemical Laboratories of the Faculty of Veterinary Medicine of Warsaw University. Lecturer in these subjects.

Signed by : Richard Truszkowski.

NOTICES

REGISTER OF CHEMISTS.

The Council has agreed to assist the Council of the Institute of Chemistry in preparing a Register of Chemists whose services would be available in the event of a national emergency. Fellows of the Society (not members of the Institute of Chemistry) who wish their names to be placed on the list, should communicate either with the Registrar of the Institute of Chemistry, 30, Russell Square, London, W.C. 1, or with the Assistant Secretary of the Chemical Society, Burlington House, Piccadilly, London, W. 1.

HARRISON MEMORIAL PRIZE.

In accordance with the Trust Deed governing the Harrison Memorial Fund, the Selection Committee, consisting of the Presidents of the Chemical Society, the Institute of Chemistry, the Society of Chemical Industry, and the Pharmaceutical Society, will proceed to make an award of the Harrison Memorial Prize in December next.

The Prize, of the value of about £150, will be awarded to the chemist of either sex, being a natural born British subject and not at the time of the award over thirty years of age, who, in the opinion of the Selection Committee, during the previous five years has conducted the most meritorious and promising original investigations in any branch of pure or applied chemistry and published the results of those investigations in a scientific periodical or periodicals.

Provided that, in the opinion of the Selection Committee, there is a candidate of sufficient distinction to warrant an award of the Prize, the next award will be made in December, 1938.

Applications, five copies of which must be submitted, should contain the following information :

- (a) Name (in full).
- (b) Age (birth certificate must accompany application).
- (c) Degrees (name of University where obtained).
- (d) Other qualifications.
- (e) Experience.
- (f) Titles of published papers, with authors' names, including full references to publication.
- (g) Where research was carried out.
- (h) Testimonials and references.
- (i) Any other particulars bearing on the application.

The Selection Committee is prepared to receive applications, nominations, or information as to candidates eligible for the Prize. Any such communication must be received by :

The President,
The Chemical Society,
Burlington House,
Piccadilly,
London, W. 1,

not later than **Thursday, December 1st, 1938.**

ANNUAL REPORTS.

Applications for the *Annual Reports on the Progress of Chemistry*, Volume XXXV, 1938, at the reduced price of 5s. 6d. should reach the Assistant Secretary not later than **January 16th, 1939.**

MEMORIAL TO SIR WILLIAM PERKIN.

An appeal has been received from the Mayor of Wembley stating that it is proposed to erect, as a Memorial to Sir William Perkin, a semi-circular seat, with suitable inscription, in the Sudbury Recreation Ground, on a spot facing the site of his old home.

Fellows wishing to subscribe should communicate with His Worship the Mayor of Wembley, or with Mr. A. Nash, Cairn Glenorchy, Harrow Road, Wembley.

BOARD OF TRADE.

The Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting lithium fluoride crystals, not optically worked, weighing not less than 2.5 grammes each from Key Industry Duty from November 2nd, 1938, until December 31st, 1939.

The Treasury Order, which will be entitled The Safeguarding of Industries (Exemption) No. 4 Order, 1938, will shortly be published by H.M. Stationery Office.

BRITISH STANDARDS INSTITUTION.

Copies of the following draft British Standard Specifications have been received from the British Standards Institution for technical comment. These have been placed in the Library, and Fellows should send their comments to the Director of the British Standards Institution, 28, Victoria Street, London, S.W. 1, by the dates mentioned.

- CE(C) 8945. Draft British Standard Specification for Crude Sperm Oil (19th January, 1939).
- CE(C) 8946. Draft British Standard Specification for Filtered Sperm Oil (19th January, 1939).
- CE(C) 9233. Draft Tentative British Standard Methods for the Microbiological Examination of Butter (25th February, 1939).

- CE(C) 9258. Draft Tentative British Standard Specification for the Screen Analysis of Coal—except Pulverised Coal—for performance and efficiency tests on industrial plant (8th March, 1939).
- CE(C) 9505. Draft British Standard Specification for Salt for Dairy Purposes (6th April, 1939).

PAPERS RECEIVED

List of papers received between June 16th and October 20th, 1938. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- “Syntheses in the hydroaromatic series. Part I.” By R. MICHAELIS.
- “Physico-chemical aspects of bacterial growth. Part I. Dependence of growth of *Bact. Lactis Aerogenes* on concentration of medium.” By S. DAGLEY and C. N. HINSHELWOOD.
- “Physico-chemical aspects of bacterial growth. Part II. Quantitative dependence of the growth rate of *Bact. Lactis Aerogenes* on the carbon dioxide content of the gas atmosphere.” By S. DAGLEY and C. N. HINSHELWOOD.
- “Physico-chemical aspects of bacterial growth. Part III. Influence of alcohols on the growth of *Bact. Lactis Aerogenes*.” By S. DAGLEY and C. N. HINSHELWOOD.
- “The factors determining the velocity of reactions in solution. The formation of quaternary ammonium salts.” By K. J. LAIDLER.
- “The association of *p*-toluenesulphonmethylamide and related compounds in solution.” By R. J. W. LE FÈVRE and H. VINE.
- “The association of acetic acid, of its three chlorinated derivatives, of *n*-butyric and hexoic acids, dissolved in benzene; a study by dielectric polarisation measurements.” By R. J. W. LE FÈVRE and H. VINE.
- “The dissociation constants of *m*-halogenated phenols and of certain of their mononitro-derivatives.” By H. H. HODGSON and R. SMITH.
- “The acid fluorides of the alkali metals. Part II. The higher acid fluorides of rubidium and the thermal diagram of the RbF-HF system.” By K. R. WEBB and E. B. R. PRIDEAUX.
- “The use of dielectric polarisations to investigate the formation of intermolecular complexes in solution.” By D. LL. HAMMICK, A. NORRIS, and L. E. SUTTON.
- “The tautomerism of nitrous acid.” By H. KRALL.
- “Synthesis of lipophilic chemotherapeutics. Part I.” By E. BERGMANN and L. HASKELBERG.
- “Mechanism of racemisation of diarylalkylcarbinols.” By H. ERLÉNMEYER, H. M. WEBER, and E. BERGMANN.
- “Catalytic properties of the phthalocyanines. Part I. Catalase properties.” By A. H. COOK.
- “Catalytic properties of the phthalocyanines. Part II. Oxidase properties.” By A. H. COOK.
- “Catalytic properties of the phthalocyanines. Part III.” By A. H. COOK.
- “Reactivity of the ω -halogen atom in *p*-alkoxybenzyl halides; preparation of phenyl-acetic acids.” By R. G. NAIK and T. S. WHEELER.
- “Reactions of $\alpha\beta$ -unsaturated cyclic aldehydes and ketones. Part III. The reduction of cryptone. *cis*- and *trans*-Dihydrocryptol.” By D. T. C. GILLESPIE, A. K. MACBETH, and T. B. SWANSON.
- “ γ -Substitution in the resorcinol nucleus. Part I. Synthesis of γ -resorcylaldehyde.” By R. C. SHAH and (the late) M. C. LAIWALLA.
- “Synthesis of 5-hydroxycoumarin.” By H. A. SHAH and R. C. SHAH.
- “The photochemical decomposition of aromatic ketones: the phenyl radical.” By H. H. GLAZE BROOK and T. G. PEARSON.
- “The stereochemistry of quadricovalent atoms: thallium.” By E. G. COX, A. J. SHORTER, and W. WARDLAW.

- "The chemistry of natural rubber. Part III. The effect of ammoniation on the latex of *Hevea Brasiliensis*." By K. C. ROBERTS.
- "Catalytic properties of the phthalocyanines. Part IV. Chemiluminescent reactions." By A. H. COOK.
- "Symmetrical derivatives of chrysene. Part II. Elimination of methyl groups during dehydrogenation in an attempt to prepare 1:10-dimethylchrysene." By W. E. JONES and G. R. RAMAGE.
- "The activation energy of organic reactions. Part IV. Transmission of substituent influences in ester hydrolysis." By E. TOMMILA and C. N. HINSHELWOOD.
- "Some new derivatives of *meso*-benzanthrone." By W. H. D. BOYES, J. L. GRIEVE, and H. G. RULE.
- "The constitution of complex metallic salts. Part VIII. The bridged thio-derivatives of palladous halides with tertiary phosphines and arsines." By J. CHATT and F. G. MANN.
- "The drainage of viscometers and pipettes." By G. JONES and (MISS) E. FERRELL.
- "Cumyl alcohol." By R. G. COOKE, D. T. GILLESPIE, and A. K. MACBETH.
- "The reactivities and basic strengths of the *p*-alkyldimethylanilines." By W. C. DAVIES.
- "The metallic derivatives of hydrazones and of the oxime-hydrazones of benzil." By T. W. J. TAYLOR, (MRS.) N. H. CALLOW, and C. R. W. FRANCIS.
- "Methylene-group reactivity in derivatives of phenylacetic acid." By G. D. PARKES and B. C. ALDIS.
- "The influence of substituents on the additive reactivity of ethylene derivatives. Part IV. The mechanism of the reaction." By S. V. ANANTAKRISHNAN and R. VENKATARAMAN.
- "Reversible replacement of aromatic halogen atoms." By G. M. BENNETT and (MISS) I. HARCOURT-VERNON.
- "The formation of large-ring monosulphides from halogenated sulphides with extended carbon chains." By G. M. BENNETT and H. GUDGEON.
- "The mechanism of replacement reactions in allyl compounds. Reactions of (+)-*n*-propylpropenylcarbinol and its derivatives." By C. L. ARCUS and J. KENYON.
- "Properties of conjugated compounds. Part XX. Diphenylketen as an addendum." By E. H. FARMER and M. O. FAROOQ.
- "The formation of organo-metalloidal and similar compounds by micro-organisms. Part VI. Further studies on the fission of the disulphide link." By S. BLACKBURN and F. CHALLENGER.
- "The behaviour of anhydro-methylhexosides towards alkaline reagents. Preparation of derivatives of 3-amino-glucose and 2-amino-altrose." By S. PEAT and L. F. WIGGINS.
- "Notes on the dipole moments of (a) 4:4'-dinitro- and dicyano-diphenyls, and (b) the isomeric diphenyl-4:4'-bis-diazocyanides." By R. J. W. LE FÈVRE and H. VINE.
- "The electrochemistry of the corrosion of partially immersed zinc." By R. S. THORNHILL and U. R. EVANS.
- "The oxidation of the 9:10-dihydroxystearic acids with periodic acid. η -Aldehydo-octoic acid." By G. KING.
- "The lower hydrates of lanthanum and praseodymium." By J. A. N. FRIEND and D. A. HALL.
- "Researches on residual affinity and co-ordination. Part XL. Some complex compounds of rhenium." By (SIR) G. T. MORGAN and G. R. DAVIES.
- "Hydroxy- by-products in aromatic nitration." By G. M. BENNETT and P. V. YOULE.
- "Studies in the diazotisation and nitrosation of amines. Part I. The use of dilatometric and conductimetric methods." By J. C. EARL and N. G. HILLS.
- "The photochemical addition of bromine to bromobenzene in carbon tetrachloride solution." By D. LL. HAMMICK, J. M. HUTSON, and J. I. JENKINS.
- "The kinetics of chlorine, iodine chloride, and bromine chloride addition to olefinic compounds." By E. P. WHITE and P. W. ROBERTSON.
- "The kinetics of bromine addition to olefinic compounds. Part II. The homogeneous mechanisms." By I. K. WALKER and P. W. ROBERTSON.

- "Buckley's substance, m. p. 183°, from *Derris* extract." By J. J. BOAM and R. S. CAHN.
- "A rearrangement of aryl salicylates." By B. T. TOZER and S. SMILES.
- "The photolysis of β -chloro- β -nitrosobutane." By S. MITCHELL and J. CAMERON.
- "Chalkones: synthesis of deoxybenzoins from chalkones." By W. A. HUTCHINS, D. C. MOTWANI, K. D. MUDBHATHAL, and T. S. WHEELER.
- "The hydrogenation of simple sulphur compounds. Part III. Reactions of carbon oxysulphide and methylthiol." By B. CRAWLEY and R. H. GRIFFITH.
- "The catalytic oxidation of carbon disulphide and carbon oxysulphide." By R. H. GRIFFITH and S. G. HILL.
- "Acid catalysis in non-aqueous solvents. Part VI. The racemisation of phenylmethylacetophenone and phenylisobutylacetophenone in various solvents." By R. P. BELL, O. M. LIDWELL, and J. WRIGHT.
- "Studies in chemisorption on charcoal. Part XII. The isoelectric point." By H. L. BENNISTER and A. KING.
- "The solvent properties of aqueous solutions of paraffin-chain salts. Part I. The solubility of *trans*-azobenzene in solutions of cetylpyridinium salts." By G. S. HARTLEY.
- "The apparent dipole moment of hexamethylenetetramine in chloroform solution." By R. J. W. LE FÈVRE and G. J. RAYNER.
- "Covalent alkaline derivatives of di-2-hydroxy-1-naphthylselenide and allied substances." By V. DVORKOVITZ and S. SMILES.
- "The synthesis of *r*- α -methylamino- β -3-indolylpropionic acid." By E. J. MILLER and W. ROBSON.
- "A new technique for the measurement of adsorption of gases and vapours and its application to the study of discontinuities in the sorption process." By H. H. CHAMBERS and A. KING.
- "The oxidation of solutions of ferrous chloride in alcohols." By J. R. POUND.
- "The mechanism of additions to double bonds. Part VI. Kinetics of gaseous associations." By G. A. BENFORD and A. WASSERMANN.
- "The mechanism of additions to double bonds. Part VII. Chemical equilibrium in solution and in the gaseous state." By G. A. BENFORD and A. WASSERMANN.
- "The mechanism of additions to double bonds. Part VIII. The equilibrium of gaseous associations." By B. S. KHAMBATA and A. WASSERMANN.
- "The mechanism of cracking. Part I. Kinetics of inverse diene synthesis in solution and in the pure liquid state." By B. S. KHAMBATA and A. WASSERMANN.
- "The mechanism of additions to double bonds. Part IX. Kinetics of the association of *cyclopentadiene* in carbon tetrachloride solution and in the pure liquid state." By G. A. BENFORD, H. KAUFMANN, B. S. KHAMBATA, and A. WASSERMANN.
- "The preparation of pyrylium salts from acid anhydrides and acid chlorides." By P. P. HÖPF and R. J. W. LE FÈVRE.
- "Studies in the *cyclohexane* series. Part V. The isolation of pairs of isomeric 4-methyl- and 3-methyl*cyclohexane*-1:1-dicarboxylic acids, and some remarks on the multiplanar configurations of the *cyclohexane* ring." By R. D. DESAI, R. F. HUNTER, and G. S. SAHARIA.
- "Experiments on the synthesis of substances related to the sterols. Part XXII. Synthesis of α -norequilin methyl ether." By A. KOEBNER and R. ROBINSON.
- "Polarographic investigations. Part I. The reduction potential of acetophenone in acidic, neutral and basic media." By W. C. DAVIES and D. P. EVANS.
- "Polarographic investigations. Part II. The reduction potentials of phenyl alkyl ketones in acidic, neutral, and basic media." By W. C. DAVIES and D. P. EVANS.
- "Addition reactions to conjugated systems: β -phellandrene and maleic anhydride." By N. F. GOODWAY and T. F. WEST.

 ERRATUM IN MEETING CARDS.

For "Alembic Club" read "University of Oxford Alembic Club."

ADDITIONS TO THE LIBRARY

I. *Donations.*

BACHARACH, A. L. Science and nutrition. London 1938. pp. xiv + 154. 2s. 6d. net. (Recd. 21/9/38.) From the Author.

CONGRESSO INTERNAZIONALE DI CHIMICA. X. Roma, 15—21 Maggio 1938. La chimica in Italia. Edited by N. PARRAVANO. Roma 1938. pp. 535. ill. L. 100. (Recd. 15/10/38.) From Professor H. Bassett.

FINCH, G. I. La diffraction des electrons et la structure des surfaces. 2 vols. Liège 1938. pp. 183. ill. (Reference.) From the Author.

SPEAKMAN, J. C. Modern atomic theory: an elementary introduction. London 1938. pp. 207. ill. 6s. net. (Recd. 27/9/38.) From the Author.

THORPE, [SIR EDWARD]. Dictionary of applied chemistry. 4th edition. By JOCELYN FIELD THORPE and M. A. WHITELEY. Vol. II. London 1938. pp. xxiv + 711. ill. (Reference.) 63s. net. From the Editors.

II. *By purchase.*

EISTERT, BERND. Tautomerie und Mesomerie. Gleichgewicht und "Resonanz." (Sammlung, N.F. Heft 40.) Stuttgart 1938. pp. 204. (Reference.)

FRIEND, JOHN NEWTON. [Editor]. A textbook of inorganic chemistry. Vol. VI. Part 4. Arsenic. By REECE H. VALLANCE. London 1938. pp. xxxii + 351. ill. (Two copies.) 25s. net. (Recd. 20/9/38.)

SCHAEFFER, FRITZ. Agrikulturchemie. Teil b: Pflanzenernährung. (Sammlung, N.F. Heft 35.) Stuttgart 1938. pp. 118. ill. (Reference.)

III. *Pamphlets.*

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 283—1938. Prussian blue for paints. (Revised.) pp. 13.

— — — Nos. 303 and 318—1938. Green pigments for paints. (Revised.) pp. 15.

— — — No. 314—1938. Ultramarine blue for paints. (Revised.) pp. 13.

— — — No. 320 and 333—1938. Vermilion and red pigments for paints. (Revised.) pp. 18.

— — — No. 515—1938. Carbohic acids 60's. (Revised.) pp. 27. ill.

— — — No. 517—1938. Cresylic acid of high orthocresol content. (Revised.) pp. 22. ill.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 521—1938. Cresylic acid (50/55 per cent. metacresol). (Revised.) pp. 21. ill.

— — — No. 522—1938. Orthocresol, metacresol and paracresol. (Revised.) pp. 20. ill.

— — — No. 523—1938. Phenol. (Revised.) pp. 15. ill.

— — — No. 647—1938. Glues. (Bone, skin, and fish glues.) (Revised.) pp. 27. ill.

— — — No. 808—1938. Modified technique of the Chick-Martin test for disinfectants. pp. 17. ill.

CENTRAL, THE. Vol. XXXV. No. 83. Armstrong Memorial No. London 1938. pp. 94. ill.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. Report . . . on a demonstration of the Freeman assay for coal and carbonaceous materials. London 1938. pp. iv + 5.

— *Building Research.* Bulletin No. 13. Calcium sulphate plasters. By W. R. PIPARD. London 1938. pp. iv + 16.

— — — Bulletin No. 16. External rendered finishes: a survey of Continental practice. By F. L. BRADY and L. F. DENARO. London 1938. pp. vi + 33. ill.

— *Forest Products Research.* Bulletin No. 1. Dry rot in wood. 3rd edition. By K. ST. G. CARTWRIGHT and W. P. K. FINDLAY. London 1938. pp. viii + 39. ill.

— *Fuel Research.* Technical Paper No. 47. The production of active carbon from bituminous coal. By J. G. KING, D. MACDOUGALL and H. GILMOUR. London 1938. pp. vi + 55. ill.

— — — Technical Paper No. 48. The hydrogenation-cracking of tars. Part iv. The production of aromatic hydrocarbons from phenols at atmospheric pressure. By H. E. NEWALL. London 1938. pp. vi + 55. ill.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications. Series A. No. 77. The constitution of the alloys of tin with bismuth. By A. C. DAVIDSON. pp. 15. ill.

MINISTRY OF AGRICULTURE AND FISHERIES. *Permanent Committee on Basic Slag.* 15th interim report. London 1937. pp. 33. ill.

VOGELESANG, CHRISTIAAN. Gemethyleerde semicarbaziden. Leiden 1938. pp. xii + 95.

November 1938

PROCEEDINGS OF THE CHEMICAL SOCIETY

NOTICE OF FORTHCOMING MEETINGS

MEETINGS IN LONDON.

Thursday, December 1st, 1938, at 8 p.m.

Discussion on "Aggregation of Ions in Paraffin-chain Salt Solutions," to be opened by G. S. Hartley, D.Sc. The following have agreed to take part in the discussion: Mr. C. R. Bury, Dr. O. Rhys Howell, Dr. A. S. C. Lawrence, Dr. J. Powney, and Dr. E. Lester Smith.

Thursday, December 15th, 1938, at 6 p.m.

Seventeenth Faraday Lecture entitled "Monolayers on Solids," by Irving Langmuir, M.A., D.Sc., LL.D., For.Mem.R.S. To be given in the Lecture Theatre of the Royal Institution, by the courtesy of the Managers. Admission will be by ticket only, to be obtained on application to the Assistant Secretary, Burlington House, Piccadilly, London, W. 1. Applications for more than one ticket will be dealt with in the order in which they are received.

Thursday, January 19th, 1939, at 8 p.m.

Meeting for the reading of original papers.

[Continued Over

MEETINGS OUTSIDE LONDON.

BIRMINGHAM.

Monday, January 23rd, 1939, at 5 p.m. **Lecture** on "Recent Synthetic Studies in Immunochemistry," by Professor C. R. Harington, M.A., Ph.D., F.R.S.

Monday, January 30th, 1939, at 5 p.m. **Lecture** on "The Structure of Sesquiterpenes and their Derivatives," by Professor J. L. Simonsen, D.Sc., F.R.S.

These lectures will be held under the auspices of the Chemical Society and the Birmingham University Chemical Society in the Chemistry Lecture Theatre of the University. Edgbaston.

EDINBURGH.

Friday, January 27th, 1939, at 7.30 p.m. **Lecture** on "Carcinogenic Chemical Compounds," by Professor J. W. Cook, D.Sc., Ph.D., F.R.S. Joint meeting of the Chemical Society, the Institute of Chemistry, and the Society of Chemical Industry, to be held at the North British Hotel.

GLASGOW.

Friday, December 2nd, 1938, at 7 p.m. **The Ramsay Chemical Dinner**, at the Central Station Hotel.

LEEDS.

Friday, January 27th, 1939, at 7 p.m. **Meeting for the reading of original papers** in the Lecture Theatre of the new Chemistry Building of the University.

MANCHESTER.

Monday, December 5th, 1938, at 7 p.m. **Meeting for the reading of original papers**, to be held in the Chemistry Lecture Theatre of the University.

NEWCASTLE AND DURHAM.

Friday, January 27th, 1939, at 6.45 p.m. **Bedson Lecture**: "The Dimensions of Some Organic Molecules," by J. Monteath Robertson, M.A., D.Sc., in the Chemistry Lecture Theatre at King's College, Newcastle-on-Tyne.

SHEFFIELD.

Friday, January 27th, 1939, at 5.30 p.m. **Lecture** on "Some Problems in the Chemistry of Iodine," by Irvine Masson, M.B.E., D.Sc., F.I.C., to be held in the Chemistry Lecture Theatre of the University.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY.

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, London, W. 1, on Thursday, November 3rd, 1938, at 8 p.m.

In the absence of the PRESIDENT, the Chair was occupied by Professor R. ROBINSON, M.A., D.Sc., LL.D., F.R.S., Vice-President.

The visitors present were welcomed by the Chairman.

The Minutes of the Extraordinary General Meeting and of the Scientific Meeting held on October 20th, 1938, appearing in the Proceedings for October, were taken as read, and were confirmed and signed.

The CHAIRMAN referred to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
William Henry Merrett	1896	29th October.
Sir Robert Ludwig Mond	1892	22nd October.
Arthur Thompson	1912	29th October.

FORMAL ADMISSION OF FELLOWS.

The following were formally admitted Fellows of the Chemical Society : D. F. Elliott, Geo. E. Rushworth, (Miss) A. R. Murray, D. J. B. Wilson, and G. Ingle Finch.

The following papers were read :

“ Isomeric change in certain stilbenes.” By T. W. J. TAYLOR and (Miss) A. R. MURRAY.

“ Some reactions of β -boswellic acid and their interpretation.” By J. C. E. SIMPSON and N. E. WILLIAMS.

“ Catalytic properties of phthalocyanines.” By A. H. COOK.

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, London, W. 1, on Thursday, November 17th, 1938, at 8 p.m.

The PRESIDENT, Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S., was in the Chair, and welcomed the visitors who were present.

The PRESIDENT referred to the loss sustained by the Society, through death, of Professor Georges Urbain, and stated that the Council had passed the following resolution :

“ The President, Officers, and Council of the Chemical Society have learned with profound regret of the death on November 6th, 1938, of Professor Georges Urbain, who was elected an Honorary Fellow of the Society on March 18th, 1920, and desire to express their deep sorrow at the loss of their distinguished colleague and their high appreciation of the services he has rendered to the Science of Chemistry. They wish to convey their deep sympathy to Madame Urbain and to the other relatives of their late Honorary Fellow in their irreparable loss.”

Those present stood while the resolution was read.

The following announcements were made :

1. ACKNOWLEDGEMENT.

The Council has conveyed its sincere thanks to the Managers of the Royal Institution for a cheque for £369 4s. representing the residue of a fund collected some years ago in connection with the Faraday Benzene Centenary Celebrations by a Committee under the chairmanship of the late Professor H. E. Armstrong; this fund is to be used in connection with the Faraday Lectureship and Medal of the Society.

2. ELECTION OF FELLOWS.

The following candidates were elected Fellows of the Chemical Society by the Council on November 17th, 1938 :

Geoffrey Malcolm Badger.
George Bell.
John Alexander Berriman.
Arnold Butler.
Thomas Vernon Cullum.
Moti Lal Dhar.
Ivor Lionel Finar.
Charles Graham Russell Gardiner.
James Fred Gospel.
Basil Jason Heywood.
William Hodgkinson.
Matthew Verden Hunter.
Thomas Tyssul Jones.
Francis William Kay.
John Ryle Courtenay Luck.

Arthur Sidney Minton.
Isobel Murray Morice.
Robert Gordon Paterson.
John Eric Joseph George Skull.
James Starr.
Ernest Alexander Teofil Sym.
Henry Thompson.
William John Toop.
Ronald Francis Tuckett.
George Alfred Peter Tuey.
Robert Vincent Walker.
Benjamin Frank Warner.
William Basil Whalley.
Frank Wild.
Hugh McCulloch Young.

FORMAL ADMISSION OF FELLOWS.

The following were formally admitted Fellows of the Chemical Society : A. Spinks, E. Hess, B. R. Record, and R. Martin.

LECTURE.

The PRESIDENT then called on Professor W. N. Haworth to deliver his lecture on "Some Carbohydrate Problems."

At the conclusion of the lecture, a vote of thanks to the Lecturer proposed by Professor I. M. HEILBRON, and seconded by Professor E. L. HIRST, was carried with acclamation, Professor HAWORTH making acknowledgement.

MEETINGS OUTSIDE LONDON

LECTURE AT UNIVERSITY COLLEGE, CARDIFF.

A meeting of the Society was held jointly with the Cardiff Technical College Chemical Society on Wednesday, October 26th, 1938, at 6 p.m., in the Chemistry Lecture Theatre of the Technical College, Cardiff. The Chair was taken by Dr. H. B. Watson.

Dr. J. Kenyon, F.R.S., delivered a lecture on "Optical Activity as a Guide to Reaction Mechanism," in which he dealt with the conclusions that can be drawn from observations of reactions in which compounds retain optical activity or racemise. Reference was made to a number of reactions, such as the Lossen and Curtius degradations, the change of a sulphinic ester to a sulphone, and some anionotropic reactions. After a short discussion a vote of thanks proposed by Dr. N. M. Cullinane and seconded by Dr. H. O. Jenkins was carried with acclamation.

LECTURE AT EDINBURGH.

A joint meeting of the Society and the University of Edinburgh Chemical Society was held on November 1st, 1938, at 7.30 p.m. in the Medical Chemistry Theatre, Teviot Place. Mr. A. Mackay was in the Chair, and introduced the speaker, Professor R. G. W. Norrish,

Sc.D., Ph.D., F.R.S., who then gave a lecture on "Plastics and Polymerisation." The Lecturer gave a short outline of the development of the synthetic plastics industry from the first patents of Baekeland in 1909, and showed that since then many new types of plastic material have been introduced, and production and development have proceeded hand in hand with research with ever-increasing speed.

The Lecturer went on to discuss the chemical aspect of the various synthetic and natural moulding processes and the molecular structure of the products. He considered the mechanism of polymerisation by which the giant molecules forming the final moulded product are produced, and showed how the study of chemical kinetics can throw light on the fundamental processes involved. His own work on the "cross linking" of vinyl polymers and the polymerisation of aldehydes was briefly referred to. A series of specimens of raw and finished products in the plastics industry derived from phenol formaldehyde, phenol urea and alkyl resins, vinyl polymers such as polystyrene, methyl methacrylate, etc., substituted butadienes and artificial rubber, together with some natural plastics, were shown.

After a short discussion, a vote of thanks was moved by Mr. J. E. Tully, and was enthusiastically accorded by the large audience.

LECTURE AT GLASGOW.

A meeting under the auspices of the Chemical Society was held in the Royal Technical College, Glasgow, on Friday, 18th November, 1938. Members of the Local Sections of the Society of Chemical Industry and the Institute of Chemistry were invited. Professor T. S. Patterson, Chairman of the Local Committee, presided. Owing to illness, Dr. J. Monteath Robertson was unable to deliver his lecture on "The Hydrogen Bond." In his place, Dr. J. A. V. Butler very kindly consented to lecture on "Heavy Water and its Use as a Chemical Reagent."

Dr. Butler first reviewed in general terms the effect of heavy water on the velocities by hydrolytic reactions, and then discussed general and specific catalysis. Finally, he discussed, in some detail, the mechanism of the bromination of acetone, particularly when heavy water was present in the medium.

Following a discussion, a vote of thanks, proposed by Dr. J. A. Cranston, was carried with acclamation.

MEETING AT LEEDS.

A meeting was held in the Chemistry Lecture Theatre of the University of Leeds on Friday, November 11th, 1938, at 7.30 p.m. The audience included Fellows from Sheffield and Hull, as well as from the Leeds district.

Dr. F. L. Usher presided and Dr. D. H. Bangham, M.C., M.A., read a paper entitled "The Structure of Films Adsorbed at Solid Surfaces."

This was followed by an interesting discussion in which the Chairman, Mr. R. S. Bradley, and Drs. R. Spence, S. J. Gregg, E. E. Widdowson, A. Key, and G. W. Fenton took part.

Professor F. Challenger moved a vote of thanks to the Lecturer which was carried with acclamation.

LECTURE AT LIVERPOOL.

A meeting of the Society was held on Monday, November 7th, 1938, at 6 p.m. in the Chemistry Lecture Theatre of the University of Liverpool, when Professor E. L. Hirst, M.A., D.Sc., F.R.S., delivered a lecture on "Recent Progress in the Chemistry of the Starches." A report of the meeting was published in "Chemistry and Industry" for November 26th, 1938.

LECTURE AT UNIVERSITY COLLEGE, SWANSEA.

A meeting of the Society was held jointly with the University College of Swansea Chemical Society on Thursday, November 10th, 1938, at 6 p.m. in the Chemistry Lecture Theatre of the College. The Chair was taken by Professor J. E. Coates. Professor J. W. Cook, D.Sc., F.R.S., delivered a lecture on "Chemical Carcinogenic Agents." After mentioning the types of occupational cancer and enumerating the kinds of compound

known to induce this disease, Professor Cook dealt particularly with the hydrocarbon class. The chemical relation between carcinogenic compounds like benzpyrene, the benzanthracenes, and methylcholanthrene on the one hand, and cholesterol and the bile acids on the other, was brought out, and the remarkable influence of chemical substitution on the activity of carcinogenic agents was described. The lecture was attended by local members of the British Medical Association. A discussion took place in which the following took part: Dr. L. E. Hinkel, Mr. E. E. Ayling, Dr. A. F. Sladden, Dr. E. Rees, Dr. H. R. Tighe, Professor F. Mockeridge, and Mr. T. J. Wells. A vote of thanks to the Lecturer proposed by Dr. L. E. Hinkel and seconded by Mr. T. I. Watkins, was carried with acclamation.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of any of these candidates should communicate with the Honorary Secretaries not later than Monday, 12th December, 1938. Such objections will be treated as confidential. The forms of application are displayed in the Library.)

- Aitken, Michael Martin Wilson**, B.A.Hons. (Cantab.), British, 34, Blackheath Park, S.E. 3.
Assistant Chemist at London Power Company.
Signed by : F. S. Sinnatt, A. B. Manning, J. S. S. Brame.
- Allsebrook, William Eric**, B.Sc. (Lond.), British, 116, Green Lane, Derby. Research Student at University College, Nottingham.
Signed by : E. B. R. Prideaux, John C. Roberts, F. R. Bradbury.
- Barke, David John**, B.Sc., 2nd Class Hons. (Lond.), British, 66, Bassett Road, W. 10. Chemical Research Student.
Signed by : J. C. Crocker, C. Dorée, F. H. Lowe.
- Briggs, George Harry**, Dyestuffs and Textile Chemist, British, Commercial Street, Knott Mill, Manchester, 15. Managing Director of Messrs. G. H. Briggs, Ltd.
Signed by : C. J. T. Cronshaw, Percy Chorley, E. H. Rodd.
- Cartmell, Edward**, B.Sc. (Lond.), British, 14, Woodside Grange Road, N. 12. Research Student at University College, London.
Signed by : C. L. Wilson, C. K. Ingold, F. W. Hobden.
- Choppin, Frederic Henry**, B.Sc. (Lond.), A.R.C.S, D.I.C., A.I.C., British, 63, Woodyates Road, Lee, S.E. 12. Manufacturing Chemist.
Signed by : Arthur I. Vogel, D. E. Coome, D. M. Cowan.
- Cole, John Alfred**, M.Sc., 1st Class Hons. (N.Z.), British, Knox College, Dunedin, N.Z. Lecturer and Demonstrator at the University of Otago.
Signed by : F. G. Soper, M. V. Bryan King, C. L. Carter.
- Crawford, Victor Arthur**, British, 24, Hopkins Street, Salt River, Cape Town. Science Student at University of Cape Town.
Signed by : E. Newbery, W. Pugh, W. S. Rapson.
- Crofts, Joseph Edward**, B.Sc., Hons. (Lond.), British, Stretton Road, Stretton, Alfreton. Research Student at University College, Nottingham.
Signed by : J. Masson Gulland, B. D. Shaw, G. I. Hobday, F. R. Mumford.
- Davis, Derek Sydney Mark**, B.Sc. (Lond.), British, 115, Crescent Road, New Barnet. Research Student at Queen Mary College.
Signed by : J. R. Partington, H. D. K. Drew, D. B. Kelly.
- Dunton, Francis George**, B.Sc., 2nd Class Hons. (Lond.), British, 29, Sackville Road, Southend-on-Sea. Research Student at Queen Mary College.
Signed by : J. R. Partington, H. D. K. Drew, D. B. Kelly.
- Eliot, Charles Graham**, B.Sc., Ph.D. (McGill), Canadian, 44, Harrington Gardens, S.W. 7. Research in Organic Chemistry at Imperial College.
Signed by : E. R. H. Jones, G. A. R. Kon, W. E. Jones.

- Frollich, Per Keyser**, B.S. (Norway Institute of Technology), M.S. and D.Sc. (Massachusetts Institute of Technology), Fellow of the American-Scandinavian Foundation, 1922-23. Awarded Grasselli Medal 1930. U.S.A. 930 Mountainview Circle, West Field, N.J. Director, Chemical Laboratories, Standard Oil Development Company, Elizabeth, N.J.
Signed by : F. H. Garner, A. E. Dunstan, E. B. Evans.
- Heddle, William James**, B.Sc., Ph.D. (Edin.), British, 17, Comiston Drive, Edinburgh, 10. Research Chemist and Tutor at Edinburgh University.
Signed by : E. G. V. Percival, F. R. Bolam, J. A. V. Butler.
- Henry, Alan Joseph**, B.Sc. Hons. (Lond.), Ph.D. (Reading). Six years' lecturing in Chemistry and Physics. Wide analytical experience. British. The Wellcome Laboratory, P.O. Box 321, Khartoum. Analytical Chemist.
Signed by : H. Bassett, D. Roy Maxted, R. G. Durrant.
- Hoffer, Max**, Dr.sc.Techn., Dipl. Ing. (Zurich). Assistant to Prof. R. Kuhn, Heidelberg, from 1930 to 1933. Czechoslov. c/o Messrs. F. Hoffmann-La Roche & Co., A.G., Greuracherstr., Basle. Research Chemist.
Signed by : E. Boyland, J. W. Cook, Edna M. F. Roe, T. F. Macrae.
- Kefford, Jack Frederick**, M.Sc. (Melbourne), Assoc. Austr. Chem. Inst., Australian, 18, Eccles Avenue, Ashfield, N.S.W. Assistant Research Officer, Commonwealth Council for Scientific and Industrial Research.
Signed by : W. Davies, H. H. Hatt, J. S. Anderson.
- Lifsics, Avigdors**, B.Sc. (Lond.), A.R.C.S., Latvian, 6, Oakfield Street, S.W. 10. Research student at Imperial College.
Signed by : G. A. R. Kon, A. H. Cook, E. R. H. Jones.
- Mathers, Ronald Grenville**, Part I, Natural Sciences Tripos, Cambridge, 1938. Student for Part II (Biochemistry) 1939. English. Downing College, Cambridge.
Signed by : David James Bell, E. Friedmann, K. P. Harrison.
- Mullan, John**, B.Sc., 1st Class Hons. (Edin.), Scots., 16, North Road, Kelty, Fife. Studying for Ph.D. degree.
Signed by : E. G. V. Percival, J. A. V. Butler, Neil Campbell, H. Gordon Rule.
- Roy, Amaresh Chandra**, M.Sc. (Allahabad), A.I.C., Indian, Bihar National College, Bankipore, Bihar. Lecturer in Chemistry.
Signed by : Chandra Bhusan Roy, P. B. Ganguly, R. C. Ray.
- Schmeidler, Carl**, Pharmacist and Chemist in Germany, German, 61, Belsize Park Gardens, N.W. 3. Managing Director of Messrs. Harker, Stagg & Morgan, Ltd., E. 1.
Signed by : Bernard Joseph Styles, Frederic James Bolton, Henry George Wright.
- Sheel, Pradyuman**, B.A. and M.Sc. (Punjab), Indian, 7, The Drive, N.W. 11. Research Student at University College, London.
Signed by : O. L. Brady, J. N. E. Day, C. L. Wilson.
- Springall, Harold Douglas**, M.A. and D.Phil. (Oxon.), British, Lincoln College, Oxford. Research Assistant to Prof. R. Robinson.
Signed by : Ronald P. Bell, D. Ll. Hammick, S. G. P. Plant.
- Slater, Edward Charles**, B.Sc. (Melbourne), British, Ormond College, Carlton N. 3, Victoria. Research Student.
Signed by : H. H. Hatt, W. Davies, J. S. Anderson.
- Webb, Frederick Ronald**, B.Sc. (Lond.), British, 80, Steed's Road, N. 10. Research Student at University College, London.
Signed by : C. K. Ingold, E. D. Hughes, M. G. Church.
- White, John Parker**, British, Breakspears Road, S.E. 4. Student of Chemistry at University College, London.
Signed by : S. Sugden, E. D. Hughes, R. J. W. Le Fèvre.
- Whitefoot, Tom Barrett**, B.Sc., Hons. (Lond.), British, 14, Nevern Square, S.W. 5. Research Student at University College, London.
Signed by : C. K. Ingold, E. H. Ingold, C. L. Wilson.
- Wilkinson, Peter Alfred**, B.Sc., Hons. (Lond.), A.I.C., British, Innisfree, Pine Walk, Carshalton. Research Student at Imperial College.
Signed by : E. R. H. Jones, G. A. R. Kon, I. M. Heilbron, G. P. Pollard.

Wilson, John Lamont, British, 10, Vernon Road, Bushey. Student at University College, London.

Signed by : C. K. Ingold, E. D. Hughes, M. G. Church.

Wilson, Kenneth Bruce, B.Sc., (Lond.), British, 1, Hamilton Road, Hunton Bridge, King's Langley. Chemistry Research at University College, London.

Signed by : C. K. Ingold, J. N. E. Day, C. L. Wilson.

Windrum, Anthony Hubert, B.A. (Oxon.), British, The Hawthorns, Austenway, Gerrard's Cross. Schoolmaster.

Signed by : F. M. Brewer, T. W. J. Taylor, Ronald P. Bell.

UNDER BYE-LAW 2:

Agarwala, M. L., M.Sc. (Allahabad), Aryan. P.O. Bhatwara, Dist. Bulandshahr, U.P., India. Working in Sugar Industry for last five years as Sugar Chemist and Manufacturer.

Signed by : H. S. Singhal.

Brouzas, Christopher George, Ph.D. (Illinois), American, 1000 Grand Street, Morgantown, West Virginia. Librarian, West Virginia University Library, Morgantown.

Signed by : Friend E. Clark.

Dixit, Vinayak Madhav, M.Sc. (Bombay), with Chemistry Distinction and Gold Medal, Fellow of the Indian Chemical Society, Indian. Primrose Villa, Opp. General Post Office, Dharwar, India. Assistant Lecturer in Chemistry, Karnatak College, Dharwar.

Signed by : R. L. Alimchandani.

Prelog, Vlado, Engineer and Doctor of technical sciences (Prague), Yugoslav, Hemijski Institut, Marulicev trg 20, Zagreb. Director of the Institute of Organic Chemistry, Zagreb University.

Signed by : George Barger.

Mackenzie, Harold Frank, Associate of the Australian Chemical Institute, British. Reiby Chambers, Reiby Place, Sydney. Analyst trading as Dixon and Bym.

Signed by : Andrew J. Dixon, J. C. Earl.

Radt, Fritz, Dr.phil. (Berlin), German, Juliana v. Stolberglaan 58, Naarden. Literary Chemist (independent).

Signed by : T. W. J. Taylor.

Roy, Anil Kumar, M.Sc. (Calcutta), Indian, 96/1 Garpar Road, Calcutta. Glass technologist, Oriental Glass Works, Calcutta.

Signed by : J. C. Bardhan.

NOTICES

ANNUAL REPORTS.

Applications for the Annual Reports on the Progress of Chemistry, Volume XXXV, 1938, at the reduced price of 5s. 6d. should reach the Assistant Secretary not later than January 16th, 1939.

THE LIBRARY.

The Library will be closed for the Christmas Holidays from Friday, December 23rd, at 1 p.m., until Thursday, December 29th, at 10 a.m. inclusive.

SOCIAL AND INTERNATIONAL RELATIONS OF SCIENCE.

The Council has received from the British Association particulars of the Division recently established to deal with the Social and International Relations of Science. The main purposes of the Division are to further the objective study of the effects of advances in science on communities, and reciprocally the effects of social conditions upon the progress of science; and to encourage the application of science to promote the well-being of society. The functions of the Committee responsible for the organisation of the Division are as follows:

- (a) To arrange meetings of the Division at the time and place of the annual meetings of the Association, and also elsewhere at other times as occasion may arise ; and to appoint speakers at such meetings.
- (b) To co-ordinate work dealing with the social relations of science, both at home and abroad.
- (c) To be prepared to act in a consultative capacity, and to supply information to organisations, individuals, and the public.
- (d) To initiate and carry out inquiries and research, and to secure publication of the results thereof.

This Committee seeks to establish relations with institutions and organisations concerned with similar problems, and will welcome information as to any work already carried out or in contemplation. Further particulars of the activities of this Division can be obtained from the Secretary of the Association at Burlington House, to whom suggestions should also be sent.

TESTS ON VOLUMETRIC GLASSWARE.

A copy of the pamphlet entitled " Tests on Volumetric Glassware " and a new schedule of fees for tests on volumetric glassware have been received from the National Physical Laboratory and placed in the Library. The new schedule covers a considerably larger range of apparatus than the old schedule. Copies of this pamphlet and of the new schedule of fees may be obtained free of charge on application to the Director, The National Physical Laboratory, Teddington, Middlesex.

BOARD OF TRADE.

The Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting cæsium bromide from Key Industry Duty from November 9th, 1938, until December 31st, 1939.

The Treasury Order, which will be entitled The Safeguarding of Industries (Exemption) No. 5 Order, 1938, will shortly be published by H.M. Stationery Office.

BRITISH STANDARDS INSTITUTION.

The Society has received from the British Standards Institution British Standard No. 813-1938 for Chemical Symbols and Abbreviations. The list is based on the report of a Joint Committee of the Chemical Society, the Faraday Society, and the Physical Society and embodies the agreed views of British Physicists and Chemists. This has been placed in the Library.

Summary of Proceedings of the

COUNCIL MEETING

held on October 20th, 1938.

(No reference is made to matters which have already been reported in the Proceedings for October.)

The PRESIDENT, Professor F. G. DONNAN, was in the Chair, and 29 members were present.

The Council expressed its thanks to Sir Robert H. Pickard for his services in securing the use of the Hall of the Leathersellers' Company for the Perkin Centenary Lecture on November 24th.

The Council also expressed its thanks to the following Societies for contributions to the Library for 1938 :

Association of British Chemical Manufacturers,
Faraday Society,
Institute of Chemistry,
Society of Chemical Industry,
Society of Dyers and Colourists,
Society of Public Analysts,

The Society has taken steps to insure against Third Party Risk for Fellows and others visiting the rooms of the Society.

The Council expressed its thanks to the Chemical Council for a contribution of £150 towards the cost of including summaries of papers in the Journal.

Mr. F. P. Dunn accepted the invitation of the Council to act as deputy Treasurer during the indisposition of the Treasurer.

The Council accepted with regret the resignation from the Council of Prof. R. P. Linstead owing to his appointment to the Chair of Chemistry at Sheffield University, and expressed its thanks to him for his services on the Council and for deputising for Prof. J. W. Cook during the latter's absence in America.

Prof. I. M. Heilbron, one of the Society's representatives on the Chemical Council, was unanimously co-opted as an Ordinary Member of Council until the next Annual General Meeting in accordance with Bye-Law 19.

It was stated that Mr. F. W. Clifford had represented the Society at the 14th International Conference on Documentation held in Oxford from September 21st to 26th, 1938.

Dr. F. A. Paneth was appointed to represent the Society at the "Réunion Internationale pour la Commemoration de la Découverte du Radium, des Electrons, des Rayons X, et des Ondes Hertziennees."

The Council considered the preparation of obituary notices of Fellows who have died recently.

32 candidates for Fellowship were elected Fellows of the Society.

The resignations of 12 Fellows were accepted; the names of 28 Fellows were removed from the List of Fellows under the action of Bye-Law 15, and 5 candidates were reinstated as Fellows of the Society.

PAPERS RECEIVED

List of papers received between October 20th and November 17th, 1938. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- "Studies in the cyclohexane series. Part IV. The isomeric 1-carboxy-4-, -3-, and -2-methylcyclohexane-1- α -succinic acids." By R. D. DESAI, R. F. HUNTER, and G. S. SAHARIA.
- "Studies on hydrogen cyanide. Part XI. The constitution of the tetrapolymer." By L. E. HINKEL.
- "Descent of the series of methylated sugars by the Weerman reaction." By W. N. HAWORTH, S. PEAT, and J. WHETSTONE.
- "The constitutions of eremophilone, hydroxyeremophilone, and hydroxydihydroeremophilone. Part III." By A. R. PENFOLD and J. L. SIMONSEN.
- "Some derivatives of phloroglucinol trimethyl ether." By G. R. RAMAGE, J. L. SIMONSEN, and W. J. I. STOWE.
- "Experiments on the synthesis of substances related to the sterols. Part XXIII. Formation of œstrone from a dicarboxylic acid obtained by degradation of œstrone methyl ether." By F. LITVAN and R. ROBINSON.
- "Some derivatives of phenalene." By C. W. KLEIN and R. ROBINSON.

- "Free radicals and radical stability. Part I. The influence of the phenoxy group on radical stability and merisation potential." By S. T. BOWDEN.
- "Free radicals and radical stability. Part II. The dimethoxytriphenylmethylys." By S. T. BOWDEN.
- "Intermolecular forces in liquid systems. Part I. The physical properties of the alkyl carbonates." By S. T. BOWDEN and E. T. BUTLER.
- "Intermolecular forces in liquid systems. Part II. Viscosity, surface tension, and parachor relationships in binary systems." By S. T. BOWDEN and E. T. BUTLER.
- "The chemistry of *Aspergillus* colouring matters. Part II." By H. RAISTRICK, R. ROBINSON, and J. H. CRUICKSHANK.
- "The ether-soluble constituents of sarsaparilla root. Part II." By J. C. E. SIMPSON and N. E. WILLIAMS.
- "The triterpene group. Part IV. The triterpene alcohols of *Taraxacum* root." By S. BURROWS and J. C. E. SIMPSON.
- "The active principles of *Cannabis indica* resin. Part I." By T. S. WORK, F. BERGEL, and A. R. TODD.
- "The seed and fruit-coat fats of *Celastrus paniculatus*." By B. G. GUNDE and T. P. HILDITCH.
- "The sulphonation of mesobenzanthrone and some of its derivatives." By R. R. PRITCHARD and J. L. SIMONSEN.
- "The reaction between oxygen and nitric oxide." By E. M. STODDART.
- "Synthesis of derivatives of quinol related to dihydroflavoglaucin." By J. H. CRUICKSHANK and R. ROBINSON.
- "The constituents of natural phenolic resins. Part XIII. The synthesis of *dl*-, *d*-, and *l*-hinckinin." By R. D. HAWORTH and D. WOODCOCK.
- "Some derivatives of 3-carboline." By R. H. FREAK and R. ROBINSON.
- "A rearrangement of *ortho*-carbonyl derivatives of diphenyl ether." By B. T. TOZER and S. SMILES.
- "The constitution of complex metallic salts. Part IX. The oxalate radical as a "bridging group" between metallic atoms. The structure and reactions of dichlorobis-tri-*n*-butylphosphine- μ -oxalatodipalladium." By J. CHATT, F. G. MANN, and A. F. WELLS.
- "Studies in graphite formation. Part III. An X-ray study of the carbonisation of (a) cellulose and (b) bituminous coal." By H. E. BLAYDEN, H. L. RILEY, and A. TAYLOR.
- "Synthesis of 2-thienylalanine and of β (2-thienyl)ethylamine." By G. BARGER and A. P. T. EASSON.
- "Researches in the thujone series. Part I. The thujones and some thujyl alcohols and thujylamines." By A. G. SHORT and J. READ.
- "Preparation and properties of ethyldideuteramine and dimethyldideuteramine." By E. R. ROBERTS, H. J. EMÉLEUS, and H. V. A. BRISCOE.
- "The distribution factor in catalytic toxicity." By E. B. MAXTED and H. C. EVANS.
- "The solubility of water in benzene solutions of ethanolamine oleate." By R. C. PINK.
- "Studies on the esters of sulphurous, chlorosulphinic, and chlorosulphonic acids. Part I." By W. GERRARD.
- "The chlorination of 2-thiolbenzoic acid." By L. E. HART, E. W. MCCLELLAND, and (in part) F. S. FOWKES.
- "Phellandrene nitrosites. Part I. The α - and β -nitrosites of *l*- α -phellandrene." By P. A. BERRY, A. K. MACBETH, and T. B. SWANSON.
- "Experiments on the synthesis of substances related to the sterols. Part XXIV. Some derivatives of β -tetralone." By G. P. CROWLEY and R. ROBINSON.
- "Experiments on the synthesis of substances related to the sterols. Part XXV." By K. H. LIN and R. ROBINSON.
- "Application of the Bischler-Napieralski reaction to δ -ketoazelaodi- β -veratrylethylamide." By F. E. KING and R. ROBINSON.

- "Chalkones: a new synthesis of chrysin, apigenin, and luteolin." By W. A. HUTCHINS and T. S. WHEELER.
- "Chalkones: synthesis of 1-*p*-alkoxyarylidene-5:6-benzocoumaran-2-ones." By A. P. KHANOLKAR and T. S. WHEELER.
- "Studies on the esters of sulphurous, chlorosulphinic, and chlorosulphonic acids. Phenylchlorosulphinic, PhOS(=O)Cl, from thionyl chloride and phenol." By W. GERRARD.
- "Experiments on the synthesis of substances related to the sterols. Part XXVI." By R. ROBINSON and J. M. C. THOMPSON.
- "A study of the photolysis of some organic nitrogen compounds. Part I. Dimethyl- and diethyl-nitrosoamines." By C. H. BAMFORD.
- "A study of the photolysis of some organic nitrogen compounds. Part II. Aliphatic amines (dimethylamine, trimethylamine, *n*-butylamine, *n*-amylamine)." By C. H. BAMFORD.
- "The crystal structure of iron enneacarbonyl." By H. M. POWELL and R. V. G. EWENS.
- "The solubility of barium oxalate in aqueous salt solutions." By R. W. MONEY and C. W. DAVIES.
- "The extent of dissociation of salts in water. Part VIII. An equation for the mean ionic activity coefficient of an electrolyte in water, and a revision of the dissociation constants of some sulphates." By C. W. DAVIES.
- "The photo-oxides of 9:10-di-*p*-xenylanthracene and 9:10-diphenyl-2-methylanthracene." By D. I. DUVEEN and A. WILLEMART.
- "The absorption spectra of benzoylformylindolephenylhydrazone and some of its derivatives." By F. W. BERGSTROM and R. ROBINSON.
- "Complex formation between polynitro-compounds and aromatic hydrocarbons and bases. Part VII. A further resolution of 4:6:4'-trinitrodiphenic acid." By D. LL. HAMMICK, E. H. REYNOLDS, and G. SIXSMITH.
- "The ω -bromo-*o*-cyanostyrenes and related compounds." By W. DAVIES, B. M. HOLMES, and J. F. KEFFORD.
- "A new general synthesis of 1-*iso*quinoline derivatives." By W. DAVIES, J. F. KEFFORD, and J. L. OSBORNE.
- "Non-stoichiometric oxides. Part I. The oxides of chromium." By A. CAMERON, E. H. HARBORD, and A. KING.

ADDITIONS TO THE LIBRARY

I. *Donations.*

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. Principles of modern building. Vol. I. Walls, partitions and chimneys. By R. FITZMAURICE. London 1938. pp. 400. ill. 10s. 6d. net. (*Recd.* 1/11/38.)

From the Director.

IMPERIAL INSTITUTE. *Mineral Resources Department*. Manganese. 2nd edition. By A. W. GROVES. London 1938. pp. 164. (*Reference.*) 3s. 6d. net. From the Director.

MORGAN, R. HAROLD. Beverage manufacture (non-alcoholic). Edited by ARTHUR T. E. BINSTED. London 1938. pp. 238. ill. 30s. net. (*Recd.* 27/10/38.)

From the Author.

SABINO DE OLIVEIRA, EDUARDO. Alcool motor e motores a explosão. Sao Paulo 1937. pp. 356. ill. (*Recd.* 14/11/38.)

From the Author.

SCIENCE ET INDUSTRIE. No. 277 bis. La technique des industries chimiques. Paris 1938. pp. 258. ill. (*Reference.*) 65 fr.

From the Publishers.

II. *By purchase.*

BODANSKY, MEYER. Introduction to physiological chemistry. 4th edition. New York 1938. pp. x + 686. ill. \$4. (*Recd.* 20/10/38.)

BRENNECKE, ERNA [and others]. Newer methods of volumetric chemical analysis. Edited by WILHELM BÖTTGER. Translated by RALPH E. OESPER. New York 1938. pp. xiv + 268. ill. \$3.75. (*Recd.* 20/10/38.)

DANIELS, FARRINGTON. Chemical kinetics. Ithaca 1938. pp. viii + 273. ill. \$3.25. (*Recd.* 20/10/38.)

DAVIES, J. G. The principles of cane sugar manufacture (together with a description of the machinery). London 1938. pp. viii + 144. ill. 10s. net. (*Recd.* 20/10/38.)

DEAN, H. K. Utilization of fats: a theoretical and technical treatise on the composition, extraction, analysis and applications of fats. London 1938. pp. viii + 292 + xiv. ill. 15s. net. (*Recd.* 20/10/38.)

ELLIS, CARLETON, and SWANEY, MILLER H. Soilless growth of plants: use of nutrient solutions, water, sand, cinder, etc. New York 1938. pp. 155. ill. \$2.75. (*Recd.* 20/10/38.)

ETHERINGTON, H. Modern furnace technology. London 1938. pp. x + 524. ill. 30s. net. (*Recd.* 20/10/38.)

FAIRES, VIRGIL MORING. Applied thermodynamics. New York 1938. pp. xviii + 374. ill. \$3.90. (*Recd.* 20/10/38.)

FISHER, R. A., and YATES, F. Statistical tables for biological, agricultural and medical research. Edinburgh 1938. pp. viii + 90. (*Reference.*) 12s. 6d. net.

GANZENMÜLLER, W. Die Alchemie im Mittelalter. Paderborn 1938. pp. 240. ill. M. 4.80. (*Recd.* 11/11/38.)

GATTY, O., and SPOONER, E. C. R. The electrode potential behaviour of corroding metals in aqueous solutions. Oxford 1938. pp. xii + 504. ill. 25s. net. (*Recd.* 20/10/38.)

GORTNER, ROSS AIKEN. Outlines of biochemistry. 2nd edition. New York 1938. pp. xx + 1017. ill. \$6. (*Recd.* 20/10/38.)

GROGGINS, P. H. [Editor-in-Chief.] Unit processes in organic synthesis. 2nd edition. New York 1938. pp. xiv + 769. ill. \$6. (*Recd.* 25/10/38.)

HARTLEY, G. S. Aqueous solutions of paraffin-chain salts. A study in micelle formation. Paris 1936. pp. 71. ill. 15 fr. (*Recd.* 1/11/38.)

HIND, H. LLOYD. Brewing science and practice. Vol. I. Brewing materials. London 1938. pp. xiv + 505. ill. 50s. net. (*Recd.* 20/10/38.)

HOAG, J. BARTON. Electron and nuclear physics. 2nd edition. New York 1938. pp. x + 502. ill. \$4. (*Recd.* 20/10/38.)

HORVATH, A. A. The soybean industry. [New York] 1938. pp. vi + 197 + [9]. \$4. (*Recd.* 20/10/38.)

INSTITUTION OF THE RUBBER INDUSTRY. Annual report on the progress of rubber technology. Vol. I, etc. London 1938 +. (*Reference.*) 10s. 6d. net.

INTERNATIONAL SOCIETY OF LEATHER TRADES' CHEMISTS. Official methods of analysis. London 1938. pp. viii + [145]. ill. 8s. 6d. net. (*Recd.* 20/10/38.)

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