

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, January 19th, 1933, at 8 p.m., Professor G. G. HENDERSON, M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Marcus Benjamin	Feb. 17th, 1881.	Oct. 22nd, 1932.
Thomas Henry Bowles	May 7th, 1925.	Dec. 3rd, 1932.
Walter Hepworth Collins	Feb. 16th, 1888.	May 10th, 1932.
Walter William Duffield	May 5th, 1892.	Dec. 23rd, 1932.
John Glaister	Feb. 17th, 1898.	Dec. 18th, 1932.
George William Howard.....	June 20th, 1889.	Aug. 11th, 1932.
Claude Metford Thompson	Mar. 4th, 1886.	Jan. 4th, 1933.
Thomas Tucker	May 2nd, 1918.	Jan. 1st, 1933.
William Arthur Williams	Feb. 16th, 1899.	Dec. 29th, 1932.

The PRESIDENT announced that :

1. Under the revised Bye-Laws adopted at the Extraordinary General Meeting on December 16th, 1932, which have now come into operation, the Council has appointed Professor S. Sugden as Honorary Secretary until the next Annual General Meeting.

2. The names of the members of Council who retire at the next Annual General Meeting, and who are ineligible for the same office until after the lapse of one year, are as follows :

President : Professor G. G. HENDERSON.

Vice-Presidents who have filled the office of President : Professor PERCY F. FRANKLAND, and Dr. ALEXANDER SCOTT.

Vice-Presidents who have not filled the office of President : Professor A. LAPWORTH, and Dr. F. L. PYMAN.

Honorary Secretary : Professor C. S. GIBSON.

Ordinary Members of Council—

(a) *Town Members* : Dr. T. J. DRAKELEY, Professor R. H. A. PLIMMER, and Professor C. K. TINKLER.

(b) *Country Members* : Professor H. M. DAWSON, Dr. E. HOPE, and Professor J. KENDALL.

Under Bye-Law X, three Honorary Secretaries may be appointed, and the Council considers this desirable. As stated above, the Council has appointed Professor S. Sugden as Honorary Secretary until the next Annual General Meeting. This vacancy, therefore, falls due to be filled.

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 in Burlington House on Thursday, March 30th, 1933, at 4 p.m. :

<i>President</i>	<i>One vacancy.</i>
<i>Vice-Presidents</i> who have filled the office of President	<i>Two vacancies.</i>
<i>Vice-Presidents</i> who have not filled the office of President	<i>Two vacancies.</i>
<i>Honorary Secretaries</i>	<i>Two vacancies.</i>

Ordinary Members of Council—

- (a) *Town Members* (i.e. those living within a radius of 50 miles from London) *Three vacancies.*
- (b) *Country Members* (i.e. those living beyond a radius of 50 miles from London) *Three vacancies.*

In accordance with Bye-Law VI, the Council has made the following nominations :

President : Professor G. T. MORGAN.

Honorary Secretaries : Professor S. SUGDEN and Dr. J. M. GULLAND.

3. The Harrison Memorial Prize Selection Committee, consisting of the Presidents of the Chemical Society (Professor G. G. Henderson, M.A., D.Sc., F.R.S.), the Institute of Chemistry of Great Britain and Ireland (Dr. G. C. Clayton, C.B.E., M.P.), the Society of Chemical Industry (Dr. R. H. Pickard, F.R.S.), and the Pharmaceutical Society (Mr. F. Gladstone Hines), has awarded the Harrison Memorial Prize for 1932 to Dr. Harry Julius Emeléus.

The Prize is given for conspicuously meritorious work in any branch of chemistry, pure or applied, and is to be regarded as an exceptional distinction to commemorate an exceptional man and to be conferred upon the young chemist under thirty years of age who, in the opinion of those best qualified to judge, has made a notable addition to our knowledge of chemistry.

The presentation of the Prize will be made at the Annual General Meeting of the Chemical Society, on Thursday, March 30th, 1933, at 4 p.m.

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

Mitizo Asano, Prof., Pharmaceutical Institute of Kanazawa Medical College, Kanazawa, Japan.
Gilbert Dodd, 4, Woodfield Avenue, Ealing, W. 5.

James Francis Dunworth, B.Sc.Tech., 5, Meadowbank, Polmont, Falkirk.

James Rawlings Elliott, Ranula, Fairway, Petts Wood, Kent.

Donald Faulkner, 52, Inglemire Lane, Beverley High Road, Hull.

Robert Ernest Victor Hampson, D.Sc., 27, Holden Road, Woodside Park, N. 12.

Archie Hickling, M.Sc., 56, Newbold Road, Chesterfield.

John William Ingham, M.Sc., F.I.C., 17A, Willowbrae Avenue, Edinburgh.

Kathleen Olive Patricia Jackson, B.Sc., Little Orchard, Cofton, Starcross, S. Devon.

Maurice Bevan Jarman, M.A., B.Sc., 53, Norton Avenue, Norton-on-Tees.

Joseph Cleaver Jordan, 4, Princes Road, Lewisham Hill, S.E. 13.

Andreas Klit, 18, Vodroffsvej, Copenhagen V.

John Charles Lawson, B.A., 8A, Elm Street, Cambridge.

Robert Henry Leach, 107, Junction Road, Upper Holloway, N. 19.

John Edward Lennard-Jones, Prof., D.Sc., Ph.D., The University, Cambridge.

Emyr Alun Moelwyn-Hughes, Ph.D., D.Phil., A.I.C., Trinity College, Oxford.

John Frederick Morley, Ph.D., A.R.C.S., 3, Whitby Road, South Harrow.

Frank Morton, B.Sc., 86, Oaktree Lane, Selly Oak, Birmingham.

Stanley Kennedy North, 31, Ladbroke Grove, W. 11.

Clifford Gordon Raison, 3, Dunollie Road, Tufnell Park, N.W. 5.

Alan Dalton Scott, Hill Cottage, Harvey Lane, Norwich.

James King Steel, B.Sc., A.I.C., c/o Messrs. J. & P. Coats, Ltd., 155, St. Vincent Street, Glasgow, C. 2.

Richard William Wren, 12, Drake Road, Westcliff-on-Sea.

The following forms of recommendation have been accepted by the Council under Bye-Law I (2) :

Tenney L. Davis, B.Sc., A.M., Ph.D., Massachusetts Institute of Technology, Cambridge, Mass., U.S.A.

Ciro Ravenna, Prof., R. Istituto Superiore Agrario, Pisa, Italy.

Robert Hamilton Wright, B.A., M.Sc., Ph.D., University of New Brunswick, New Brunswick, Canada.

Tsoh-Wu Zee, Prof., B.Sc., M.A., Ph.D., University of Shanghai, Shanghai, China.

The following papers were read :

“The formation of organo-metalloidal compounds by micro-organisms. Part I. Trimethylarsine and dimethylethylarsine.” By F. CHALLENGER, (MISS) C. HIGGIN-BOTTOM, and L. ELLIS.

- "Derivatives of methylene-blue." By H. D. K. DREW and F. S. H. HEAD.
- "Monothioethylene glycol. Part IV. Aryl β -hydroxy- and β -chloro-ethyl sulphides." By G. BADDELEY and G. M. BENNETT.
- "The influence of the sulphur atom on the reactivity of adjacent atoms or groups. Part VI. Aromatic side-chain and nuclear reactivity." By G. BADDELEY and G. M. BENNETT.

List of papers, or abstracts thereof, received between December 16th, 1932, and January 19th, 1933. (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 reaction between *o*-toluidine and sulphur." By H. H. HODGSON and H. V. FRANCE.
- "On the coil ignition of some explosive gaseous mixtures." By B. W. BRADFORD, G. I. FINCH, and (MISS) A. M. PRIOR.
- "Binary liquid systems and the mixture rule." By W. MACFARLANE and R. WRIGHT.
- "The dehydration of the α -forms of *r*- and (+)*o*- and *m*-tolylhydrobenzoins." By R. ROGER and W. B. MCKAY.
- "Comparison of the directive powers of elements having consecutive atomic numbers. Part V. The nitration of 9-phenylxanthylum perchlorate. The location of the positive charge in oxonium salts." By R. J. W. LE FÈVRE and J. PEARSON.
- "Phenylmethylselenetine mercuriodide." By M. P. BALFE and H. PHILLIPS.
- "The unsaponifiable matter from the oils of elasmobranch fish. Part IX. The structure of batyl and selachyl alcohols." By W. H. DAVIES, I. M. HEILBRON, and W. E. JONES.
- "Evidence from surface films on the constitution of batyl and chimyl alcohols." By N. K. ADAM.
- "The isomeric 9:10-dihydroxyoctadecyl alcohols produced by oxidation of *cis*- and *trans*- $\Delta^9:10$ -octadecenyl (oleyl and elaidyl) alcohols." By G. COLLIN and T. P. HILDITCH.
- "The interaction of acetophenone, ferric chloride, and acetic anhydride, in which the last-named acts as a ketone." By R. J. W. LE FÈVRE.
- "The depside esters of dihydric phenols and some polydepsides." By T. CURRIE and A. RUSSELL.
- "1-Methyl-4-isopropyl-naphthalene and 1:7-dimethyl-4-isopropyl-naphthalene." By W. S. RAPSON and W. F. SHORT.
- "The photo-change of *N*-chloroacetanilide in various solvents." By F. W. HODGES.
- "The stereochemistry of 2:2'-disubstituted diphenyls. Part III. The optical resolution of *o*-(2-dimethylaminophenyl)phenyltrimethylammonium iodide." By (MISS) F. R. SHAW and E. E. TURNER.
- "Lichen acids. Part IV. Atranorin." By F. H. CURD, A. ROBERTSON, and R. J. STEPHENSON.
- "Liquidus and solidus studies. Part II. The ternary system KNO_3 , NH_4NO_3 , and $\text{Pb}(\text{NO}_3)_2$." By H. M. GLASS, K. LAYBOURN, and W. M. MADGIN.
- "Reactions of 1:2:3:4-tetrahydroxanthone." By H. I. HALL and S. G. P. PLANT.
- "Anthoxanthins. Part XIII. Synthesis of a colouring matter of *Robinia pseudoacacia*." By E. H. CHARLESWORTH and R. ROBINSON.
- "The dissociation constant of acetic acid. A criticism." By D. J. G. IVES.
- "Dipole moments and structures of the organic azides and aliphatic diazo-compounds." By N. V. SIDGWICK, L. E. SUTTON, and W. THOMAS.
- "Experiments on the synthesis of physostigmine (eserine). Part VII." By F. E. KING and R. ROBINSON.
- "Aliphatic long-chain *n*-alcohols." By J. W. C. PHILLIPS and S. A. MUMFORD.
- "Attempts to extend the Mannich reaction to derivatives of 4-methylquinoline and 2:4-di-nitrotoluene." By W. O. KERMACK and W. MUIR.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, FEBRUARY 16th, 1933.

ASANO, MITIZO, Pharmaceutical Institute of Kanazawa Medical College, Kanazawa, Japan. Japanese. Professor of Organic Chemistry. "Yakugaku-hakusi" (Doctor of Pharmacy). Published many chemical works since 1919. Professor of Pharmaceutical Department of Kanazawa Medical College (1925). "Yakugakuhakusi," 1926. Director of Pharmaceutical Department of K.M.C., 1931. (*Signed by*) Yasuhiko Asahina, Shigehiko Sugawara, Junzo Shinoda.

BAGSTER, LANCELOT SALISBURY, The University, Brisbane, Queensland. British. Professor of Chemistry. D.Sc., Adelaide. Professor of Chemistry, University of Queensland. Papers: *J. Soc. Chem. Ind.*, 1924, 61; *J. Faraday Soc.*, 1912, 51; *J.C.S.*, 1910, 2607; 1911, 1218; 1917, 494; 1920, 693; 1928, 2631. (*Signed by*) J. C. Earl, J. B. Henderson, E. J. Hartung.

BANÚS, ANTONIO GARCIA, Barcelona, Plaza Trilla 4, Spain. Spanish. Professor of Organic Chemistry. Doctor of Science (University of Madrid). Fellow of the Spanish Academy of Sciences. Vice-Rector of Barcelona University. Scientific papers: *An Soc. esp. de fis. y quim.*, 1910, viii. 355; 1912, x. 166, 449, 298; 1913, xi. 78, 599, 363; 1914, xii. 163; 1921, xix. 293, 326; 1922, xx. 475, 479, 667, 689; 1923, xxi. 126, 436; 1928, xxvi. 372; 1929, xxvii. 49. (*Signed by*) E. Moles, Fernando Calvet, José Pascual.

BOYS, SAMUEL FRANCIS, "Fairlaun," 643, Fulham Road, S.W. 6. British. Research student. B.Sc. (Chemistry, 1st Class Honours); A.R.C.S. (1st Class Honours), (University of London). Student at Royal College of Science (1929-1932). Engaged in research work in Chemistry at Royal College of Science, Imperial College. (*Signed by*) H. B. Baker, Jocelyn Thorpe, James C. Philip.

BROADWAY, LEONARD FRANCIS, Clare College, Cambridge. British. Research Student. B.Sc., Ph.D. (Bristol). "Application of the Stern-Gerlach Experiment to the Study of Active Nitrogen," *Proc. Roy. Soc.*, 1930, 127, 678. (*Signed by*) T. M. Lowry, R. G. W. Norrish, F. W. Kirkbride.

BROUGHTON, GEOFFREY, 117, Peterborough Road, Leyton, E. 10. British. Student B.Sc. (London). (*Signed by*) J. R. Partington, D. C. Jones, H. H. Hatt, W. H. Patterson.

BURRELL, WILLIAM GUNN, 1, Colebrooke Place, Glasgow, W. 2. British. Tutor, Royal Technical College, Glasgow. M.A. (Glasgow). Editor for seven years of the *Journal of the Royal Technical College, Glasgow*. I am desirous of keeping myself and the students whom I advise abreast of recent advances in Chemistry. (*Signed by*) F. J. Wilson, W. M. Cumming, R. M. Caven.

COLLIE, BENJAMIN, 31, Landale Road, Peterhead, Aberdeenshire. British. Research Student. B.Sc. (Hons.), (Aberdeen). Reasons for desiring admission are (1) attend the meetings of the Society, (2) use of the Library, (3) receive the publications. (*Signed by*) F. G. Donnan, Alex. Findlay, W. Rogie Angus.

COOK, ARTHUR HERBERT, 16, Kynaston Road, Stoke Newington, N. 16. English. A.R.C.S. (Royal College of Science, S. Kensington). Research Student. (*Signed by*) Jocelyn Thorpe, G. A. R. Kon, R. P. Liustead.

COWAN, DAVID MARK, 121, Herbert Road, Plumstead, S.E. 18. British. Schoolmaster. B.Sc. (London), A.R.C.S. Took A.R.C.S. and B.Sc. degrees in Chemistry at the Royal College of Science, Imperial College, 1928-31. Conducting research work at Woolwich Polytechnic. (*Signed by*) A. I. Vogel, A. Brewin, G. H. Jeffery.

COWLEY, ERIC GEORGE, 4, Walsingham Road, Enfield, Middlesex. British. Research Student. Passed Special B.Sc. Exam., with First-Class Honours in Chemistry, in June 1932 after two years' course at East London College, University of London. London Univ. Scholarship in Chemistry, 1932. (*Signed by*) J. R. Partington, H. D. K. Drew, D. C. Jones, W. H. Patterson.

DAVIES, JOHN STANLEY HERBERT, "Woodlands," Crescent Road, Cheetham Hill, Manchester. British. Research Chemist, British Dyestuffs Corporation. B.A. (Cantab.), M.Sc. Tech., Ph.D. (Manchester). Part Author: *J.C.S.*, 1920, 117, 1344; 1922, 121, 1000; 1926, 690; 1929, 535; 1931, 220, 224; *J. Soc. Dyers and Col.*, 1926, 242. (*Signed by*) E. H. Rodd, R. Brightman, K. H. Saunders, E. E. Walker.

DODD, GILBERT, 4, Woodfield Avenue, Ealing, W. 5. British. Hospital Pharmacist.

Chemist and Druggist, Member of the Pharmaceutical Society (London). Studying Biochemistry and desirous of receiving the *Journal*, reading the Abstracts, and using the Library. (*Signed by*) Wilfrid H. Linnell, Eric F. Hersant, T. E. Wallis.

DUNWORTH, JAMES FRANCIS, 5, Meadowbank, Polmont, Falkirk, N.B. British. Librarian, Scottish Dyes, Ltd., Imperial Chemical Industries, Ltd., Grangemouth. B.Sc. (Tech.), Manchester. Sixteen years in chemical industry, research and works chemist in metallurgy, bleaching and dyestuffs manufacture. (*Signed by*) E. G. Beckett, R. Brightman, L. J. Hooley, E. H. Rodd.

DYKE, WILFRED JAMES CECIL, National Institute for Medical Research, Hampstead, N.W. 3. British. Fellow of the University of Wales. B.Sc., Ph.D. (Wales). At present engaged on research work in organic chemistry with Dr. H. King. Desire to attend the meetings of the Chemical Society, to receive the *Journal*, etc. With Professor W. J. Jones and others, *J.C.S.*, 1930 (463, 1921, 2426); 1931 (185); 1932 (1815, 2284). (*Signed by*) W. J. Jones, N. M. Cullinane, Harold King.

EDWARDS, JOHN OWEN, 90, Anerley Park, S.E. 20. British. B.Sc., East London College (London University). Research Student in Physical Chemistry. (*Signed by*) J. R. Partington, G. H. Wyatt, H. H. Hatt, H. J. Moss.

ELLIOTT, JAMES RAWLINGS, "Ranula," Fairway, Petts Wood, Kent. British. Pharmaceutical Chemist; Member of Pharmaceutical Society; Member of Institute of Chemist-Opticians. Demonstrator in Pharmacy, School of Pharmacy (University of London). Examiners' Assistant in Chemistry to Board of Examiners of Pharmaceutical Society, 1927-1928. Lecturer in Department of Pharmacy, Bradford Technical College, 1928-1929. Temporary Lecturer in Botany, Morley College, Lambeth (1928). (Now studying for Diploma in Biochemical Analysis of the Pharmaceutical Society.) Silver medallist in Chemistry in advanced course of the School of Pharmacy, Pharmaceutical Society. (*Signed by*) Robert W. Lindsey, Edward A. Andrews, Harry Lucas.

ETCHELLS, KENNETH KERSHAW, 413, Bellegrave Road, Welling, Kent. British. Chemist, War Dept., Royal Arsenal, Woolwich. B.Sc. (Liverpool), M.Sc. (London), A.I.C. (*Signed by*) A. I. Vogel, A. Brewin, W. W. Jones.

EVANS, SAMUEL, 15, Elm Grove, Aberdare, Glam. British. Chemistry Master at Aberdare Boys' County School. M.Sc. (Wales). Graduated B.Sc. with Honours in Chemistry. Three years' part-time research for M.Sc. (*Signed by*) T. Campbell James, D. Matthew Williams, C. R. Bury, L. J. Hudleston.

FAULKNER, DONALD, 52, Inglemire Lane, Beverley High Road, Hull. British. Chemist and Druggist. Member of the Pharmaceutical Society of Great Britain, Edinburgh. Tuition received at University College, Nottingham. Desire admission into the Society in order to keep in touch with the advance of Chemistry in relation to analytical and manufacturing work as can be applied to the subject of Pharmaceutical Chemistry. (*Signed by*) R. H. Williams, Harry Thompson, Thos. A. Nightscales.

FINKLESTONE, ELI, 24, Greek Street, London Road, Liverpool. British. Analyst. I am keenly interested in chemistry, and desire to keep in touch with modern developments. (*Signed by*) A. E. Findley, J. D. Johnson, J. G. Merry.

GETTLER, ALEXANDER OSCAR, 32, Waverly Place, New York City, U.S.A. American. Professor of Chemistry, Washington Square College, New York University. Pathological Chemist, Bellevue Hospital, New York City. Toxicologist for Chief Examiner's Office, New York City. B.A., 1904, College of the City of New York; M.A., 1909, Columbia University; Ph.D., 1912, Columbia University. Various papers in the *Journal of Biological Chemistry*, *Journal of the American Chemical Society*, *Journal of the American Medical Association*, etc. (*Signed by*) W. C. MacTavish, R. Keith Cannan, James Kendall.

GHOSAL, SUBIMAL CHANDRA, c/o Thomas Cook & Son (Bankers), Ltd., Berkeley Street, London. Indian. Research Student in Chemistry (R.C.S.). M.Sc. in Chemistry, University of Calcutta (India). (*Signed by*) G. A. R. Kon, A. N. Dey, E. H. Farmer.

GLEAVE, JOHN LESLIE, 14, Camden Square, N.W. 1. English. Research Student. B.Sc. (London) (in suspense). I wish to use the Library and to obtain the publications. (*Signed by*) C. K. Ingold, O. L. Brady, R. J. W. Le Fèvre.

GRINDLEY, JOHN, 12, Lowther Road, Barnes, S.W. 13. British. Chemist. B.Sc., Ph.D. (Wales), A.I.C. Publications in the *J.C.S.* and *Trans. Faraday Soc.*, 1929, 25, 133, on the physico-chemical properties of aqueous solutions. Member of the temporary staff of the Government Laboratory since Jan. 1931. *J.C.S.*, 1928, 3297; 1929, 679; 1930, 1665. (*Signed by*) R. Robertson, J. J. Fox, H. G. Smith.

HAMPSON, ROBERT ERNEST VICTOR, 27, Holden Road, Woodside Park, N. 12. British. B.Sc. (1st Class Honours), M.Sc., D.Sc. (Liverpool). Director of Research, British Launderers' Research Association, Hill View Gardens, Hendon, N.W. 4. (*Signed by*) F. G. Donnan, J. J. Fox, J. T. Hewitt.

HAYDON, SIDNEY FRANK, Holland House, Holland Road, Hornsey, N. 8. English. Metallurgist. Student of City of London College, 1919-1926 (Exhibitioner Chem., 1925). Assayer, The Goldsmiths' Company, Goldsmiths' Hall, London, E.C. (*Signed by*) Alex. W. Bain, A. E. Garrett, G. Haydon.

HEY, MAX HUTCHINSON, "Oxley," 18, Holmdene Avenue, North Harrow, Middlesex. British. Mineralogical Chemist, Natural History Museum. B.A. (Oxon.), B.Sc. (Lond.). "Kristallographische Untersuchungen einiger derivate der Diphenyllessigsäure und des Diphenyläthers," *Zeits. Krist.*, 1926, 63, 496. "On the Variation of Optical Properties with Chemical Composition in the Rhodonite-Bustamite Series," *Min. Mag.*, 1929, 22, 193. "On Face- and Zone-Symbols referred to Hexagonal Axes," *ibid.*, 1930, 22, 283. "Cupriferous Melanterite from the Shrouriotissa Mine, Cyprus," *ibid.*, 1930, 22, 413. "Studies on the Zeolites, Part I, General Review," *ibid.*, 1930, 22, 422; "Part II, Thomsonite (including Faroclite) and Gonnardite," *ibid.*, 1932, 23, 51; "Part III, Natrolite and Metanatroilite," *ibid.*, 1932, 23, 243. "On Pink Epsomites and Fauserite," *ibid.*, 1931, 22, 510. "Legrandite, a New Zinc Arsenate (with Dr. J. Drugman)," *ibid.*, 1932, 23, 175, and several notes, etc. (mainly in *Min. Mag.*). (*Signed by*) E. Hope, S. G. P. Plant, D. Ll. Hammick.

HICKLING, ARCHIE, 56, Newbold Road, Chesterfield. British. Research Student. B.Sc. (1st Class Hons. Chem.), 1930; M.Sc., 1931, Sheffield. Studies in Electrolytic Oxidation (with S. Glasstone), Part I, *J.C.S.*, 1932, 2345; Part II, *ibid.*, 1932, 2800. (*Signed by*) G. M. Bennett, S. Glasstone, Arthur W. Chapman.

HUGHES, LESLIE ALFRED, 393, Bromley Road, Catford, S.E. 6. British. Student Research Chemist. B.Sc., London, 1932; A.R.C.S. Formerly employed at H.M. Fuel Research Station (D.S.I.R.) as a Junior Technical Assistant, from Nov. 1929 to Oct. 1931. Now pursuing Organic Chemistry Research at the Imperial College of Science. (*Signed by*) E. H. Farmer, G. A. R. Kon, R. P. Linstead.

INGHAM, JOHN WILLIAM, 17A, Willowbrae Avenue, Edinburgh. British. Lecturer in Chemistry. B.Sc. (Lond.), 1915; M.Sc. (Lond.), 1924; F.I.C., 1920. Fourteen years' teaching experience. Two years' industrial experience with Messrs. British Dyes, Ltd., Huddersfield. Publications: *J.C.S.*, 1928, 1917 and 2381; 1929, 2059; 1930, 542. (*Signed by*) T. Slater Price, James Sandilands, R. H. Hopkins.

ISHIGURO, TAKEO, No. 707, 2-chôme Daita, Setagaya-ku, Tokyo, Japan. Japanese. Research assistant of chemistry at Tokyo Imperial University. Graduate in pharmaceutical chemistry (Tokyo Imperial University). (*Signed by*) Yasuhiko Asahina, Heisaburo Kondo, Shigehiko Sugawara.

JACKSON, KATHLEEN OLIVE PATRICIA, Little Orchard, Cofton, Starcross, S. Devon. British. Research student at University College, Exeter. B.Sc. (London), special 1st Class Chemistry. I desire to attend the meetings, receive the publications and use the Library. (*Signed by*) H. T. S. Britton, R. King, Herbert Henstock.

JARMAN, MAURICE BEVAN, 53, Norton Avenue, Norton-on-Tees, Co. Durham. British. Research Chemist, Imperial Chemical Industries (Fertiliser and Synthetic Products), Ltd. M.A., B.Sc. (Oxon.). First-class Honours, chemistry finals, Oxford, 1928. (*Signed by*) M. P. Applebey, S. G. P. Plant, Frederick M. Brewer.

JORDAN, JOSEPH CLEAVER, 4, Princes Road, Lewisham Hill, S.E. 13. British. Pharmacist. M.P.S. at Bloomsbury Square, London. Assistant in Retail Pharmacy to Messrs. Allen & Hanburys; Student at the School of Pharmacy; Member of the Pharmaceutical Society; studying at Chelsea Polytechnic for the Pharmaceutical Chemist Qualification. (*Signed by*) F. H. Lowe, Charles Dorée, G. Humphrey Pierson.

KLIT, ANDREAS, 18, Vodroffsvej, Copenhagen V, Denmark. Danish. 1926 to present time Assistant at the Chemical Laboratory of the University. Cand. polyt. (Copenhagen). "Über die Anwendung der Chinhydronelektrode bei der elektrometrischen Säretitration," *Z. physikal. Chem.*, 1927, 131, 61, and together with Professor Biilmann: "Kolloidales Palladium als Katalysator in der Wasserstoffelektrode," *ibid.*, 1927, 130, 566; "Determination of Hydrogen-ion Concentrations in Phosphate and Borate Mixtures by means of the Quinhydrone Electrode," *Biochem. J.*, 1928, xxii, 845. "Über die Darstellung und das Reduktionspotential des Diäthylalloxantin," *Ber. Deutsch. Chem. Ges.*, 1930, 63, 2205. (*Signed by*) Einar Biilmann, Chr. Winther, H. Baggesgaard Rasmussen.

KNIGHT, JOHN GEORGE, 41, Park Drive, Winchmore Hill, N. 21. British. Schoolmaster. B.Sc., London. Assistant Master at Haberdasher's Ashes Hampstead School since 1925. Purpose of application: Research in History of Chemistry in the Chemical Society Library. (Signed by) O. L. Brady, J. N. E. Day, Henry Terrey.

LAWSON, JOHN CHARLES, 8A, Elm Street, Cambridge. British. Research Student. B.A. (Cantab.). Nat. Sciences Tripos, Part I, 1st Class, 1931; Part II, 1st Class, 1932. Assistant Demonstrator, University Chemical Lab., Cambridge. Date of birth 5th Aug., 1910. (Signed by) H. McCombie, A. J. Berry, Harold A. Scarborough.

LEACH, ROBERT HENRY, 107, Junction Road, Upper Holloway, N. 19. British. Student at University College, London, taking B.Sc. (Hons.) Course in Chemistry. Date of birth 19th Sept., 1913. (Signed by) R. J. W. I.e Fèvre, Henry Terrey, J. Pearson.

LENNARD-JONES, JOHN EDWARD, The Chemical Laboratory, The University, Cambridge. British. Plummer Professor of Theoretical Chemistry. Ph.D. (Cambridge), D.Sc. (Manchester). (Signed by) W. J. Pope, T. M. Lowry, Eric K. Rideal, W. H. Mills, W. P. Wynne.

LOWE, HAROLD, "The Poplars," Park West, Heswall, Cheshire. British. Public Analyst. M.Sc. (Manchester), F.I.C. Studied at Manchester University (5 years) under Prof. H. B. Dixon and Prof. W. H. Perkin. Present positions: Public Analyst for Counties of Anglesey, Carnarvon, Denbigh, Flint, Merioneth, Montgomery, Shropshire, the City of Chester and Boro' of Wenlock. Official Agricultural Analyst for Anglesey, Carnarvonshire, Denbighshire, Flintshire, Shropshire, City of Chester. Have published several papers in *The Analyst*. (Signed by) Bernard Dyer, C. S. Gibson, J. Augustus Voelcher, John Greenaway.

MCLEAN, ANDREW, 42, Spittalfield Road, Inverkeithing, Fife. Scottish. Assistant. B.Sc., Ph.D., Edinburgh University. Investigations of solvent action and the processes operative in solutions as revealed by optical rotatory power data. Rule and McLean, *J.C.S.*, 1931, 669 and 674; 1932, 1400 and 1409. (Signed by) James Kendall, H. Gordon Rule, J. A. V. Butler.

MARTIN, STANLEY REGINALD WILLIAM, 24, Goldie House, Hazellville Road, N. 19. English. Research Chemist. B.Sc. Hons., 2nd Class, London, and A.R.C.S. Experience as a Junior Technical Assistant (Chemist) at H.M. Fuel Research Station (Greenwich) from Nov. 1929 to Oct. 1931. (Signed by) G. A. R. Kon, Arnold Stevenson, E. H. Farmer.

MELVILLE, HARRY WORK, 18, Kirkhill Gardens, Edinburgh. British. Carnegie Research Scholar, University of Edinburgh. B.Sc., Ph.D. (Edin.). *Proc. Roy. Soc.*, 1931, 132, 108; 1932, 135, 315; 1932, 138, 374; *Proc. Roy. Soc. Edin.*, 1932, 52, 337; *Trans. Faraday Soc.*, 1932, 28, 308, 814; *Nature*, 1932, 129, 546; *J.C.S.*, 1931, 2509. (Signed by) James Kendall, E. B. Ludlam, H. Gordon Rule, A. Mackie.

MOELWYN-HUGHES, EMYR ALUN, Trinity College, Oxford. Welsh. Lecturer of Trinity College. Demonstrator in Physical Chemistry at the Balliol Trinity Laboratory (University of Oxford). Ph.D., B.Sc. (Liverpool), D.Phil. (Oxon.), A.I.C. Research Assistant to C. N. Hinshelwood, Esq., M.A., F.R.S., Lecturer in Chemical Dynamics at the University of Oxford; formerly Research Assistant to W. C. M. Lewis, M.A., D.Sc., F.R.S., Brunner Professor of Physical Chemistry at the University of Liverpool. *Trans. Faraday Soc.*, 1928, 24, 309, 321; 1929, 25, 81, 435, 503. *Journal of General Physiology*, 1930, 13, 317, 807; (with W. C. M. Lewis and J. Pace), 323. *Proceedings of the Royal Society, A* (with C. N. Hinshelwood), 1931, 131, 177, 186; 1932, 138, 311; (with C. N. Hinshelwood and E. J. Bowen), 1931, 134, 211. *Chemical Reviews*, 1932, 10, 241. *Phil. Mag.*, 1932, 14, 112. *Ergebnisse der Enzymforschung*, 1932, 2, 1. *J.C.S.*, 1932, 95; with C. N. Hinshelwood, 1932, 230; with A. C. Rolfe, 1932, 241. (Signed by) N. V. Sidgwick, C. N. Hinshelwood, Robert Robinson.

MORLEY, JOHN FREDERICK, 3, Whitby Road, South Harrow, Middlesex. British. Research Chemist. B.Sc., A.R.C.S., Ph.D., D.I.C., Royal College of Science, London, 1929-1931. Research under Professor J. F. Thorpe, F.R.S., on "The Specific Oxidation of Organic Compounds: Ketones," for which the degree of Ph.D. was awarded in 1932. At present a research chemist to Manbré and Garton, Ltd., Hammersmith. "Selenium Dioxide, a New Oxidising Agent, Part I," *J.C.S.*, June, 1932, by H. L. Riley, J. F. Morley, and N. A. C. Friend. (Signed by) A. C. C. Newman, H. J. T. Ellingham, R. H. Purcell.

MORTON, FRANK, 86, Oaktree Lane, Selly Oak, Birmingham. British. Biochemist. B.Sc. (London). Engaged in biochemical investigations applied to clinical medicine. General Hospital and Selly Oak Hospital, Birmingham. (Signed by) Garfield Thomas, E. B. Naylor, J. N. Friend.

NEVILLE, GEORGE HARRY JAMES, 14, Leys Avenue, Cambridge. English. Research student. B.A., Cambridge. 1st Class Natural Sciences Tripos, Part I (1930); 1st Class Natural

Sciences Tripos, Part II, Chemistry (1931). (*Signed by*) T. M. Lowry, R. G. W. Norrish, J. G. A. Griffiths.

NORTH, STANLEY KENNEDY, 31, Ladbroke Grove, W. 11. English. Preservation of Old Masters. Desirous of using the Library. (*Signed by*) Alexander Scott, R. Robertson, H. J. Plenderleith.

PANJABI, JAWHER LALCHAND, 21, Rosslyn Hill, Hampstead, N.W. 3. British Indian. Student. B.Sc. (Bombay). At present doing research work in Organic Chemistry at the Imperial College of Science and Technology. (*Signed by*) R. P. Linstead, E. H. Farmer, R. S. Thakur.

PRITCHARD, GORDON JAMES, 14, Craven Hill Gdns., Leinster Terrace, Lancaster Gate, W. 2. British. B.Sc. (Hons.) London. Research Student with Prof. C. K. Ingold, F.R.S. (*Signed by*) C. K. Ingold, E. D. Hughes, H. Anantakrishnan.

PUGH, WILLIAM, Chemistry Dept., University of Capetown, Rondebosch, S. Africa. British. Lecturer in Inorganic and Applied Chemistry. B.Sc., London (1921); Ph.D., Capetown (1924); F.I.C. Lecturer (at the University of Capetown) in Chemistry, continuously since 1922. Original research includes a number of investigations into the chemistry of germanium, influence of fluorides on permanganate reduction, etc. *J.C.S.*, 1924, 125, 816; 1926 (1051 and 2828); 1929 (1537, 1994, 2540); 1930 (2369); 1931 (60); *Trans. Roy. Soc. (South Africa)*, 1931, 20, 93; 1932, 20, 327. (*Signed by*) E. Newbery, J. Smeath Thomas, L. N. Cohen.

RAISON, CLIFFORD GORDON, 3, Dunollie Road, Tufnell Park, N.W. 5. British. Student at University College, London. Date of birth 10th Feb., 1914. (*Signed by*) R. J. W. Le Fèvre, Henry Terrey, J. Pearson.

RAY, WILLIAM JOHN, 59, Portland Road, Rugby, Warwickshire. British. Senior Science Master, Lawrence Sheriff School, Rugby. B.Sc. (London, 1921, 1st Class Honours in Chemistry), A.R.C.S. (1921, 1st Class, Chemistry). Student at Royal College of Science, 1919-1921. Science Master at Lawrence Sheriff School, Rugby, since 1922, being appointed Senior Science Master in 1924. (*Signed by*) H. B. Baker, James C. Philip, M. A. Whiteley.

RIGBY, GEORGE REGINALD, 90, Campbell Road, Stoke-on-Trent, Staffordshire. British. Research Assistant, British Refractories Research Assoc. Ph.D., B.Sc., A.R.C.S., D.I.C. Student at Royal College of Science from 1928 to 1932. From 1930 to 1932 engaged in research in Physical Chemistry and results incorporated in a thesis as yet unpublished. (*Signed by*) H. V. Thompson, F. H. Clews, James C. Philip.

RITTER, JOHN JOSEPH, 92, Glen Road, Yonkers, New York, U.S.A. American (born in the United States). Associate Professor of Chemistry, Washington Square College, New York University (29, Washington Place, New York). B.S., New York University, 1917; M.A., Columbia University, 1922; Ph.D., Columbia University, New York. Instructor in Chemistry, Stevens Institute of Technology, New Jersey, U.S.A., 1920-21. Washington Square College, New York University, N.Y. Instructor, 1922-26; Assistant Professor, 1926-29; Associate Professor, 1929 to date. Various papers in the *J. Amer. Chem. Soc.* (*Signed by*) W. C. MacTavish, R. Keith Cannan, James Kendall.

ROBERTS, ERIC ARTHUR HOUGHTON, 35/IIIks Kaulbachstrasse, München, Germany. English. Research Student. B.A., B.Sc. (Oxon.). Research as yet unpublished under Professor Robinson on the "Copigment Effect of Anthocyanins." (*Signed by*) Malcolm Crawford, T. W. J. Taylor, S. G. P. Plant, F. E. King, R. Robinson.

ROSNEY, WILLIAM CHARLES VICTOR, 44, Moss Lane, Walton, Liverpool. British. Technical Assistant to W. P. Thompson & Co., Patent Agents. B.Sc. (Liverpool) 1920, Ph.D. (Liverpool), 1922. (With R. A. Morton) "Absorption Spectra and Tautomerism, (1) Keto Enol Tautomerism," *J.C.S.*, 1926, 706-13. (*Signed by*) E. C. C. Baly, R. O. Griffith, I. M. Heilbron, John D. Johnson.

SAMS, KENNETH, 36, Fernhurst Road, Fulham, S.W. 6. English. Student. A.R.C.S. (London). Research Student. (*Signed by*) Jocelyn Thorpe, G. A. R. Kon, R. P. Linstead.

SCOTT, ALAN DALTON, Hill Cottage, Harvey Lane, Norwich (London address, during Term: The Penn Club, 9, Tavistock Square, W.C. 1). British. Student at University College, London. Date of birth 23rd Jan., 1914. (*Signed by*) R. J. W. Le Fèvre, Henry Terrey, L. F. Gilbert.

SHANNON, ABRAHAM, New College, Oxford. British. Research Student in Organic Chemistry. B.A. (Hons.) Oxford. (*Signed by*) Wilson Baker, Arthur D. Ainley, S. G. P. Plant.

SIMPSON, JAMES CHARLES EDWARD, 27, Seabank Road, Wallasey, Cheshire. British. Research Chemist. B.Sc., Ph.D. (Liverpool University). At present engaged on fourth year of research work on a study of ergosterol. Four papers published in *J.C.S.*, 1932, 268, 1699, 1710, 2400. (*Signed by*) I. M. Heilbron, E. C. C. Baly, R. A. Morton, Wm. Doran.

STAUDINGEN, HERMANN, Goethestrasse 4, Freiburg i. Br., Germany. German. Professor of Chemistry in the University of Freiburg i. Br. (Signed by) W. J. Pope, T. M. Lowry, Eric K. Rideal, W. H. Mills.

STEEL, JAMES KING, c/o J. & P. Coats, Ltd., Chemical Section, 155, St. Vincent Street, Glasgow, C. 2. British. Chemist. B.Sc. (Glas.), A.I.C., A.R.T.C. "Reduction of Nitronaphthalene, Part I, Reduction of α -Nitronaphthalene," *J.C.S.*, 1923, 2464. (Demonstrator in Chemistry, Royal Technical College, 1921-1924.) Chief Chemist, Research Laboratories, J. & P. Coats, Ltd. (Signed by) W. M. Cumming, R. M. Caven, F. J. Wilson.

WALLACE, JAMES, 12, St. Mark's Terrace, Mansfield, Notts. British. Research Student. B.A. (Cantab.). (Signed by) R. G. W. Norrish, Eric K. Rideal, T. M. Lowry.

WREN, RICHARD WILLIAM, 12, Drake Road, Westcliff-on-Sea, Essex. British. Manufacturing Chemist. Chemist and Druggist. To obtain the Society's publications and use the library. Applicant is a director of a firm employing two Fellows of the Chemical Society and is engaged in the control of the manufacture of chemicals. (Signed by) Leslie J. Walker, Wilfred H. Linnell, W. A. N. Markwell, T. E. Wallis.

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

DAVIS, TENNEY L., Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A. United States of America. Associate Professor of Organic Chemistry, Mass. Inst. of Technology. B.S. (Mass. Inst. of Tech.), A.M. (Harvard), Ph.D. (Harvard). Publications, mostly in *J. Amer. Chem. Soc.*, on the "Urea Rearrangement," Guanidine Series, Alkyl-nitroguanidines, complex metal pyridine cyanates and thiocyanates, oxidation of meta-diphenols, nitrations, etc. Publications on history of chemistry, Chinese alchemy, scientific methodology, mostly in *Isis, Journal of Chemical Education*. (Signed by) J. R. Partington.

NIEUWLAND, JULIUS ARTHUR, C.S.C., Box 123, Notre Dame, Indiana. American. Professor of Organic Chemistry. A.B., Notre Dame; Ph.D., Catholic University of America; Sc.D., University of Notre Dame. Numerous papers in *J. Amer. Chem. Soc.* and in the *Proc. Ind. Acad. Sci.* (Signed by) Thomas Hunt Vaughn.

RAVENNA, CIRO, Pisa—Laboratorio di chimica agraria del R. Istituto superiore agrario. Italiana. Professore ordinario di chimica agraria nel R. Istituto superiore agrario di Pisa. Dottore in chimica, presso la R. Università di Bologna. Autore di circa 80 pubblicazioni scientifiche prevalentemente sopra argomenti di chimica vegetale e di chimica organica. Autore di due trattati: "Chimica vegetale" e "Manuale di analisi chimica agraria e bromatologica." (Signed by) Luigi Mascarelli, Ernesto Denina.

RIMARSKI, DR. WALTHER, Berlin-Halensee, Nestovstrasse No. 11. Preussen (Deutschland). Chemiker. Doktor der Philosophie. Direktor der Chemisch-Technischen Reichsanstalt. Autor zahlreiche wissenschaftlicher Arbeiten auf chemisch-technischem Gebiete besonders auf dem Gebiete der technischen Gase und der Schweisstechnik. (Signed by) Fr. Lenze.

WRIGHT, ROBERT HAMILTON, 379, Regent Street, Fredericton, N.B., Canada. Canadian (British). Assistant Professor of Chemistry, University of New Brunswick. B.A. (Honours, Chemistry and Physics) Univ. of British Columbia, 1928; M.Sc. and Ph.D. (Physical Chemistry), McGill Univ. 1930, 1931. Assist. Prof., U.N.B., 1931 to date. Technical Development in Neon Signs, 1930. "Effect of Adsorbed Gas on the Contact Resistance of Carbon," *Trans. Amer. Electrochem. Soc.*, 1928, Vol. LIV. (with M. J. Marshall); "Vapor Density of Hydrogen Sulphide," *Canad. J. Res.*, 1931, 5, 442-447; "Solubility of H₂S in Water from Vapor Pressures of Solutions," *ibid.*, 1932, 6, 94-101; "Electrical Conductivity of Aqueous Solutions of H₂S and the State of the Dissolved Gas," *ibid.*, 1932, 6, 588-595 (with O. Maass). (Signed by) G. S. Whitby.

ZEE, TSOH-WU, University of Shanghai, China. Chinese. Teaching. B.Sc., Soochow University; M.A., Soochow University; Ph.D., University of Chicago. Professor of Organic Chemistry, University of Shanghai (China). Author: "A New Method of Preparation of Phenylethylmalonic Methyl Ester," *J. Amer. Chem. Soc.*, 1927, 49, 541; "Sodium Salts of Aromatic Nitriles," *ibid.*, 1928, 50, 1699. (Signed by) H. C. Tsao.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

- BRITISH DRUG HOUSES. Guide to the B.P. 1932. London 1932. pp. xvi + 122. (Reference.) 2s. 6d. net. From the Director.
- HANNAH DAIRY RESEARCH INSTITUTE. 2nd and 3rd Annual Reports (combined), for the two years ending 31st March 1932. Kirkhill 1932. pp. 16. ill. (Reference.)
- Bulletin No. 3. The properties of milk in relation to the condensing and drying of whole milk, separated milk, and whey. A review of existing knowledge. By LESLIE ALFRED ALLEN. Kirkhill 1932. pp. 160. ill. (Reference.) 4s. 6d. net.
- Bulletin No. 4. The engineering aspects of the condensing and drying of milk. By ALEXANDER WHITEFORD SCOTT. Kirkhill 1932. pp. 120. ill. (Reference.) 4s. 6d. net. From the Director.
- LECAT, MAURICE. L'azéotropisme. La tension de vapeur des mélanges de liquides. Bibliographie. Bruxelles 1932. pp. viii + 135. (Reference.) 12 belgas. From the Faraday Society.
- NIERENSTEIN, MAXIMILIAN. Incunabula of tannin chemistry. A collection of some early papers on the chemistry of the tannins reproduced in facsimile and published with annotations. London 1932. pp. viii + 167. 12s. 6d. net. (Recd. 15/12/32.)
- NUTRITION ABSTRACTS AND REVIEWS. Vol. I., etc. Aberdeen 1931 +. (Reference.) 21s. per annum. From the Bureau of Chemical Abstracts.
- TROTMAN, SAMUEL RUSSELL, and TROTMAN, EDWARD RUSSELL. Textile analysis. London 1932. pp. vi + 302. ill. 21s. net. (Recd. 15/12/32.)
- ZECHMEISTER, LADISLAUS. Carotinoide höherer Pflanzen (Polyen-Farbstoffe). (From the Handbuch der Pflanzenanalyse.) Wien 1932. pp. [112]. ill. (Recd. 19/12/32.) From the Author.

II. *By Purchase.*

- BANCROFT, WILDER DWIGHT. Applied colloid chemistry: general theory. 3rd edition. New York 1932. pp. x + 544. ill. \$4. (Recd. 4/1/33.)
- DANA, EDWARD SALISBURY. A textbook of mineralogy, with an extended treatise on crystallography and physical mineralogy. 4th edition. By WILLIAM EBENEZER FORD. New York 1932. pp. xii + 852. ill. \$5.50. (Recd. 13/1/33.)
- EGGERT, JOHN. Physical chemistry. Translated by SIDNEY JOHN GREGG. London 1932. pp. xii + 632. ill. 24s. net. (Recd. 15/12/32.)
- MAREK, L. F., and HAHN, DOROTHY A. The catalytic oxidation of organic compounds in the vapor phase. (American Chemical Society Monograph Series.) New York 1932. pp. 486. ill. \$9. (Recd. 4/1/33.)
- OLSEN, JOHN CHARLES, [and others]. Unit processes and principles of chemical engineering. [New York] 1932. pp. xiv + 558. ill. \$5 net. (Recd. 15/12/32.)
- PARKS, GEORGE SUTTON, and HUFFMAN, HUGH MARTIN. The free energies of some organic compounds. (American Chemical Society Monograph Series.) New York 1932. pp. 251. ill. \$4.50. (Recd. 4/1/33.)
- POUCHER, WILLIAM ARTHUR. Perfumes, cosmetics and soaps, with especial reference to synthetics. 4th edition. Vol. II. London 1932. pp. xvi + 600. ill. 30s. net. (Recd. 4/1/33.)
- VAN VLECK, J. H. The theory of electric and magnetic susceptibilities. Oxford 1932. pp. xii + 384. ill. 30s. net. (Recd. 4/1/33.)

III. *Pamphlets.*

- AIYAR, S. PARAMESWARA. A titration method for determining the total and exchangeable bases in soils. (From the *Indian J. Agric. Sci.*, 1932, 2.)
- ALLEN, LESLIE ALFRED. The mineral constituents and citric acid content of milk. (From the *J. Dairy Research*, 1931, 3.) ill.

IMPERIAL INSTITUTE. The Mineral Industry of the British Empire and Foreign Countries. Borates. 2nd edition 1920—1932. London 1933. pp. 44.

INDIAN LAC RESEARCH INSTITUTE. Bulletin No. 10. The influence of orpiment in shellac on the protective properties of the varnish. By M. RANGASWAMI. Ranchi 1932. pp. 7.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Two lectures on the nature of simple molecules and of elementary processes. By ARTHUR JOHN ALLMAND. London 1932. pp. 57. ill.

— Rubber. By WILLIAM ARTHUR WILLIAMS. Streatfield Memorial Lecture, 1932. London 1933. pp. 23.

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. Report of further tests . . . on the Turner retort installed at the works of the Comac Oil Co., Ltd., Coalburn, Lanarkshire. London 1932. pp. viii + 35. ill.

SHINODA, JUNZO, SATO, D., and KAWAGOYE, M. Über Päonol-derivate und einen Fall von Bromverschiebung. (From the *J. Pharm. Soc. Japan*, 1932, 52.) [In Japanese. German summary.]

WRIGHT, NORMAN C., and PAPISH, JACOB. The inorganic constituents of milk. (From *Science*, 1929, 69.)

FORTHCOMING MEETINGS OF THE SOCIETY.

Thursday, February 2nd, 1933, at 8 p.m.

Ordinary Scientific Meeting, at which the following papers will be read :

- “Tricarbocyanines.” By (MISS) N. I. FISHER and (MISS) F. M. HAMER.
 “The configurations of the aldoximes from measurements of electric dipole moment.”
 By T. W. J. TAYLOR and L. E. SUTTON.
 “Primary photochemical processes. Part II. The absorption spectrum and photochemical decomposition of diazomethane.” By F. W. KIRKBRIDE and R. G. W. NORRISH.
 “A mode of studying nitration.” By J. A. HETHERINGTON and I. MASSON.

Thursday, February 16th, 1933, at 8 p.m.

Discussion on “The Raman Effect in Relation to some Chemical Problems,” to be opened by Dr. J. J. Fox, O.B.E.

Thursday, March 2nd, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, March 16th, at 8 p.m.

Discussion on “The Chemical Constitution of Œstrin,” to be opened by Dr. G. F. Marrian.

Wednesday, March 29th, at 5.30 p.m.

*The Fifteenth Faraday Lecture, entitled “The Relations between Stereochemistry and Physics,” by Professor Dr. P. Debye, in the Lecture Theatre of the Royal Institution, Albemarle Street, W. 1.

Thursday, March 30th.

*Annual General Meeting at 4 p.m.

*Anniversary Dinner at Grosvenor House, Park Lane, W. 1, at 7 for 7.30 p.m.

* A further announcement will be made.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Extra Meeting held in the Chemistry Lecture Theatre of the University of Liverpool on Friday, 27th January, 1933, at 6 p.m.

In the absence of the President, the Chair was taken by Professor E. C. C. BALY, C.B.E., F.R.S.

The CHAIRMAN welcomed the visitors present, amongst whom were the Vice-Chancellor (Dr. H. J. W. Hetherington), Dr. H. R. Rathbone, Professor W. H. Roberts, and Professor L. R. Wilberforce, and stated that Sir Max Muspratt had written expressing regret that he could not be present.

The Chairman then called upon Professor F. G. Donnan to deliver the Ostwald Memorial Lecture. At the conclusion, a vote of thanks to the Lecturer, proposed by Professor W. C. McC. Lewis and seconded by Professor C. S. Gibson, was carried with acclamation, Professor Donnan making acknowledgment.

Ordinary Scientific Meeting, Thursday, February 2nd, 1933, at 8 p.m., Professor J. C. PHILIP, O.B.E., D.Sc., F.R.S., in the Chair.

The CHAIRMAN referred to the loss sustained by the Society, through death on January 18th, 1933, of Dr. John Thomas, who was elected a Fellow on June 20th, 1918.

Messrs. John A. Hetherington, Ralph J. Wilkins, and Henry W. Headland were formally admitted Fellows of the Chemical Society.

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

John Harold Andrew, Prof., D.Sc., Torwood, 29, Endcliffe Grove Avenue, Sheffield.
Max Bergmann, Prof., Wielandstrasse 2, Dresden.
William Charles Bickley, B.A., 20, Station Road, Pelsall, Walsall.
Robert Gillies Muir Dakers, B.Sc., F.I.C., 59, Spottiswoode Street, Edinburgh.
Alan Conrad Grüneberg, 18, Grove Avenue, Muswell Hill, N. 10.
Roger Christopher Murray, B.Sc., 65, Westbourne Terrace, W. 2.
Maurice Arthur Harold Rogers, B.Sc., 18, Guilford Street, W.C. 1.
Oden Elbridge Sheppard, Prof., A.M., Ph.D., Montana State College, Bozeman, Montana, U.S.A.

The following papers were read :

“Tricarbocyanines.” By (MISS) N. I. FISHER and (MISS) F. M. HAMER.

“The configurations of the aldoximes from measurements of electric dipole moment.”
By T. W. J. TAYLOR and L. E. SUTTON.

“A mode of studying nitration.” By J. A. HETHERINGTON and I. MASSON.

“Primary photochemical processes. Part II. The absorption spectrum and photochemical decomposition of diazomethane.” By F. W. KIRKBRIDE and R. G. W. NORRISH.

Ordinary Scientific Meeting, Thursday, February 16th, 1933, at 8 p.m., Professor G. G. HENDERSON, M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Joseph G. Gordon	Mar. 4th, 1875.	Jan. 12th, 1933.
F. Stuart Harris	Feb. 7th, 1878.	Feb. 1st, 1933.
John Watts	Feb. 1st, 1872.	Feb. 9th, 1933.
H. Marshall Webb	Dec. 5th, 1918.	Jan. 22nd, 1933.

Messrs. John MacArthur, M. Stacey, and Ronald B. Mooney were formally admitted Fellows of the Chemical Society.

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

Stanley Astin, B.Sc., A.R.C.S., 39, Osborne Avenue, Newcastle-on-Tyne.
 Caleb Binns, 3, Oxford Villas, Guiseley, near Leeds.
 Roderick Langton Douglas, B.A., B.Sc., c/o T. J. Smith & Nephew, Ltd., Neptune Street, Hull.
 Andrew Henderson, M.A., B.Sc., 3, Vennel Street, Dalry, Ayrshire
 Izrael Hieger, B.Sc., 80, Hilltop, Hampstead Garden Suburb, N.W. 11.
 Arthur Henry Hughes, B.A., Trinity Hall, Cambridge.
 Dorothy Jordan Lloyd, M.A., D.Sc., 30, Cecil Court, Fawcett Street, S.W. 10.
 Walter Penman McCulloch, B.Sc., 27, Essex Drive, Glasgow, W. 4.
 Ralph John Basil Marsden, M.Sc., New College, Oxford.
 William Stewart Patterson, Ph.D., M.Sc., F.I.C., 16, Holmlands Park (North), Sunderland.
 Harold Raistrick, Prof., Sc.D., D.Sc., 17, Long Grove Road, Seer Green, Beaconsfield.
 Eric Maurice Stoddard, B.Sc., 15, Powell Street, West Hartlepool.

The following form of recommendation has been accepted by the Council under Bye-Law I (2) :

Hakon Lund, Prof., The University, Copenhagen.

Dr. G. A. R. Kon and Dr. E. E. Turner were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows:

Mitizo Asano.	John Charles Lawson, B.A.
Lancelot Salisbury Bagster, D.Sc.	Robert Henry Leach.
Antonio Garcia Banús, D.Sc.	John Edward Lennard-Jones, D.Sc., Ph.D.
Samuel Francis Boys, B.Sc., A.R.C.S.	Harold Lowe, M.Sc., F.I.C.
Leonard Francis Broadway, B.Sc., Ph.D.	Andrew McLean, B.Sc., Ph.D.
Geoffrey Broughton, B.Sc.	Stanley Reginald William Martin, B.Sc., A.R.C.S.
William Gunn Burrell, M.A.	Harry Work Melville, B.Sc., Ph.D.
Benjamin Collie, B.Sc.	Emyr Alun Moelwyn-Hughes, B.Sc., Ph.D., D.Phil., A.I.C.
Arthur Herbert Cook, A.R.C.S.	John Frederick Morley, B.Sc., Ph.D., A.R.C.S., D.I.C.
David Mark Cowan, B.Sc., A.R.C.S.	Frank Morton, B.Sc.
Eric George Cowley, B.Sc.	George Harry James Neville, B.A.
John Stanley Herbert Davies, B.A., M.Sc.Tech., Ph.D.	Julius Arthur Nieuwland, A.B., Ph.D., Sc.D.
Tenney L. Davis, B.S., A.M., Ph.D.	Stanley Kennedy North.
Gilbert Dodd.	Jawher Lalchand Panjabi, B.Sc.
James Francis Dunworth, B.Sc.Tech.	Gordon James Pritchard, B.Sc.
Wilfred James Cecil Dyke, B.Sc., Ph.D.	William Pugh, B.Sc., Ph.D., F.I.C.
John Owen Edwards, B.Sc.	Clifford Gordon Raison.
James Rawlings Elliott.	Ciro Ravenna.
Kenneth Kershaw Etchells, M.Sc., A.I.C.	William John Ray, B.Sc., A.R.C.S.
Samuel Evans, M.Sc.	George Reginald Rigby, B.Sc., Ph.D., A.R.C.S., D.I.C.
Donald Faulkner.	Walther Rimarski, Ph.D.
Eli Finklestone.	John Joseph Ritter, B.S., M.A., Ph.D.
Alexander Oscar Gettler, M.A., Ph.D.	Eric Arthur Houghton Roberts, B.A., B.Sc.
Subimal Chandra Ghosal, M.Sc.	William Charles Victor Rosney, B.Sc., Ph.D.
John Leslie Gleave.	Kenneth Sams, A.R.C.S.
John Grindley, B.Sc., Ph.D., A.I.C.	Alan Dalton Scott.
Robert Ernest Victor Hampson, D.Sc.	Abraham Shannon, B.A.
Sidney Frank Haydon.	James Charles Edward Simpson, B.Sc., Ph.D.
Max Hutchinson Hey, B.A., B.Sc.	Hermann Staudinger.
Archie Hickling, M.Sc.	James King Steel, B.Sc., A.I.C.
Leslie Alfred Hughes, B.Sc., A.R.C.S.	James Wallace, B.A.
John William Ingham, M.Sc., F.I.C.	Richard William Wren.
Takeo Ishiguro.	Robert Hamilton Wright, B.A., M.Sc., Ph.D.
Kathleen Olive Patricia Jackson, B.Sc.	Tsoh-Wu Zee, B.Sc., M.A., Ph.D.
Maurice Bevan Jarman, M.A., B.Sc.	
Joseph Cleaver Jordan.	
Andreas Klit.	
John George Knight, B.Sc.	

A Discussion on "The Raman Effect in Relation to some Chemical Problems" was opened by Dr. J. J. Fox, and continued by Sir Robert Robertson, Prof. W. E. Garner, Prof. T. M. Lowry, Mr. C. R. Bailey, Dr. C. P. Snow, Dr. H. J. Emeléus, and Mr. W. F. K. Wynne-Jones.

List of Papers, or Abstracts thereof, received between January 19th, 1933 and February 16th, 1933. (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.)

- “Constitutional factors controlling prototropic changes in carbonyl compounds. Part III. The prototropy of some nuclear-substituted acetophenones.” By H. B. WATSON and W. S. NATHAN.
- “Constitutional factors controlling prototropic changes in carbonyl compounds. Part IV. Carbethoxyl and allied groups.” By H. B. WATSON and E. D. YATES.
- “4-Nitro-5-(β -pyridyl)-glyoxaline, an oxidation product of nicotine.” By H. LUND.
- “Freezing points of solutions of nitrobenzene in benzene and *cyclohexane*, and their relations to the electrical polarisation.” By L. G. DAVY and N. V. SIDGWICK.
- “The mobility of groups containing a sulphur atom. Part II.” By D. W. COWIE and D. T. GIBSON.
- “Liquidus and solidus studies. Part III. The ternary system $\text{Ba}(\text{NO}_3)_2$, $\text{Ca}(\text{NO}_3)_2$, and KNO_3 .” By K. LAYBOURN and W. M. MADGIN.
- “Preparation and some reactions of 3:5-dinitrobenzaldehyde.” By H. H. HODGSON and E. W. SMITH.
- “Selenium dioxide, a new oxidising agent. Part III. Its reaction with some alcohols and esters.” By S. ASTIN, A. C. C. NEWMAN, and H. L. RILEY.
- “Synthetical experiments in the *isoflavone* group. Part VII. Synthesis of daidzein.” By W. BAKER, R. ROBINSON, and N. M. SIMPSON.
- “Attempts to prepare derivatives of 1:2-dihydro*isoquinoline*. New interpretation of J. S. Buck’s experiments on the synthesis of so-called 1:2-dihydropapaverine.” By P. C. YOUNG and R. ROBINSON.
- “The nitration of α - and β -naphthols.” By F. BELL.
- “A safety attachment for electrically heated water-baths and stills.” By C. W. GIBBY.
- “An improved qualitative separation of the iron group in the presence of phosphate.” By T. B. SMITH.
- “Bisulphate ion catalysis in the hydrolysis of esters.” By H. M. DAWSON, E. R. PYCOCK, and E. SPIVEY.
- “Anthoxanthins. Part XIV. ω -Hydroxyphloracetophenone and certain derivatives. Synthesis of galangin under milder conditions than heretofore.” By J. J. CHAVAN and R. ROBINSON.
- “A synthesis of pyrylium salts of anthocyanidin type. Part XX. Morinidin chloride. Observations on cyanomaclurin.” By E. H. CHARLESWORTH, J. J. CHAVAN, and R. ROBINSON.
- “The nitration of chalkone.” By R. J. W. LE FÈVRE, P. J. MARKHAM, and J. PEARSON.
- “The determination of the vapour pressures of amalgams by a dynamic method.” By J. S. PEDDER and S. BARRATT.
- “The behaviour of surface films of unsaturated compounds.” By A. H. HUGHES.
- “Synthetical experiments in the *isoflavone* group. Part VIII. Limitations of the phenacyl aryl ether cyanohydrin method.” By W. BAKER, W. M. MORGANS, and R. ROBINSON.
- “The action of bromine upon nitrophenylazoacetates and related compounds.” By F. D. CHATTAWAY and D. R. ASHWORTH.
- “Resolution of co-ordinated inorganic compounds into optical isomerides. Part I. Resolution of tri-ethylene diamino-zinc chloride, bromide, iodide, and sulphate.” By P. NEOGI and G. K. MUKHERJI.
- “Additive compounds of pyridine.” By S. S. JOSHI.
- “The complex metallic salts of sulphamide: an optically active inorganic salt.” By F. G. MANN.
- “Chemical applications of the polarising microscope.” By N. H. HARTSHORNE.
- “Studies in dielectric polarisation. Part VI. Benzene solutions of ethyl and benzyl hyponitrites and *s*-methyl sulphite, dioxan solutions of nitramide; parachors of methyl, ethyl, and *n*-butyl hyponitrites. Part VII. Benzene solutions of nitro-

- methane, nitroethane, and *n*-nitrobutane." By E. C. E. HUNTER and J. R. PARTINGTON.
- "The isolation of a cancer-producing hydrocarbon from coal tar. Part I. Concentration of the active substance." By I. HIEGER.
- "The isolation of a cancer-producing hydrocarbon from coal tar. Part II. Isolation of 1:2- and 4:5-benzopyrenes, perylene, and 1:2-benzanthracene." By J. W. COOK, C. L. HEWETT, and I. HIEGER.
- "The isolation of a cancer-producing hydrocarbon from coal tar. Part III. Synthesis of 1:2- and 4:5-benzopyrenes." By J. W. COOK and C. L. HEWETT.
- "Studies in the mechanism of flame movement. Part III. The speed of flame in currents of mixtures of methane and air." By H. F. COWARD and E. H. M. GEORGESON.
- "Organic compounds of boron." By T. THOMSON and T. S. STEVENS.
- "Reduction of α -amino-nitriles." By W. M'MEEKING and T. S. STEVENS.
- "Preliminary synthetic experiments in the morphine group. Part V. Completion of the synthesis of a laudanoline dimethyl ether related to sinomenine." By R. ROBINSON and S. SUGASAWA.
- "Investigations of the olefinic acids. Part VII. The preparation of $\beta\gamma$ -acids." By R. P. LINSTEAD, E. G. NOBLE, and (in part) E. J. BOORMAN.
- "Investigations of the olefinic acids. Part VIII. Dissociation constants." By D. J. G. IVES, R. P. LINSTEAD, and H. L. RILEY.
- "Investigations of the olefinic acids. Part IX. Lactonisation and allied additive reactions. Part II. The addition of hydrogen bromide to unsaturated acids." By E. J. BOORMAN, R. P. LINSTEAD, and H. N. RYDON.
- "Investigations of the olefinic acids. Part X. Lactonisation and allied additive reactions. Part III. The formation of lactones from $\alpha\beta$ - and $\beta\gamma$ -*n*-butenoic and pentenoic acids." By E. J. BOORMAN and R. P. LINSTEAD.
- "Investigations of the olefinic acids. Part XI. Lactonisation and allied additive reactions. Part IV. The formation of lactones from some $\gamma\delta$ -acids and an example of ring-chain (lacto-enoic) tautomerism." By R. P. LINSTEAD and H. N. RYDON.
- "The catalytic decomposition of nitroso- β -alkylaminoketones. Part I. A new method of preparing diazomethane and evidence of the occurrence of diazotisation in the aliphatic series." By E. C. S. JONES and J. KENNER.
- "The action of halogens on polycyclic indole derivatives. Part III." By S. G. P. PLANT and (Miss) M. L. TOMLINSON.
- "The action of chlorosulphonic acid on phenols and *p*-cresol at low temperatures." By G. N. BURKHARDT.
- "The determination of copper by the salicylaldoxime method." By S. ASTIN and H. L. RILEY.
- "The kinetics of reactions in solution. The interaction of potassium hydroxide and the alkyl halides in ethyl alcohol." By G. H. GRANT and C. N. HINSHELWOOD.
- "The Reimer-Tiemann reaction." By D. E. ARMSTRONG and D. H. RICHARDSON.
- "The action of bromine upon arylazobenzoylacetones." By F. D. CHATTAWAY and R. J. LYE.
- "Studies in solvent action. Part VI. Optical rotatory powers of β -octanol, *d*-amyl alcohol, and their derivatives." By H. G. RULE, (Miss) E. B. SMITH, and (in part) J. HARROWER.
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ADDITIONS TO THE LIBRARY.

I. Donations.

ABDERHALDEN, EMIL. [Editor.] Handbuch der biologischen Arbeitsmethoden. Abt. I, Chemische Methoden. Teil 2, II Hälfte, Heft 9. Berlin 1933. pp. 3079 to 3292, xxii. M. 13.50. (*Recd.* 30/1/33.) From the Publishers: Herren Urban & Schwarzenberg.

CHADWICK, JAMES. Radioactivity and radioactive substances. 3rd edition. London 1932. pp. xii + 116. ill. 2s. 6d. net. (*Recd.* 24/1/33.) From the Publishers: Sir Isaac Pitman & Sons.

CLARK, GEORGE L. Applied X-rays. 2nd edition. New York 1932. pp. xiv + 470. ill. 30s. net. (*Recd.* 17/1/33.) From the London Publishers: The McGraw-Hill Publishing Co.

DORÉE, CHARLES. The method of cellulose chemistry, including methods for the investigation of the compound celluloses. London 1933. pp. x + 500. ill. 21s. net. (*Recd.* 13/2/33.) From the Author.

FARADAY SOCIETY. The colloid aspects of textile materials and related topics: a general discussion. London 1932. pp. iv + 368. ill. 15s. 6d. net. (*Recd.* 18/1/33.) From the Society.

HOPKIN & WILLIAMS, LTD. Organic reagents for metals. London 1933. pp. 61. (*Reference.*) 1s. net. From the Publishers: Messrs. Hopkin & Williams.

ROYAL SOCIETY OF CANADA. Fifty years retrospect. Anniversary volume 1882-1932. [Ottawa] 1932. pp. xxiv + 180. (*Recd.* 23/1/33.) From the Society.

STEVENS, HENRY POTTER, and STEVENS, WILLIAM HENRY. Rubber latex. 2nd edition. London 1933. pp. 156. ill. (*Recd.* 26/1/33.) From the Publishers: The Rubber Growers' Association.

II. By Purchase.

BRAUN, HANS JULIUS. Die Metallseifen. Leipzig 1932. pp. viii + 83. M. 8.50. (*Recd.* 18/1/33.)

GARNER, WALTER. Industrial microscopy: a book dealing with the use of the microscope and the preparation of specimens. London 1932. pp. viii + 390. ill. 21s. net. (*Recd.* 16/2/33.)

GOLDSCHMIDT, STEFAN. Stereochemie. Leipzig 1933. pp. xiv + 311. ill. M. 29. (*Recd.* 18/1/33.)

LIPSCOMB, ALFRED GEORGE. Cellulose acetate: its manufacture and applications.

London 1933. pp. xii + 304. ill. 21s. net. (*Recd.* 16/2/33.)

NEUBURGER, MAXIMILIAN CAMILLO. Kristallchemie der anorganischen Verbindungen. (Sammlung, N.F. Heft 17.) Stuttgart 1933. pp. 115. ill.

SCHIEBOLD, ERNST. Methoden der Kristallstrukturbestimmung mit Röntgenstrahlen. Vol. I. Die Lauemethode. Leipzig 1932. pp. xii + 173. ill. M. 13. (*Recd.* 18/1/33.)

TRUMPER, MAX, and CANTAROW, ABRAHAM. Biochemistry in internal medicine. Philadelphia 1932. pp. 454. ill. 27s. 6d. net. (*Recd.* 16/2/33.)

III. Pamphlets.

BONE, WILLIAM ARTHUR. Fifty years' experimental research on the influence of steam on the combustion of carbonic oxide. (From the *Usp. Fiz. Nauk.*, 1932, 12.) [In Russian.]

BOSE, JYOTI PROCASH. A study of the distribution of sugar in the blood of diabetic and non-diabetic Indian subjects. (From the *Indian Med. Gaz.*, 1932, 67.)

COLMAR, ROBERT IRVING, and SCHWARTZ, FREDERICK WILLIAM. The absorption spectra of the chromium ammine hydrates. (*Rensselaer Poly. Inst. Bull., Eng. Sci. Ser.* No. 38.) Troy 1932. pp. 12. ill.

DUFRAISSE, CHARLES. Le problème des altérations du caoutchouc par l'oxygène atmosphérique. (From the *Rev. Gén. Caoutchouc*, 1932, 9.)

IMPERIAL BUREAU OF SOIL SCIENCE. Technical Communication No. 25. The Mitscherlich, Wiessman and Neubauer methods of determining the nutrient content of soils. By ROBERT STEWART. London 1932. pp. 46. ill.

MIHOLÍC, STANKO STANKOV. Chemische Analyse der Sauerwässer von Slatina Radenci. (From the *Jub. Fest. 50 Slatina Radenci*, 1932.)

MINCHIN, RODERICK LESLIE HAVILAND. The significance of urinary "proteose" in idiopathic epilepsy. (From the *Brit. Med. J.*, 1932, ii.)

MINES DEPARTMENT. *Safety in Mines Research Board.* Papers Nos. 75 and 76. Gobfires. Parts I and II. By T. N. MASON and F. V. TIDESWELL. London 1933. pp. 30, 19. ill.

RENSSELAER POLYTECHNIC INSTITUTE. Description of the laboratories. Troy [1932]. pp. 80. ill.

FORTHCOMING MEETINGS OUTSIDE LONDON.

Thursday, March 9th, at 7 p.m.

Extra Meeting in the Chemistry Lecture Theatre, The University, Manchester. A lecture entitled "How Chemical Reactions Go" will be given by Professor E. K. Rideal, M.B.E., D.Sc., F.R.S. Chairman, Professor A. Lapworth, D.Sc., LL.D., F.R.S.

Friday, May 5th, at 5.15 p.m.

Extra Meeting arranged jointly with the University College of North Wales (Bangor) Chemical Society in the Chemistry Lecture Theatre, Memorial Science Buildings, Bangor. A lecture entitled "The Chemistry of Gold" will be given by Professor C. S. Gibson, O.B.E., M.A., Sc.D., F.R.S.

Friday, May 12th, 4-6 p.m., and 8-10 p.m.

At the invitation of the Chemistry Department of the University of Leeds, the Society has arranged a discussion at Leeds on "Substitution in Aromatic Systems." Prof. G. T. Morgan (President-elect) will preside, and Professor R. Robinson, Professor C. K. Ingold, Professor G. M. Bennett, and others will take part.

FORTHCOMING MEETINGS IN LONDON.

Thursday, March 2nd, at 8 p.m.

Ordinary Scientific Meeting, at which the following papers will be read :

- “ The complex metallic salts of sulphamide; an optically active inorganic salt.” By F. G. MANN.
- “ The catalytic decomposition of nitroso- β -alkylaminoketones. Part I. A new method of preparing diazomethane, and evidence of the occurrence of diazotisation in the aliphatic series.” By E. C. S. JONES and J. KENNER.
- “ Investigations of the olefinic acids. Parts VII–XI.” The polarisability of the double bond and its effect on the addition reactions and dissociation constants of unsaturated acids. By R. P. LINSTEAD, with E. J. BOORMAN, D. J. G. IVES, E. G. NOBLE, H. L. RILEY, and H. N. RYDON.

Thursday, March 16th, at 8 p.m.

Ordinary Scientific Meeting. A discussion on “ The Chemical Constitution of Oestrin ” will be opened by Dr. G. F. Marrian.

Wednesday, March 29th, at 5.30 p.m.

The Fifteenth Faraday Lecture, entitled “ The Relations between Stereochemistry and Physics,” will be delivered by Professor Dr. Peter Debye in the Lecture Theatre of the Royal Institution, Albemarle Street, W. 1 (by the courtesy of the Managers).

Thursday, March 30th, at 4 p.m.

The 92nd Annual General Meeting of the Society. The President will deliver his Presidential Address entitled “ The Present Position and the Future of the Chemical Society.” Tea will be served at 3.30 p.m.

At 7 for 7.30 p.m.,

Anniversary Dinner at Grosvenor House, Park Lane, W. 1.

Thursday, April 6th, at 8 p.m.

Ordinary Scientific Meeting. In view of the Priestley Bicentenary on March 13th, (24th New Calendar) this meeting will be devoted to the commemoration of Priestley's life and work. Papers will be communicated by Professor A. N. Meldrum, Sir Philip Hartog, and Sir Harold Hartley. Further particulars will be announced.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, March 2nd, 1933, at 8 p.m., Professor J. F. THORPE, C.B.E., D.Sc., F.R.S., Past-President, in the Chair.

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

	Elected.	Died.
Sir Benjamin Scaife Gott	Jan. 17th, 1889.	Feb. 26th, 1933.
Nathaniel Lionel Levy	Feb. 17th, 1921.	Apr. 7th, 1932.
Alfred Rée	Nov. 18th, 1886.	Feb. 26th, 1933.

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

President (1 vacancy) : *G. T. MORGAN.

Vice-Presidents, who have filled the office of President (2 vacancies) : *G. G. HENDERSON and *W. P. WYNNE.

Vice-Presidents, who have not filled the office of President (2 vacancies) : *F. G. DONNAN and *C. S. GIBSON.

Honorary Secretaries (2 vacancies) : *S. SUGDEN and *J. M. GULLAND.

Ordinary Members of Council—

Town Members (*i.e.* those resident within a radius of 50 miles from Charing Cross) (3 vacancies) : *J. KENYON, *G. A. R. KON, and *J. DAVIDSON PRATT.

Country Members (*i.e.* those resident beyond a radius of 50 miles from Charing Cross) (3 vacancies) : †J. E. COATES (Swansea), †H. H. HODGSON (Huddersfield), †R. G. W. NORRISH (Cambridge), †E. H. RODD (Manchester), and †R. WHYTLAW-GRAY (Leeds).

* Nominated by Council under Bye-Law VI.

† Nominated by Fellows under Bye-Law VI.

Dr. P. Haas and Dr. H. Phillips were appointed Scrutators to assist in the counting of votes recorded in the election of the Ordinary Members of Council (Country).

Messrs. Eric G. Cowley, H. J. Tress, S. F. Boys, K. Sams, C. G. Raison, R. H. Leach, Alan D. Scott, and L. A. Hughes were formally admitted Fellows of the Society.

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

Neil Campbell, Ph.D., 1, Glengyle Terrace, Edinburgh.

William Robert Dracass, B.Sc., St. Alphege House, Pocock Street, S.E. 1.

Oliver Gatty, B.A., Balliol College, Oxford.

Nathan Goldenberg, 46, Oxford Gardens, N. Kensington, W. 10.

Arthur David Jones, 10, Oakfield Road, Clapton, E. 5.

Léo Edmond Marion, M.Sc., Ph.D., National Research Laboratories, Sussex Street, Ottawa.

Edwin Brew Robinson, M.Sc., 482, Lightbourne Road, New Moston, Manchester.

Sidney Stephens, A.R.C.S., 38, Osenev Crescent, Kentish Town, N.W. 5.

Ernest Taylor, M.Sc., A.I.C., Clifton, Station Road, New Longton, near Preston.

Kenneth Trouern Trend, B.Sc., 6, Swift Street, Fulham, S.W. 6.

The following papers were read :

“ The complex metallic salts of sulphamide : an optically active inorganic salt.” By F. G. MANN.

“ The catalytic decomposition of nitroso- β -alkylaminoketones. Part I. A new method of preparing diazomethane, and evidence of the occurrence of diazotisation in the aliphatic series.” By E. C. S. JONES and J. KENNER.

“ Investigations of the olefinic acids. Part VII. The preparation of Δ^{β} -acids.” By R. P. LINSTEAD, E. G. NOBLE, and (in part) E. J. BOORMAN. “ Part VIII. Dissociation constants.” By D. J. G. IVES, R. P. LINSTEAD, and H. L. RILEY. “ Part IX. The addition of hydrogen bromide to unsaturated acids.” By E. J. BOORMAN, R. P. LINSTEAD, and H. N. RYDON. “ Part X. The formation of lactones from Δ^{α} - and Δ^{β} -*n*-butenoic and pentenoic acids.” By E. J. BOORMAN and R. P. LINSTEAD. “ Part XI. The formation of lactones from some Δ^{γ} -acids and an example of ring-chain (lacto-enoic) tautomerism.” By R. P. LINSTEAD and H. N. RYDON.

Ordinary Scientific Meeting, Thursday, March 16th, 1933, at 8 p.m., Professor G. G. HENDERSON, M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Urban Aspey, jun.	June 17th, 1920.	Mar. 16th, 1931.
James Ferrier	Nov. 16th, 1882.	Not known.
William Fowler	Mar. 16th, 1882.	do.
V. V. Sivarama Iyer	May 5th, 1932.	Jan. 6th, 1933.
Henry Lloyd Snape	Mar. 3rd, 1887.	Mar. 2nd, 1933.

The PRESIDENT announced that :

1. The Union Internationale de Chimie proposes to publish an International Table of Thermochemical Data, and asks for publicity to be given to the request of the Secretary of the Committee on Thermochemistry (Dr. L. J. P. Keffer, The University, Liverpool) for two copies of all papers containing thermochemical data published within the last five years to be sent to him by the authors.

2. A letter had been received from the Institution of Petroleum Technologists inviting Fellows of the Chemical Society to become Members of the World Petroleum Congress to be held at the Imperial College of Science, South Kensington, S.W. 7, July 19th to 25th, 1933. Application for membership (fee 10s.) should be made to the Secretary at Aldine House, Bedford Street, W.C. 2.

3. The American Chemical Society had written inviting foreign Chemists to attend the 86th General Meeting at the Stevens Hotel, Chicago, U.S.A., from September 11th to 15th, 1933, on the same terms as accorded to Members.

Miss Thelma Reynolds and Miss Kathleen Culhane were formally admitted Fellows of the Society.

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

John Burke, Burton Terrace, Cork.
 Stanley George Foord, B.Sc., 78, Hertford Street, Cambridge.
 Edith Ellen Humphrey, B.Sc., Ph.D., 4, Cumberland Park, Acton, W. 3.
 Elias Isaacs, 68, Rangefield Road, Bromley, Kent.
 George William Kendall, 12, Ashbourne Crescent, Bolton Lane, Bradford.
 William Anthony Kirkby, M.Sc., Ph.D., F.I.C., 26, Hartington Road, Millhouses, Sheffield 7.
 Marcus Nicholas Leathwood, M.Sc., Vailima, Oxford Road, Runcorn, Cheshire.
 Peter John Markham, Elmside, Marlborough Hill, Harrow.
 Max Wyler, Ph.D., Upwood House, Humphrey Street, Crumpsall, Manchester.

The following forms of Recommendation for Fellowship have been accepted by the Council for presentation to ballot under Bye-Law I (2) :

William Power Charles Clifford, 18, Duckworth Street, Dunedin, New Zealand.
 Otto Kyas, Ing.-Chem., Agricultural Experiment-Institute, Brno, Czechoslovakia.
 Thomas Sherlock Wheeler, Prof., B.Sc., Ph.D., F.I.C., Royal Institute of Science, Bombay,, India.

A Discussion on “ The Chemical Constitution of Oestrin ” was opened by Dr. G. F. Marrian and continued by Mr. J. F. Danielli, Dr. J. D. Bernal, Dr. J. W. Cook, Professor E. C. Dodds, Dr. H. King, Professor R. Robinson, Mr. E. M. Meade, and Dr. N. K. Adam.

Library Telephone Number.

The telephone number of the Library is Regent 1342, and this number should be used for all inquiries relating to the Library.

Books may now be issued in response to a telephoned request from a Fellow subject to subsequent confirmation in writing and to the parcel being posted to an address registered with the Society.

List of papers, or abstracts thereof, received between February 16th, and March 16th, 1933. (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.)

- “Usnic acid. Part I. Derivatives of methylphloroglucinol.” By F. H. CURD and A. ROBERTSON.
- “Physicochemical studies of complex acids. Part IX. Tantallic acid. Reactions of alkali niobate and tantalate solutions with organic acids.” By H. T. S. BRITTON and R. A. ROBINSON.
- “The nitrosation of methylaniline.” By J. C. EARL and N. F. B. HALL.
- “The preparation of 2':2''-dimethoxy brilliant green.” By W. R. BROWN and F. A. MASON.
- “Styrylpyrylium salts. Part XIV. Further study of the colour phenomenon associated with benzonaphtha- and dinaphtha-*spiropyran*.” By I. M. HEILBRON, R. N. HESLOP, and F. IRVING.
- “Higher aliphatic compounds. Part III. Paraffins.” By (Miss) P. C. CAREY and J. C. SMITH.
- “The preparation of aliphatic mercaptans and sulphonic acids of high molecular weight.” By G. COLLIN, T. P. HILDITCH, P. MARSH, and A. F. MCLEOD.
- “The synthesis of some homologous naphthalenes.” By E. DE B. BARNETT and F. G. SANDERS.
- “Derivatives of benzaldehyde-*p*-arsonic acid.” By C. S. GIBSON and B. LEVIN.
- “The kinetics of the addition of iodine to β -phenylpropionic acid.” By E. A. MOELWYN-HUGHES and A. R. LEGARD.
- “4-Nitro-5-(3-pyridyl)pyrazole, a new oxidation product of nicotine. Part III. Confirmatory synthetical experiments.” By G. A. C. GOUGH and H. KING.
- “The Reformatsky reaction on compounds of the ethylene oxide type.” By G. R. CLEMO and J. ORMSTON.
- “Structural changes in the selenium dehydrogenation method. Part I. Ring changes in *spiro*-compounds.” By G. R. CLEMO and J. ORMSTON.
- “The refractive dispersion of eugenol and *isoeugenol*.” By (Miss) G. THOMPSON.
- “Polymerisation and explosive decomposition of ethylene under pressure.” By G. EGLOFF and R. E. SCHEAD.
- “The energetics of catalysis. Part I. The energetic homogeneity of a platinum surface.” By E. B. MAXTED and G. J. LEWIS.
- “The action of selenium dioxide on sterols and bile acids. Part I. Ergosterol and dihydroergosterol.” By R. K. CALLOW and O. ROSENHEIM.
- “The limiting conductivities of salts in non-aqueous solvents.” By C. W. DAVIES.
- “Specific heats of aqueous solutions of potassium *n*-octoate at 15° C.” By D. G. DAVIES.
- “The vapour pressure of *trans*-di-iodoethylene.” By L. F. BROADWAY and R. G. J. FRASER.
- “Note on the oxidation of cinnamaldehyde.” By A. W. POUND and J. R. POUND.
- “The condensation of anthranilic acid with 4-chloroquinaldine and with 2-chlorolepidine.” By O. G. BACKEBERG.
- “Physico-chemical studies of complex acids. Part X. The precipitation of metallic vanadates. Moser and Brandt's method of estimating vanadium.” By H. T. S. BRITTON and R. A. ROBINSON.
- “Note on *isobenzpyrylium ferrichloride*.” By B. K. BLOUNT and R. ROBINSON.
- “Experiments on the Walden inversion. Part XII. The displacement of hydroxyl by chlorine in the optically active ethyl α -naphthylglycollates.” By A. MCKENZIE and (Miss) E. R. L. Gow.

- “Studies on the discontinuous nature of isothermals determined by the retentivity technique. Part I. Water vapour isothermals on charcoal.” By L. J. BURRAGE.
- “The constitution of the chlorination products of benzanthrone.” By R. S. CAHN, W. O. JONES, and J. L. SIMONSEN.
- “Usnic acid. Part II. Usneol.” By F. H. CURD and A. ROBERTSON.
- “Studies in stereochemical structure. Part VI. The isomeric (–)menthyl α -naphthylglycollates.” By R. ROGER and (MISS) E. R. L. Gow.
- “Catalytic hydrogenation of unsaturated compounds. Part I. Additive mode in relation to selectivity of attack and catalyst activity.” By E. H. FARMER and R. A. E. GALLEY.
- “Experiments on the synthesis of rotenone and its derivatives. Part III. The dehydro-rotenone nucleus.” By A. ROBERTSON.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, MAY 4th, 1933.

ANDREW, JOHN HAROLD, Tarwood, 29, Endcliffe Grove Avenue, Sheffield. British. Professor of Metallurgy and Dean of the Faculty of Metallurgy, The University, Sheffield. D.Sc., Manchester. Late Professor of Metallurgy, Royal Technical College, Glasgow. (*Signed by*) G. M. Bennett, S. Glasstone, Arthur W. Chapman.

ASTIN, STANLEY, 39, Osborne Avenue, Jesmond, Newcastle-on-Tyne. British. Student. B.Sc. (London—Special) 1st Class Hons. in Chemistry; A.R.C.S. Research student at the Armstrong College, Newcastle-on-Tyne. Date of birth Jan. 28th, 1911. (*Signed by*) G. R. Clemo, J. G. Cockburn, H. L. Riley.

BERGMANN, MAX, Wielandstrasse, 2, Dresden. German. Director of the Kaiser Wilhelm Institut für Lederforschung. Professor in the Technische Hochschule, Dresden. Numerous publications in *Berichte, Annalen*, etc. (*Signed by*) C. R. Harington, W. N. Haworth, H. W. Dudley.

BICKLEY, WILLIAM CHARLES, 20, Station Road, Pelsall, Walsall, Staffordshire. British. Schoolmaster. Bachelor of Arts, Oxford University, England. Reason for desiring admission to the Society is to receive the publications of the Society. (*Signed by*) G. D. Parkes, Evelyn Arthur Mason, Cecil Wyatt-Edgell.

BINNS, CALEB, 3, Oxford Villas, Guiseley, near Leeds. British. Student. After six years' experience in the Artificial Silk Industry, I am now reading for an honours degree in Chemistry, and desire closer touch with advances in this subject through the publications of the Society. (*Signed by*) R. Cuthill, C. G. Lyons, William S. Denham.

BURKE, JOHN, Burton Terrace, Cork. Irish. Chemical Manufacturer. M.P.S.I. Interested in Industrial Chemistry, and requires the Journal for references. (*Signed by*) Joseph Reilly, John Taylor, D. J. O'Mahony.

CAMPBELL, NEIL, 1, Glengyle Terrace, Edinburgh, Scotland. Scottish. University Lecturer. B.Sc. (Edinburgh); Ph.D. (Edinburgh). Lecturer in Organic Chemistry, Edinburgh University. B.Sc. 1st Class Hons. Chemistry; Ph.D. (Edinburgh). Publication: “The Optical Activity of Electrolytes,” *J. Phys. Chem.*, 1931, 35, 1143. (*Signed by*) James Kendall, H. Gordon Rule, J. A. V. Butler.

DAKERS, ROBERT GILLIES MUIR, 59, Spottiswoode Street, Edinburgh. Scottish. Lecturer on Chemistry. B.Sc. (Lond.) with 1st Class Hons. in Chemistry; F.I.C. Lecturer on Chemistry in Heriot-Watt College, Edinburgh, since 1920. (*Signed by*) T. Slater Price, Hugh B. Nisbet, James Sandilands.

DOUGLAS, RODERICK LANGTON, c/o T. J. Smith & Nephew, Ltd., Neptune Street, Hull, E. Yorks. British. Works Chemist. B.A., B.Sc. (Oxford). Experiments on the Synthesis of Phenolic Aporphines with Dr. J. M. Gulland (*J.C.S.*, 1931, 2893). Some unpublished work on the Lead Chamber Reactions with Prof. W. J. Müller in Vienna. Works Chemist to Messrs. T. J. Smith & Nephew, Ltd., Hull. (*Signed by*) A. B. Densham, J. Masson Gulland, T. H. Mead.

DRACASS, WILLIAM ROBERT, St. Alphege House, Pocock Street, Southwark, S.E. 1. British. Assistant Analytical Chemist. B.Sc. (Chem.), King's College, London. Assistant to Mr. E. Hinks, M.B.E., B.Sc., F.I.C., Public Analyst, since Dec. 1931. Working for further qualifications at Sir John Cass Technical Institute. (*Signed by*) Ed. Hinks, E. de Barry Barnett, A. M. Ward.

FOORD, STANLEY GEORGE, 78, Hertford Street, Cambridge. British. Research Assistant. B.Sc. (Hons.), University College, London. Research Student, 1930–1933, at University College.

London. Papers: "A New Method for the Determination of Nitrogen Peroxide," *Proc. Roy. Soc.*, 1932, **135 A**, 166; "A Supposedly Oxidisable Variety of Nitrogen," *J.C.S.*, 1932, 153. (*Signed by*) Ronald B. Mooney, James Wallace, R. G. W. Norrish.

GATTY, OLIVER, Balliol College, Oxford. English. Fellow of Balliol. B.A., Oxford. "Determination of Dielectric Constants of Conducting Solutions," "Theory of Heat of Dilution of Strong Electrolytes," "Theory of Activity Coefficients" in *Phil. Mag.* 1930 onwards. Conductivity Report, *Ann. Rep. Chem. Soc.*, 1930. (*Signed by*) C. N. Hinshelwood, D. Ll. Hammick, Ronald P. Bell.

GOLDENBERG, NATHAN, 46, Oxford Gardens, N. Kensington, W. 10. Russian (Staatenlose—under Nansen system). Analytical Chemist at the J. Lyons & Co., Ltd. Chemical Laboratories, Cadby Hall, W. 6. Student at Birkbeck College, University of London. Date of birth Sept. 4th, 1911. (*Signed by*) S. Sugden, G. W. Ferguson, M. Waloff.

GRÜNEBERG, ALAN CONRAD, 18, Grove Avenue, Muswell Hill, N. 10. British. Student. Studying for B.Sc. (Special), in Chemistry, at University College, London. Date of birth Nov. 7th, 1913. (*Signed by*) R. J. W. Le Fèvre, E. D. Hughes, J. Pearson.

HENDERSON, ANDREW, 3, Vennel Street, Dalry, Ayrshire. British. University Lecturer (Glasgow). M.A. (Glasgow), B.Sc. (Glasgow). Lecturer on Inorganic Chemistry from 1921, University of Glasgow. Previously Assistant to Professor of Chemistry, 1908–1921. Author of "Practical Chemistry for Students of Medicine" (Stenhouse, Publisher) and Joint Author of "A Course of Volumetric Analysis" (Henderson and McCulloch). *J.C.S.*, **91**, 1907 (Patterson, Henderson, and Fairlie). See also *Analyst*, December, 1929. (*Signed by*) G. G. Henderson, Donald Chisholm, James Bell.

HIEGER, IZRAEL, 80, Hilltop, Hampstead Garden Suburb, N.W. 11. British. Assistant at Cancer Hospital Research Institute. B.Sc., London University. Author of "Spectra of Cancer-producing Substances," *Biochem. J.*, 1930, **XXIV**, 505; "Alleged Action of X-rays on Cholesterol," *ibid.*, 1927, **XXI**, 407; Joint author of "Nitroprusside Reaction in Normal Tissues and Tumours," *ibid.*, 1927, **XXI**, 751. (*Signed by*) J. W. Cook, C. Hewett, E. L. Kennaway.

HUGHES, ARTHUR HENRY, Trinity Hall, Cambridge. British. Research Student. B.A., Cambridge. The following papers have been published: "On Protein Monolayers," by A. H. Hughes and E. K. Rideal, *Proc. Roy. Soc.*, 1932, **A**, **137**, p. 62; "On the Surface Potentials of Unimolecular Films," by J. H. Schulman and A. H. Hughes, *ibid.*, 1932, **138**, p. 430; "The Electrical and Mechanical Properties of Protein Films," by A. H. Hughes, *Trans. Faraday Soc.*, 1933, No. 140, Vol. **XXIX**. Date of birth Oct. 27th, 1908. (*Signed by*) Eric K. Rideal, F. P. Bowden, R. G. W. Norrish.

HUMPHREY, EDITH ELLEN, 4, Cumberland Park, Acton, W. 3. British. Works Chemist. B.Sc. (London); Ph.D. (Zürich). Desires to receive publications, attend meetings, and use library. (*Signed by*) J. T. Hewitt, R. Lessing, F. S. Aumonier.

ISAACS, ELIAS, 68, Rangefield Road, Bromley, Kent. British. Student (Science), University College, London, since 1929. Date of birth Jan. 11th, 1912. (*Signed by*) R. J. W. Le Fèvre, C. R. Bailey, J. Pearson, C. K. Ingold.

JONES, ARTHUR DAVID, 10, Oakfield Road, Clapton, E. 5. British. Student at University College, London. To obtain the use of the library and attend the meetings. Date of birth Jan. 2nd, 1914. (*Signed by*) R. J. W. Fèvre, W. Rogie Angus, Henry Terrey.

KENDALL, GEORGE WILLIAM, 12, Ashbourne Crescent, Bolton Lane, Bradford. English. Chemist and Druggist, by Examination. Qualifying Exams. of Pharmaceutical Society. Certificate of having received a Full Course of Lectures in Chemistry, Physics, etc., at Liverpool School of Pharmacy under the late J. S. Ward, Ph.C., F.C.S. (*Signed by*) J. Robertson, J. B. Stocks, C. S. Gibson.

KIRKBY, WILLIAM ANTHONY, 26, Hartington Road, Millhouses, Sheffield 7. British. Assistant, Safety in Mines Research Board. M.Sc., Ph.D. (Manchester), F.I.C. Research on Gaseous Combustion with Prof. H. B. Dixon, F.R.S., 1919–1923, since then with Prof. R. V. Wheeler. Kirkby and Wheeler, *J.C.S.*, 1928, 3203; 1931, 847, 2303. Kirkby, *ibid.*, 1931, 878. (*Signed by*) R. V. Wheeler, H. F. Coward, Oliver C. de C. Ellis.

LEATHWOOD, MARCUS NICHOLAS, Vailima, Oxford Road, Runcorn. British. Research Chemist, Messrs. Pilkington Bros., Ltd., St. Helens. M.Sc. (Liverpool). (*Signed by*) R. A. Morton, E. C. C. Baly, I. M. Heilbron.

LLOYD, DOROTHY JORDAN, 30, Cecil Court, Fawcett Street, S.W. 10. English. Director, British Leather Manufacturers Research Association. M.A. (Cambridge); D.Sc. (London). Twelve years' Research Chemist to the British Leather Manufacturers' Research Association, the last five as Director of Research. (*Signed by*) J. Kenyon, Henry Phillips, C. W. Davies.

MCCULLOCH, WALTER PENMAN, 27, Essex Drive, Glasgow, W. 4. British. University

Lecturer (Glasgow). B.Sc. (Glasgow). Lecturer on Inorganic Chemistry at Glasgow University from 1930, previously assistant to the Professor of Chemistry from 1919. Joint author of "A Course of Volumetric Analysis" (Henderson and McCulloch). (Stenhouse publisher.) (Signed by) G. G. Henderson, Donald Chisholm, James Bell.

MARION, LÉO EDMOND, National Research Laboratories, Sussex Street, Ottawa, Canada. British. Research Chemist. B.Sc. (Queen's); M.Sc. (Queen's); Ph.D. (McGill). "Glycol-Lignin and Glycol-Ether-Lignin," *Canad. J. Research*, (1930), 2, 364; "The Nitration of Glycol-Lignin," *ibid.*, (1930), 3, 130; "Ethers of Glycol-Lignin," *ibid.*, 1931, 5, 302; "Lignin from Oat and Wheat Straw," *ibid.*, 1932, 6, 521. (Signed by) C. G. Anderson, R. H. Manske, G. S. Whitby.

MARKHAM, PETER JOHN, "Elmside," Marlborough Hill, Harrow, Middlesex. English. Student B.Sc. (Hons.) Chemistry. "Nitration of Chalkone," R. J. W. Le Fèvre, P. J. Markham, and J. Pearson. Submitted January 1933. Date of birth April 4, 1912. (Signed by) F. G. Donnan, R. J. W. Le Fèvre, C. K. Ingold.

MARSDEN, RALPH JOHN BASIL, New College, Oxford. English. Research Student. B.Sc. 1st Class Hons. Chemistry (Manchester); M.Sc. (Manchester). Engaged in research at The Dyson Perrins Laboratories, Oxford, and desires to receive the *Journal*, etc. Date of birth May 15th, 1910. (Signed by) N. V. Sidgwick, D. Ll. Hammick, Glyn Owen.

MURRAY, ROGER CHRISTOPHER, c/o Mrs. Henry, 65, Westbourne Terrace, W. 2. British. Research Student. B.Sc. (London). Interested in Chemical Research and Applications. Date of birth June 18th, 1911. (Signed by) F. A. Freeth, F. G. Donnan, B. Topley.

PATTERSON, WILLIAM STEWART, 16, Holmlands Park (North), Sunderland, Co. Durham. British. Head of Chemistry Dept., Technical College, Sunderland. Ph.D. (London); B.Sc. (Leeds); M.Sc. (Leeds); F.I.C. (Signed by) R. J. Winterton, J. H. Wilkinson, J. W. Cook.

RAISTRICK, HAROLD, 17, Long Grove Road, Seer Green, Beaconsfield, Bucks. British. Professor of Biochemistry in the University of London. Sc.D. (Cantab.); D.Sc. (Leeds). Numerous papers on Microbiological Chemistry in *Biochem. J.* and *Phil. Trans. Roy. Soc.* (Signed by) C. R. Harington, J. C. Drummond, G. F. Marrian.

ROBINSON, EDWIN BREW, 482, Lightbourne Road, New Moston, Manchester. British. Chemist. M.Sc., Victoria University (Manchester). Research Student (Vict.) 1924-6; Schunck Research Assistant (Vict.), 1926-7; now Chemist, Imperial Chemical Industries (Dyestuffs Group), Blackley, Manchester. *J.C.S.*, 1925, 127, 2234; 1927, 2052. (Signed by) E. Chapman, W. Bradley, E. H. Rodd.

ROGERS, MAURICE ARTHUR THOROLD, c/o J. McAusland, 18, Guilford Street, Russell Square, W.C. 1. English. Research Student. B.Sc. (London) (First Class honours). Date of birth June 8th, 1911. (Signed by) C. K. Ingold, O. L. Brady, R. J. W. Le Fèvre.

SHEPPARD, ODEN ELBRIDGE, 826, South Third Ave. (Residence), Montana State College (Office and mail address), Bozeman, Montana, U.S.A. Citizen, United States of America. Professor of Chemistry and Head, Department of Chemistry, Montana State College. Also State Chemist, State of Montana. A.B. and A.M., University of Missouri, Columbia, Mo; Ph.D. University of Chicago, Chicago, Ill. "An Attempt to Prepare Tautomeric Indophenols," *University of Chicago, Science Abstracts*, 7, 197-202; "Nitrobarbituric Acid," W. W. Hartman and O. E. Sheppard, *Organic Synthesis*, XII, 58-9; "Uramil," W. W. Hartman and O. E. Sheppard, *Organic Synthesis*, XII, 84-5; "Alchemy—Past, Present and Future, Hexagon of Alpha Chi Sigma," 18, 235-44 (1928) Assistant Professor of Chemistry, Montana State College, 1922-29; Associate Professor, 1929-31; Professor and Head of Department of Chemistry, 1931-present. Abstractor for Chemical Abstracts. Captain U.S. Army Chemical Warfare Reserve. State Chemist for State of Montana. Sabbatical leave year spent in Synthetic Organic Chemical Division of Eastman Kodak Co. (Signed by) C. E. Kenneth Mees, S. E. Sheppard, Leslie G. S. Brooker.

STEPHENS, SIDNEY, 38, Oseney Crescent, N.W. 5. British. Student (Chemistry). A.R.C.S. [Royal College Science (London)]. Post-graduate student engaged in research on gaseous combustion. Date of birth Dec. 11th, 1911. (Signed by) James C. Philip, H. F. Harwood, H. J. T. Ellingham.

STODDART, ERIC MAURICE, 15, Powell Street, West Hartlepool, Co. Durham. British. Research Student of Armstrong College. B.Sc. (First Class Honours Special Chemistry, London). I wish to keep in touch with the developments of chemistry and to receive the *Journal*. Also to have access to the library and Society meetings. *J.C.S.*, 1931, 1874. With Prof. Briscoe and Dr. P. L. Robinson, *J.C.S.*, 1931, 666, 1439, 2263, 2976; 1932, 2811. (Signed by) H. V. A. Briscoe, P. L. Robinson, L. A. Sayce.

TAYLOR, ERNEST, Clifton, Station Road, New Longton, Nr. Preston, Lancs. British. M.Sc. (Leeds); A.I.C. Lecturer in Agricultural Chemistry at the Lancs. School of Agriculture

and in Chemistry at the Harris Institute, Preston. (*Signed by*) Norman M. Comber, C. P. Hines, J. N. Aldington.

TREND, KENNETH TROUERN, "Park View," Oreston, Nr. Plymouth, Devon, and 6, Swift Street, Fulham, S.W. 6. British. B.Sc. (General), London. 3rd year student of the Royal College of Science. Date of birth Nov. 3rd, 1911. (*Signed by*) Jocelyn Thorpe, R. P. Linstead, M. A. Whiteley.

WYLER, MAX, Ph.D., Upwood House, Humphrey Street, Crumpsall. Finn. Research Chemist. 34 years' Research and Manufacturing experience. (*Signed by*) E. H. Rodd, R. Brightman, P. Chorley.

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

CLIFFORD, WILLIAM POWER CHARLES, 18, Duckworth Street, Dunedin, New Zealand. British. Chemist. M.P.S. [N.Z.]. Passed two qualifying examinations of the N.Z. Pharmaceutical Society and Registered Member of this Society from Feb. 2, 1926 following profession on own account as Chemist, Analyst, and Metallurgist. (*Signed by*) Robert Coghill.

KYAS, OTTO, Ing.-Chem. Brno, Květuá ul. No. 19, Czechoslovakia. Česká (Tscheque). Director of the Agricultural Experiment-Institute at Brno. "Engineer of Chemistry," obtained at the Technical High-School at Brno in the year 1898. 1898-1900 Chemist in a distillery and sugar-factory in Moravia; 1900 assistant in the Agricultural Experiment-Institute at Brno, now Director of this Institute; 1917 elected to Substitute-Professor of Agricultural Chemistry at the Technical High-School in Brno; 1920 nominated by our Government as member of "Masaryk Academy of Science" in Prague. (*Signed by*) James Hendrick.

LUND, HAKON, Chemical Laboratory of the University, Osterwold 5, Copenhagen. Danish. At present, "Lektor," from Aug. 1, 1933, Professor. "Cand. mag.," Copenhagen, 1922. Dr. phil., Copenhagen, 1926. Assistant at Univ. of Copenhagen, 1920-1933. Lecturer from June 1932. Designated as Professor of Chemistry at the Univ. of Aarhus, Jutland, from Aug. 1, 1933. Ten publications in different Journals, and thesis, Copenhagen, 1926 (102 pages). "The Constitution of Phenolphthalein I and II," *J.C.S.*, 1928, 1569-1575; 1930, 1844-1852. (*Signed by*) H. Baggisgaard Rasmussen, Chr. Winther.

WHEELER, THOMAS SHERLOCK, Royal Institute of Science, Bombay. British. Principal and Professor of Organic Chemistry. Ph.D., B.Sc. (London); F.R.C.Sc.I., F.I.C., F.Inst.P., A.M.I.Chem.Eng. Demonstrator in Organic Chem., Royal Technical College, Glasgow. Research Chemist at Royal Naval Cordite Factory and at Royal Arsenal, Woolwich. Senior Research Chemist with Imperial Chemical Industries, Ltd. Numerous publications in *J. Soc. Chem. Ind.*, *Phil. Mag.*, *Rec. trav. chim.*, *Physikal. Z.*, *J. Indian Chem. Soc.*, and *J.C.S.*, 1931, 2282, 3150. 20 Patents of chemical interest. (*Signed by*) Mata Prasad, R. C. Shah.

ADDITIONS TO THE LIBRARY.

I. Donations.

ASSOCIAZIONE ITALIANA DI CHIMICA. I progressi dell' industria chimica Italiana nel I° decennio di regime Fascista. Edited by DOMENICO MAROTTA. Roma 1932. pp. xii + 550. ill. (*Recd.* 16/3/33.) From the Publishers: Associazione Italiana di Chimica.

CANADA. *Department of Mines*. Rare-element minerals of Canada. By H. V. ELLSWORTH. Ottawa 1932. pp. vi + 272. ill. (*Reference.*) 40c.

———— Manganese deposits of Canada. By G. HANSON. Ottawa 1932. pp. vi + 120. ill. (*Reference.*) 20c. From the Director.

CHINGO-CHINGAS, K. M. Milling and baking properties of the wheat varieties in U.S.S.R. (*Bull. Appl. Bot.*, Suppt. 46.) Leningrad

1930. pp. 458. ill. [In Russian, English summary.] (*Recd.* 4/3/33.)

(HANLEY, JOHN.) Bibby's book on milk. Section I. Supplement No. 2. The appeal to cows and minimum variation in milk, and What is normal milk? Liverpool 1925-31. pp. 46. ill. 4s. net.

———— Section II. The law relating to the sale of milk. 18th edition. Liverpool 1928-32. pp. xiv + 488 + [114]. 30s. net. (*Recd.* 9/3/33.) From the Publishers: Messrs. J. Bibby & Sons.

HANNAH DAIRY RESEARCH INSTITUTE. Bulletin No. 5. The nutritive properties of milk in relation to pasteurisation. A review of existing knowledge. By JOHN DEMPSTER STIRLING and JANET HENDERSON BLACKWOOD. Kirkhill 1933. pp. 80. (*Reference.*) From the Director.

JOHANNESHOHN, FRITZ. Chinin in der Allgemeinpraxis unter Berücksichtigung pharmakologischer Befunde. Ein Nachtrag zu der 1930 erschienenen Ausgabe. Amsterdam 1932. pp. 176. (*Recd.* 28/2/33.)

From Dr. T. A. Henry.

NENCKI, MARCELI. Opera omnia. 1869-1901. 2 vols. Braunschweig 1904. pp. xlii + 840, xiv + 894. ill. (*Recd.* 16/3/33.)

From Professor R. H. A. Plimmer.

OSTWALD, WILHELM. The scientific foundations of analytical chemistry treated in an elementary manner. 3rd English edition. Translated by GEORGE MCGOWAN. London 1908. pp. xxiv + 248. ill. 6s. net. (*Recd.* 22/3/33.)

From the Translator.

ROBISON, ROBERT. The significance of phosphoric esters in metabolism. New York 1932. pp. x + 104. ill. 11s. 6d. net. (*Recd.* 6/3/33.)

From the Author.

II. By Purchase.

ALTPETER, [JULIUS]. Die Patentliteratur der Eiweissstoffe. Parts i-iv. Berlin 1932. pp. xii + 336. (*Reference.*) M. 34.

ARNDT, KURT. Die künstlichen Kohlen für elektrische Öfen, Elektrolyse und Elektrotechnik. 2nd edition of JULIUS ZELLNER "Die künstlichen Kohlen für elektrotechnische und elektrochemische Zwecke." Berlin 1932. pp. vi + 336. ill. M. 38. (*Recd.* 10/3/33.)

BRAGG, WILLIAM LAWRENCE. The structure of silicates. 2nd edition. Leipzig 1932. pp. 78. ill. M. 4.50. (*Recd.* 6/3/33.)

FIELD, SAMUEL, and WEILL, A. DUDLEY. Electroplating: a survey of modern practice, including nickel, zinc, cadmium and chromium. London 1930. pp. 206. ill. 5s. net. (*Recd.* 20/2/33.)

KOLTHOFF, ISAAK MAURITS, and FISCHGOLD, HARRY. Säure-Basen-Indicatoren. Ihre Anwendung bei der colorimetrischen Bestimmung der Wasserstoffionenkonzentration. 4th edition of "Der Gebrauch von Farbenindicatoren." Berlin 1932. pp. xii + 416. ill. M. 19.80. (*Recd.* 10/3/33.)

LUCAS, ALFRED. Antiques, their restoration and preservation. 2nd edition. London 1932. pp. 240. 8s. 6d. net. (*Recd.* 20/2/33.)

MADSEN, THORKILD. Studies in the detergent action and surface activity of soap solutions. Translated by ALEXANDER CHARLES JARVIS. Copenhagen 1930. pp. 154. ill. 16s. net. (*Recd.* 28/2/33.)

MICHAELIS, LEONOR. Oxydations-Reductions-Potentiale. 2nd edition. Berlin 1933. pp. xii + 260. ill. M. 19.60. (*Recd.* 10/3/33.)

MÜLLER, ROBERT. Allgemeine und technische Elektrometallurgie. Wien 1932. pp. xii + 580. ill. M. 32.50. (*Recd.* 10/3/33.)

PHYSICAL SOCIETY. Report on band-spectra of diatomic molecules. By W. JEYONS. London 1932. pp. viii + 308. ill. 17s. 6d. net. (*Recd.* 20/2/33.)

PRAUSNITZ, PAUL H., and REITSTÖTTER, JOSEF. Elektrophorese, Elektrosmose, Elektrodialyse in Flüssigkeiten. Dresden 1931. pp. xii + 307. ill. M. 20. (*Recd.* 6/3/33.)

SACHANEN, A. N., and TILICHEYEV, M. D. Chemistry and technology of cracking. Translated by A. A. BOEHLINGK, D. F. BROWN, and K. T. STEIK. New York 1932. pp. 390. ill. \$8. (*Recd.* 20/2/33.)

WELLS, HARRY GIDEON, and LONG, ESMOND R. The chemistry of tuberculosis. 2nd edition. [Baltimore] 1932. pp. xiv + 482. ill. \$7. (*Recd.* 20/2/33.)

III. Pamphlets.

BRITISH STANDARDS INSTITUTION. British standard specifications for coal tar naphthas. London 1933. pp. 35. ill.

— Indexed list of British Standard specifications. London 1933. pp. 62.

ČUPR, V., and ŠIRŮČEK, J. Beryllium salts of the para-derivatives of the benzenesulphonic acids and their hydrolysis. (*Publ. Fac. Sci. Univ. Masaryk*, No. 157.) Brno 1932. [In Czech., English summary.]

OGURA, TSUTOMU. Contact-metamorphism by syenite-gneiss in the Lao tieh shan district near Ryojun, South Manchuria. (From the *Mem. Ryojun Coll. Eng.*, 1932, 5.)

PERLITZ, HARALD. Bemerkungen zu den Regeln über Valenzelektronenkonzentrationen in binären intermetallischen Legierungen. (From the *Acta Comm. Univ. Tartu*, 1932, A 24.) ill.

REINER, L., LEONARD, CLIFFORD SHATTUCK, and CHAO, S. S. Studies on the mechanism of chemotherapeutic action. (III-VIII.) (From the *Arch. Int. Pharm. Therapie*, 1932, 43.)

SCHMITT, N. Kultur und Absatz der *Derris elliptica* Benth. (From *Tropenpflanzer*, 1932, 35.)

— Ein neues Verfahren zur besseren Ausnutzung des wirksamen Stoffes aus rotenonhaltenden Pflanzen. (From the *Anzeiger f. Schädlingskunde*, 1933, 9.)

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. *Fuel Research*. Technical Paper No. 35. Low-temperature carbonisation. Narrow brick retorts at the Fuel Research Station. By J. FRAZER SHAW. London 1933. pp. vi + 14. ill.

YAP, CHU-PHAY. The surface energy of iron carbide. (A critique of the theories of precipitation hardening.) (*Amer. Soc. Steel Treating*, 13th Ann. Conv., 1931.) pp. 25. ill.

MEETINGS OUTSIDE LONDON.

A meeting of the Chemical Society under the new scheme for extending the activities of the Society outside London was held in Manchester on Thursday, March 9th, 1933, in the University Chemistry Lecture Theatre. Dr. R. H. Pickard, F.R.S., Vice-President, who was in the Chair, explained briefly the reasons which had led the Council to depart from its traditional policy of meeting only in London. The Council felt that meetings in the principal centres outside London had become necessary to give Fellows increased opportunities of following and discussing the rapid and far-reaching developments in chemical science which are now taking place, and had appointed representatives of the Society to organise such meetings. Professor E. K. Rideal, F.R.S., then delivered a lecture entitled "How Chemical Reactions 'Go.'"

Beginning with the anomalies observed between collision frequency and rate of reaction in homogeneous systems, the lecturer described the activation hypothesis of Arrhenius and the later work of Bodenstein, Lindemann, and Christiansen, which had led to the development of the idea of chain reactions. He then proceeded to discuss modern views on the energy of activation of a chemical reaction and the application of the quantum mechanics to explain how a reaction may come about with less than the normal energy of activation by "tunnelling" through the upper part of a potential energy "hump."

A short discussion followed in which Mr. M. G. Evans, Dr. H. A. Piggott, and Dr. C. Morson took part.

It is intended during the session 1933-1934 to arrange, in conjunction with other societies in the Manchester district, other lectures dealing with the mechanism underlying chemical reactions and the contributions which modern chemistry and physics are together making towards their solution.

FORTHCOMING MEETINGS.

Friday, May 5th, at 5.15 p.m.

Extra Meeting arranged jointly with the University College of North Wales (Bangor) Chemical Society in the Chemistry Lecture Theatre, Memorial Science Buildings, Bangor. A lecture entitled "The Chemistry of Gold" will be given by Professor C. S. Gibson, O.B.E., M.A., Sc.D., F.R.S.

Friday, May 12th, 4-6 p.m., and 8-10 p.m.

At the invitation of the Chemistry Department of the University of Leeds, the Society has arranged a discussion at Leeds on "Substitution in Aromatic Systems." Professor G. T. Morgan (President) will preside, and Professor R. Robinson, Professor C. K. Ingold, Professor G. M. Bennett, and others will take part.

FORTHCOMING MEETINGS IN LONDON.

Thursday, April 6th, at 8 p.m.

Ordinary Scientific Meeting. In view of the Priestley Bicentenary on March 13th, this meeting will be devoted to the commemoration of Priestley's life and work. Papers will be communicated by Professor A. N. Meldrum, D.Sc., Sir Philip Hartog, K.B.E., C.I.E., and Sir Harold Hartley, M.C., C.B.E., F.R.S., and there will be an exhibition of objects of interest relating to Priestley.

Thursday, May 4th, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 18th, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 25th, at 5.30 p.m.

The Sixth Hugo Müller Lecture, entitled "Chemistry at the Cross Roads," will be delivered by Professor H. E. Armstrong, LL.D., F.R.S., in the Meeting Hall of the Institution of Mechanical Engineers, Storey's Gate, S.W. 1.

Missing Pages From 31-38

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, May 4th, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Samuel Anthony Goldschmidt	April 4th, 1879.	Jan. 28th, 1933.
Richard Hornby	Feb. 15th, 1894.	Mar. 9th, 1933.
William Harrison Martindale	Apr. 30th, 1902.	Apr. 8th, 1933.
Thomas Cunningham Porter	Dec. 18th, 1904.	Mar. 31st, 1933.
Mortyn John Salter	June 25th, 1871.	Apr. 16th, 1933.

The PRESIDENT announced that the following Committees for 1933—1934 had been appointed by the Council :

Finance and General Purposes Committee : E. F. Armstrong, F. P. Dunn, G. T. Moody, R. H. Pickard, Sir William J. Pope, W. Rintoul, Sir Robert Robertson, N. V. Sidgwick, the Officers, and the Chairman of the Library Committee and of the Publication Committee. The President as Chairman, Treasurer as Vice-Chairman, and the Assistant Secretary as Secretary.

Library Committee : C. R. Bailey, H. Bassett, J. J. Fox, T. A. Henry (Chairman), C. K. Ingold, W. H. Mills, H. Terrey, J. C. Withers, and the Officers, together with representatives of contributing Societies, with the Librarian as Secretary.

Publication Committee : H. E. Armstrong, G. M. Bennett, H. M. Dawson, H. W. Dudley, F. P. Dunn, A. C. G. Egerton, H. J. T. Ellingham, G. I. Finch, J. J. Fox, W. E. Garner, C. R. Harington, W. N. Haworth, I. M. Heilbron, J. T. Hewitt, C. N. Hinshelwood, J. Kendall, J. Kenner, R. P. Linstead, T. M. Lowry, W. H. Mills, J. R. Partington, J. C. Philip (Chairman), F. M. Rowe, S. Smiles, T. W. J. Taylor, J. F. Thorpe, W. Wardlaw, and the Officers, with the Editor as Secretary.

Research Fund Committee : J. E. Coates, F. E. Francis, R. Whytlaw-Gray, I. M. Heilbron, J. Kendall, T. M. Lowry, J. R. Partington, R. Robinson, J. F. Thorpe, and the Officers, with the Assistant Secretary as Secretary.

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

Cecil Morris Bean, B.Sc., 27, The Avenue, Lowestoft.
 Robert David Blair, Ph.D., Eastleigh, Drymen Road, Bearsden, Glasgow.
 Dudley Ross Chesterman, M.Sc., A.R.C.S., Woolwich Polytechnic, S.E. 18.
 Jack Blatchley Harrison, B.Sc., 29, East View, Yeadon, Leeds.
 Gilbert Spencer Hartley, M.Sc., 14, Swains Lane, N. 6.
 Randal George Arthur New, B.A., D.Phil., Belmont House, North Avenue, Mickleover, Derby.
 Joseph Beatty Parke, M.Sc., 68, Bawnmore Road, Belfast.
 John Barnabas Price, B.Sc., Barford Rectory, Warwick.

Dr. A. Bramley and Dr. J. W. Cook were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected :

John Harold Andrew, D.Sc.	William Power Charles Clifford.
Stanley Astin, B.Sc., A.R.C.S.	Robert Gillies Muir Dakers, B.Sc., F.I.C.
Max Bergmann.	Roderick Langton Douglas, B.A., B.Sc.
William Charles Bickley, B.A.	William Robert Dracass, B.Sc.
Caleb Binns.	Stanley George Foord, B.Sc.
Neil Campbell, B.Sc., Ph.D.	Oliver Gatty, B.A.

Nathan Goldenberg.
 Alan Conrad Grüneberg.
 Andrew Henderson, M.A., B.Sc.
 Izrael Heiger, B.Sc.
 Arthur Henry Hughes, B.A.
 Edith Ellen Humphrey, B.Sc., Ph.D.
 Elias Isaacs.
 Arthur David Jones.
 George William Kendall.
 William Anthony Kirkby, M.Sc., Ph.D., F.I.C.
 Otto Kyas.
 Marcus Nicholas Leathwood, M.Sc.
 Dorothy Jordan Lloyd, M.A., D.Sc.
 Hakon Lund, Dr. Phil.
 Walter Penman McCulloch, B.Sc.
 Léo Edmond Marion, M.Sc., Ph.D.

Peter John Markham.
 Ralph John Basil Marsden, M.Sc.
 Roger Christopher Murray, B.Sc.
 William Stewart Patterson, Ph.D., M.Sc.,
 F.I.C.
 Harold Raistrick, Sc.D., D.Sc.
 Edwin Brew Robinson, M.Sc.
 Maurice Arthur Thorold Rogers, B.Sc.
 Oden Elbridge Sheppard, A.M., Ph.D.
 Sidney Stephens, A.R.C.S.
 Eric Maurice Stoddart, B.Sc.
 Ernest Taylor, M.Sc., A.I.C.
 Kenneth Trouern Trend, B.Sc.
 Thomas Sherlock Wheeler, B.Sc., Ph.D., F.I.C.
 Max Wyler, Ph.D.

The following papers were read :

- “ The energetics of catalysis. Part I. The energetic homogeneity of a platinum surface.”
 By E. B. MAXTED and G. J. LEWIS.
- “ Influence of poles and polar linkings on the course pursued by elimination reactions.
 Part XV. Dynamics of the elimination of olefins from quaternary ammonium compounds.” By E. D. HUGHES and C. K. INGOLD.
- “ Influence of poles and polar linkings on the course pursued by elimination reactions.
 Part XVI. Mechanism of the thermal decomposition of quaternary ammonium compounds.” By E. D. HUGHES, C. K. INGOLD, and C. S. PATEL.
- “ Influence of poles and polar linkings on the course pursued by elimination reactions.
 Part XVII. Thermal decomposition of phosphonium ethoxides.” By L. HEY and
 C. K. INGOLD.
- “ The dielectric constants of some organic liquids.” By S. SUGDEN.

Ordinary Scientific Meeting, Thursday, May 18th, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on November 3rd, 1931, of Henry Garnett, who was elected a Fellow of the Society on December 7th, 1893.

The PRESIDENT announced that :—

1. A copy of the Thomson Medal, awarded for chemistry at King's College, London, had been presented to the Society by Professor S. Smiles and Professor A. J. Allmand.
2. The Council had received an anonymous donation of £20 to the General Funds of the Society.
3. A communication had been received from the Committee of the Van 't Hoff Fund for the endowment of research in pure and applied chemistry. The amount from this fund available for distribution during 1934 is about 1200 Dutch guilders.

A Committee consisting of Professor A. F. Holleman (President), Professor F. M. Jaeger, Professor A. Smits, and Professor J. P. Wibaut (Secretary) has been appointed to award grants. Applications should be sent before November 1st, 1933, by registered post to: “ Het Bestuur der Koninklijke Akademie van Wetenschappen, bestemd voor de Commissie van het van 't Hoff-fonds, Trippenhuis, Klovenierburgwal, Amsterdam.” Every applicant is requested to submit a detailed account of the manner in which he proposes to expend the grant and to state the reasons for which he makes his application. Papers embodying the results of the research may be published in any journal, but acknowledgment must be made of the source of the grant. Copies of papers containing the results of the research must be forwarded to the Committee.

The following were formally admitted Fellows of the Society: Carleton Ellis, A. R. Ubbelohde, J. A. V. Butler, A. C. Grüneberg, A. D. Jones, A. R. Martin, W. J. C. Dyke.

The following papers were read :

- "The oxidation of zinc dimethyl." By H. W. THOMPSON and N. S. KELLAND.
 "Explosions of methane and air: propagation through a restricted tube." By H. ROBINSON and R. V. WHEELER.
 "The free energy of the normal aliphatic alcohols in aqueous solution." By J. A. V. BUTLER, D. W. THOMSON, and W. H. MACLENNAN.

Ordinary Scientific Meeting held at Leeds University on Friday, May 12th, 1933.

Sir James B. Baillie, O.B.E., M.A., LL.D., Vice-Chancellor of the University of Leeds, held a Reception for Fellows and Visitors before the Meeting.

At 4 p.m., the President, Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., took the Chair, and welcomed the visitors present.

The following were admitted Fellows of the Society : R. Whytlaw-Gray, D. Holroyde Hey, C. W. Shoppee, R. B. Forster, H. M. Dawson, Glyn Owen, M. A. T. Rogers, Dora A. Duff, G. W. Kendall, Wilfred B. Orr, C. G. Lyons, W. A. Waters, C. Binns, Fred Fairbrother, R. Gawler, G. N. Burkhardt, R. D. Haworth, C. Higginbottom, H. E. Goodson, O. V. Richards, A. M. Robinson, Arthur E. Everest, W. R. H. Hurlley, D. Ward, J. S. H. Davies, W. Cocker, W. J. Stansfield.

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

Edward Auty Coulson, M.A., M.Sc., D.Phil., 28, Sandy Lane, Teddington.
 Joshua Craven Gregory, B.Sc., F.I.C., 3, Oak Villas, Bradford.
 Esmond John Whitelock, Saint Maur, Dora Street, Hendra, Brisbane.
 Harold Francis Wilmot, B.A., Caterham School, Caterham.

The following Form of Recommendation has been accepted by the Council under Bye-Law I (2) :

Norman Jackson Harrar, Prof., M.S., Ph.D., 348, Yandes Street, Franklin, Indiana, U.S.A.

The PRESIDENT then called on Professor G. M. Bennett to open the discussion on "Substitution in Organic Compounds" by giving his paper on "The Influence of Nuclear Halogens on Side-Chain Reactivity." This was followed by a paper by Professor R. Robinson (read by Dr. J. C. Smith on account of Professor Robinson's unavoidable absence from the earlier part of the meeting) on "Electronic Displacements and Activation in Simple and Conjugated Unsaturated Systems," and by a paper on "The Effect of Nuclear Halogens on Triad Prototropic Systems," by Dr. C. W. Shoppee. A discussion then ensued, in which Dr. G. N. Burkhardt, Mr. M. G. Evans, Professor R. Robinson, and Professor G. M. Bennett took part.

The Meeting adjourned for dinner in the Refectory of the University at 6.15, and reassembled at 8.30, when Professor C. K. Ingold read a paper on "The Significance of the Reactions of Aromatic Compounds in Electronic Theories of Reactivity." This was followed by papers on "Anomalies in the Reactivities of Side-Chain Halogens," by Dr. J. W. Baker, and "Substitution of Halogens in Aliphatic Ions and Molecules," by Professor H. M. Dawson. The discussion was continued by Professor J. Kenner, Professor A. Lapworth, and Professor R. Robinson.

The PRESIDENT, in closing the meeting, expressed the thanks of the Society to the Fellows resident in Leeds and the district for their cordial reception of the visiting Fellows, and especially to Professor R. Whytlaw-Gray, Professor H. M. Dawson, and Professor F. Challenger for the accommodation provided, and to Mr. H. S. Patterson for the work of organisation.

Extra Meeting at Bangor on May 5th, 1933. Professor J. L. SIMONSEN, D.Sc., F.R.S., in the Chair.

In the course of his opening remarks, Professor Simonsen read a letter received from the President, conveying his good wishes and welcome to Fellows and visitors.

The Lecture on the Chemistry of Gold, given by Professor C. S. Gibson, F.R.S., dealt with co-ordination compounds of gold and included a summarising account of relevant work carried out by the Lecturer and his co-workers. Following a discussion, a vote of thanks to Professor Gibson was proposed by Mr. E. W. Lewis, seconded by Dr. F. G. Soper, and carried with acclamation.

Extra Meeting held jointly with the Students' Chemical Society of the University College of Swansea on Thursday, May 11th, 1933, in the College Chemistry Lecture Theatre, Professor J. E. COATES, O.B.E., D.Sc., in the chair.

Professor Coates referred briefly to the new scheme under which this was the first meeting, and read a telegram from the President wishing success to the meeting. Professor W. N. Haworth, F.R.S., then delivered a lecture entitled "The Development of the Structure of Carbohydrates."

Beginning at the point where Fischer terminated his researches on the monosaccharoses, Professor Haworth dealt with the modern conception of the structure of the carbohydrates, pointing out how the proof of the presence of a cyclic structure in the monosaccharoses has greatly simplified the problem of visualising these compounds, especially with the polysaccharoses. He then proceeded to outline the methods by which the number of hexose nuclei in a complex polysaccharose could be estimated, and finally gave an account of the recent work upon the elucidation of the structure of ascorbic acid, which has the antiscorbutic properties of vitamin-C.

A vote of thanks to Professor Haworth was proposed by Mr. E. E. Ayling, seconded by Dr. H. B. Watson, and supported by Mr. J. B. Hutchinson and Mr. John Pryde.

List of Papers, or Abstracts thereof, received between April 10th and May 18th, 1933. (This List does not include the titles of papers, or abstracts thereof, which have been read at an Ordinary Scientific Meeting, or which have appeared in the Journal.)

- "The structure of the sterols and bile acids." By I. M. HEILBRON, J. C. E. SIMPSON, and F. S. SPRING.
- "Yohimbine (Quebrachine). Part IV. Harman, a degradation product." By G. BARGER and C. SCHOLZ.
- "Preparation of hexadecanesulphonates." By R. C. MURRAY.
- "Acid salts of monobasic organic acids. Part I." By J. D. M. ROSS and T. J. MORRISON.
- "The simultaneous synthesis of 2 : 3 : 4-trimethylglucose and 2 : 3 : 6-trimethylglucose." By G. J. ROBERTSON.
- "Some 4-styrylcoumarins." By H. S. MAHAL and K. VENKATARAMAN.
- "An investigation of the constitutions of some phosphorous derivatives of triphenylmethane." By H. H. HATT.
- "The action of phosphoryl chloride on the toluene-*p*-sulphonyl derivative of β -anilino-propionic acid." By O. G. BACKEBERG.
- "Optical superposition and the 4 : 6-benzylidenemethylglucosides." By D. S. MATHERS and G. J. ROBERTSON.
- "The photochemical union of chlorine and hydrogen in the presence of oxygen, and the relative rates of formation of water and hydrogen chloride in illuminated mixtures of the three gases rich in oxygen." By D. L. CHAPMAN and J. S. WATKINS.
- "Atisine. Part I." By J. P. C. CHANDRASENA.
- "The influence of solvents and of other factors on the rotation of optically active compounds. Part XXXI. The rotation-dispersion of the nitrobenzyl tartrates." By T. S. PATTERSON and D. MCCREATH.
- "The synthesis and properties of 2-iodo-1-vinylacetylene." By T. H. VAUGHN and J. A. NIEUWLAND.

- "The action of chlorine upon the nitrophenylazoacetates." By F. D. CHATAWAY and D. R. ASHWORTH.
- "The electric dipole moments of nickel carbonyl, di-iodoacetylene, diethyl sulphide, diethylsulphone, and decalin." By L. E. SUTTON, R. G. A. NEW, and J. B. BENTLEY.
- "The existence of aromatic bisnitroso-compounds of the type $R^1N_2O_2R^1$." By D. LI. HAMMICK, W. A. M. EDWARDS, W. S. ILLINGWORTH, and F. R. SNELL.
- "Some new co-ordination compounds of chromic chloride." By D. R. CHESTERMAN.
- "The rotatory dispersion of organic compounds. Part XXI. Cyclic derivatives of tartaric and malic acids." By B. JONES.
- "The reactivity of some resorcinol monoalkyl ethers towards certain typical diazonium compounds." By H. H. HODGSON and H. CLAY.
- "Further studies on the formation of oxynitrates of lead in molten salts." By (Miss) D. FREEMAN, K. LAYBOURN, and W. M. MADGIN.
- "The oxidation of zinc diethyl." By H. W. THOMPSON and N. S. KELLAND.
- "The determination of dissociation constants of monobasic acids." By D. J. G. IVES.
- "Metabolic oxidation and radiation." By M. COPISAROW.
- "Benzoylphenacyl carbinol." By H. W. DUDLEY and S. OCHOA.
- "Reactions of olefinic compounds. Part II. The orienting influence of the carboxyl group." By G. F. BLOOMFIELD, E. H. FARMER, and C. G. B. HOSE.
- "Volume effects of alkyl groups in aromatic compounds. Part I. Influence of 2:6-dinitration on a group $-CR_1R_2Alk$." By R. J. W. LE FÈVRE.
- "Volume effects of alkyl groups in aromatic compounds. Part II. Influence of a group $-CR_1R_2Alk$ on vicinal substitution." By R. J. W. LE FÈVRE.
- "Halogen derivatives of dehydro-2-naphthol-1-disulphide." By J. A. C. MCCLELLAND and S. SMILES.
- "The detection of adsorbed gas films on heated filaments." By G. VAN PRAAGH.
- "Synthetical experiments in the chromone group. Part VIII. Derivatives of *o*-hydroxyacetophenone, 2:5-dihydroxyacetophenone, and 2:4:5-trihydroxyacetophenone." By T. C. CHADHA and K. VENKATARAMAN.
- "The kinetics of the decomposition of the dichlorosuccinic acids." By H. V. W. ROBINSON and D. T. LEWIS.
- "The electrical conductivities of liquid mixtures of phenol-aniline, phenol-*p*-toluidene, and phenol-*m*-cresol." By O. R. HOWELL and H. G. B. ROBINSON.
- "New derivatives of hydroxymethoxysuccinic and methoxymalonic acids." By J. PRYDE and R. T. WILLIAMS.
- "The structure of theophylline *l*-arabinoside." By J. PRYDE and R. T. WILLIAMS.
- "Mercury derivatives of camphor. Part I. The constitution of Reychler's acid." By J. D. LOUDON.
- "Mechanism of substitution in organic compounds. Elimination of bromine from bromoacetic acid and the bromoacetates." By H. M. DAWSON and N. B. DYSON.
- "The system anthracene-phenanthracene." By G. BRADLEY and J. K. MARSH.
- "The velocity of ionic reactions." By D. T. LEWIS.
- "The effect of acetaldehyde on the conductivities of electrolytes in ethyl alcohol." By D. N. CLARK, O. GATTY, O. L. HUGHES, and (SIR) H. B. HARTLEY.
- "Synthesis of substances analogous to bile acid degradation products. Part II. Synthesis of some straight chain polycarboxylic esters." By J. W. BAKER.
- "Synthesis of substances analogous to bile acid degradation products. Part III. The attempted use of diallyl as an agent to introduce the requisite side-chain in the synthesis of the acid $C_{13}H_{20}O_6$." By J. W. BAKER and H. BURTON.
- "Note on the decomposition of triethylsulphonium bromide." By D. T. LEWIS.
- "Contributions to the knowledge of heterocyclic ketones. Part I. β -Amino-ketones and related pyrazolines derived from benzal- and furfural-acetone." By H. B. NISBET and C. G. GRAY.
- "Some new types of chelated platinamines." By H. D. K. DREW and H. J. TRESS.

- "Equilibria in the systems $(\text{NH}_4)_2\text{SO}_4\text{-NiSO}_4\text{-H}_2\text{O}$, $(\text{NH}_4)_2\text{SO}_4\text{-CoSO}_4\text{-H}_2\text{O}$, $(\text{NH}_4)_2\text{SO}_4\text{-ZnSO}_4\text{-H}_2\text{O}$, $\text{Na}_2\text{SO}_4\text{-NiSO}_4\text{-H}_2\text{O}$, and $\text{Na}_2\text{SO}_4\text{-CoSO}_4\text{-H}_2\text{O}$, at 25° ." By R. M. CAVEN and W. K. GARDNER.
- "The so-called 1 : 2-dihydropapaverine." By J. S. BUCK.
- "The four dinitrodimethyl-*p*-anisidines." By H. H. HODGSON and J. H. CROOK.
- "Conductivity in the three-component system oleic acid-potassium oleate-water." By J. W. MCBAIN and A. STEWART.
- "The system magnesium chloride-lime-water." By C. R. BURY and E. R. H. DAVIES.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, JUNE 1st, 1933.

BEAN, CECIL MORRIS, 27, The Avenue, Lowestoft, South. British. Research Student. B.Sc. (London). Organic Research Student under direction of Drs. J. Kenyon and H. Phillips at Battersea Polytechnic (for past 18 months). Date of birth Mar. 14th, 1911. (*Signed by*) Henry Phillips, J. Kenyon, A. Houssa.

BENGER, MICHAEL, The Pointings, Selborne Road, Croydon. English. B.A., Cambridge. Research student in Organic Chemistry. (*Signed by*) E. D. Hughes, O. L. Brady, R. J. W. Le Fèvre.

BLAIR, ROBERT DAVID, "Eastleigh," Drymen Road, Bearsden, Glasgow. British. Carnegie Teaching Fellow. B.Sc. (Glasgow), Ph.D. (Glasgow). Assistant, Glasgow University, 1929-32; Carnegie Teaching Fellow, 1932- (*Signed by*) G. G. Henderson, John A. Mair, Alfred Russell.

CHESTERMAN, DUDLEY ROSS, 123, Bulverhythe Road, St. Leonards-on-Sea, Sussex. British. Lecturer in Chemistry, Woolwich Polytechnic. M.Sc. (London). A.R.C.S., D.I.C. Date of birth April 27th, 1909. (*Signed by*) H. B. Baker, James C. Philip, M. A. Whiteley.

COULSON, EDWARD AUTY, 28, Sandy Lane, Teddington, Middlesex. English. Research Chemist. M.A., D.Phil. (Oxon.); M.Sc. (London). Author or joint-author of papers in the *Journal*, 1926, 1070; 1927, 577; 1928, 1080, 1361; 1929, 2203, 2551; 1930, 1931; 1931, 2323. (*Signed by*) D. D. Pratt, G. T. Morgan, F. H. Burstall.

DAVIES, WILLIAM HARRIS, 58, King Street, Wallasey, Cheshire. British. Chemistry Research Student. B.Sc. Hons., Liverpool. Research work on glycerol ethers and vitamin A, for Ph.D. thesis. *J.C.S.*, 1933, 165. Date of birth Feb. 22nd, 1911. (*Signed by*) I. M. Heilbron, R. A. Morton, Wm. Doran.

DUXBURY, SAMUEL, The Bungalow, Summerhouse Hill, Cardington, Bedfordshire. British. Chemist and Manager (Bedford Corporation Sewage Purification Works). (Member Institute Sewage Purification.) Experimental work in the use of tar oils as fuel for Diesel engines. Preliminary treatment of trade wastes, spent gas liquors, etc. Treatment of admixtures, sewage and trade wastes. (*Signed by*) P. G. Lloyd, Frank Hindle, Cecil B. O. Jones.

GAY, PHILIP JAMES, 79, Alderson Road, Alum Rock, Birmingham. British. Chemist. B.Sc. (London). Engaged in research in the paint and varnish industry. Publication: *J.S.C.I.*, 1932, 51, 126T-129T. (*Signed by*) C. H. Cheesman, J. Outram Cutter, L. A. Jordan.

GREGORY, JOSHUA CRAVEN, 3, Oak Villas, Bradford, Yorkshire. English. Lecturer in Chemistry, University of Leeds. B.Sc. (Lond.), F.I.C. Teaching and analytical work. Author of Friend's "Text-Book of Chemistry," III, 2 (jointly), "The Scientific Achievements of Sir Humphry Davy," and "A Short History of Atomism." (*Signed by*) R. Whytlaw-Gray, H. S. Patterson, F. L. Usher.

HARRISON, JACK BLATCHLEY, 29, East View, Yeadon, Nr. Leeds. British. Ph.D. Research Student at Leeds University. B.Sc. 1st class honours in Chemistry at Leeds. Have studied three years for an honours degree in Chemistry. Am now in my first year of research for a Ph.D. degree with Professor Challenger. Date of birth Jan. 3rd, 1911. (*Signed by*) W. A. Wightman, J. W. Baker, E. Rothstein, Frederick Challenger.

HARTLEY, GILBERT SPENCER, 14, Swains Lane, N. 6. British. Assistant Lecturer in Chemistry (University College, London). B.Sc., M.Sc., London (University College). Research on electrolyte and colloidal electrolyte solutions, especially diffusion. *Trans. Faraday Soc.*, 1931, 27, 1 and 10; *Phil. Mag.*, 1931, 12, 473; (with C. Robinson) *Proc. Roy. Soc.*, 1931, A., 134, 20; (with J. L. Moilliet), *ibid.*, 1933, 140, 141. (*Signed by*) Conmar Robinson, Henry Terrey, C. R. Bailey.

HUDSWELL, FRED, 140, Holystone Crescent, High Heaton, Newcastle-on-Tyne, 6. British. Chemist to Messrs. Thomas Hedley & Co., Ltd., Newcastle-on-Tyne. B.A., Cantab. Studied for Parts I & II of Nat. Sci. Tripos at Cambridge. Research student in organic chemistry for one year under direction of Dr. W. H. Mills. Now foreman of laboratory at Messrs. Hedley's, Newcastle. (Signed by) W. H. Mills, R. G. W. Norrish, G. H. J. Neville.

JOHNSTON, EDITH FLORENCE, 215, Milkwood Road, Herne Hill, S.E. 24. British. Student at University College, London. I desire to attend the meetings, receive the Journals and use the Library of the Chemical Society. Date of birth June 20th, 1913. (Signed by) W. Rogie Angus, Henry Terrey, L. F. Gilbert.

JONES, WILLIAM EDWARD, 15, Rossmore Gardens, Anfield, Liverpool, 4. British. Research Chemist. B.Sc. (1st Class Hons.) (Liverpool University). Two years' research work on the unsaponifiable matter of fish-liver oils, for Ph.D. *J.C.S.*, 1933, 165. Date of birth April 5th, 1909. (Signed by) I. M. Heilbron, R. A. Morton, Wm. Doran.

LAWRENCE, CYRIL ALEC, 111, Victoria Park Road, S. Hackney, E. 9. British. Laboratory Assistant, St. Olave's and St. Saviour's Grammar School. Have held above position for four years, during which I have studied at the Sir John Cass Institute for B.Sc. (Hons. Chem.), 1933. I am desirous of receiving the Journal and Abstracts to keep in touch with modern work and to have use of library for work for higher degrees. (Signed by) E. de Barry Barnett, Henry J. S. Sand, A. M. Ward.

MELCHETT OF LANDFORD, Mulberry House, Smith Square, S.W. 1. Director, Imperial Chemical Industries, Ltd. (Signed by) G. T. Morgan, W. J. Pope, J. C. Irvine, F. G. Donnan.

MORRIS, COLIN JOHN OWEN RHONABWI, 4, Milton Chambers, Cheyne Walk, Chelsea, S.W. 10. British. Research Student. M.Sc. (Wales). In order to obtain the Journal and Abstracts, and to attend meetings of the Society. Davies and Morris, *J.C.S.*, 1932, 2880. (Signed by) J. Masson Gulland, Ida Smedley Maclean, Thomas F. Macrae.

NEW, RANDAL GEORGE ARTHUR, Belmont House, North Avenue, Mickleover, Derby. British. Research Chemist. B.A., Oxford (1930); D.Phil., Oxford (1932). I have investigated the structure of the *isocyanides* by means of the parachor and dipole moment, and of the nitroso-compounds by the dipole moment; references below. Baker and New (note), *J.C.S.*, 1930, 1274; Hammick, New, Sidgwick, and Sutton, *ibid.*, 1930, 1876; New and Sutton, *ibid.*, 1932, 1415; Hammick, New, and Sutton, *ibid.*, 1932, 742. (Signed by) D. L. Hammick, N. V. Sidgwick, T. W. J. Taylor, L. E. Sutton.

PARKE, JOSEPH BEATTY, 68, Bawnmore Road, Belfast, Northern Ireland. British. B.Sc. (1st Hons.), M.Sc., Queen's University, Belfast. Post-graduate research student. Date of birth June 28th, 1909. (Signed by) A. W. Stewart, H. Graham, J. K. Marsh.

POWELL, LEONARD EDWARD BARTON, 39, Percy Road, Hampton, Middlesex. British. Schoolmaster. B.Sc., London (Birkbeck College). Research Student in Chemistry at Birkbeck College. (Signed by) S. Sugden, George W. Ferguson, F. Barrow.

PRICE, JOHN BARNABAS, Barford Rectory, Warwick. British. Chemist. B.Sc., Birmingham. Articled Pupil to Mr. F. G. Thompson. F.C.S., Public Analyst of Walsall, 1924-27; Research work on water analysis under Dr. Ashley Cooper of Birmingham University, 1930-31; Voluntary Assistant to Dr. A. F. Wright in the Clinical Biochemical Dept. of Coventry Hospital. (Signed by) W. N. Haworth, Wm. Wardlaw, W. J. Hickinbottom.

READ, EDITH MARJORIE, 64, Cambridge Street, Camberwell, S.E. 5. British. Student at University College, London. I wish to use the library, attend the meetings and receive the publications of the Society. Date of birth June 23rd, 1912. (Signed by) Henry Terrey, B. Topley, J. N. E. Day.

SAGE, THOMAS JAMES, 246, Victoria Park Road, South Hackney, E. 9. English. Works Chemist (Lewis Berger & Sons, Homerton). Fifteen years' plant control and research (azo dyestuffs, printing ink lakes and general fine colours). (Signed by) E. D. Griffiths, L. J. Couzens, Harold Toms.

TRENT OF NOTTINGHAM, Lenten House, Nottingham. English. Chairman, Boots Pure Drug Co., Ltd. (Signed by) G. T. Morgan, J. C. Irvine, W. J. Pope, F. G. Donnan.

WANSBROUGH-JONES, OWEN HADDON, Trinity Hall, Cambridge. British. Fellow of Trinity Hall. M.A., Ph.D., Cambridge. Physical chemical publications in the *Proceedings of the Royal Society* and the *Zeitschrift für Physikalische Chemie*. (Signed by) Eric K. Rideal, H. McCombie, R. G. W. Norrish, T. M. Lowry.

WHITELOCK, ESMOND JOHN, "Saint Maur," Dora Street, Hendra, Brisbane, Queensland, Australia. British. Factory Manager. Associate of Sydney Technical College (Chemistry), 1927. Associate of Australian Chemical Institute, 1928. Junior Chemist, Parke Davis &

Co., Sydney, 1921-1923. Chemist and Departmental Manager, Holbrooks (Australasia), Ltd., 1923-1929. Factory Manager, R. M. Gow & Co., Pty., Ltd., Brisbane, 1929 to date. In conjunction with Mr. F. R. Morrison, A.S.T.C., A.A.C.I., F.C.S., was awarded the Sydney Technical College Chemical Society's Prize for the best paper contributed during 1931. The paper was entitled "Notes on the Chemistry of Two Species of Prickly Pear Growing in N.S.W." (*Signed by*) L. S. Bagster, R. W. Challinor, A. D. Ollé, H. V. Bettley-Cooke.

WILMUT, HAROLD FRANCIS, Caterham School, Caterham, Surrey. British. Schoolmaster. B.A. (Oxford). Junior Chemistry Master, Caterham School. I wish to receive the Journal. Date of birth Jan. 10th, 1910. (*Signed by*) D. Ll. Hammick, N. V. Sidgwick, L. E. Sutton, T. W. J. Taylor.

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

ADAMSON, JOHN ALLEYNE, c/o Booker Bros. McConnell & Co., Ltd., P.O. Box 17, Georgetown, British Guiana. British. Registered Chemist and Druggist under the laws of British Guiana. Manager, Drug Dept., Booker Bros. McConnell & Co., Ltd., Georgetown, British Guiana, and 21, Mincing Lane, London, E.C. 3. (*Signed by*) Lionel S. Davis.

GILL, LOWELL OSCAR, c/o A. E. Staley Mfg. Co., Decatur, Illinois, U.S.A. American. Research Chemist. A.B., James Millikin University; M.Sc., Cornell University. Fifteen years as industrial chemist, first as analyst and factory control chemist, and later as research chemist specialising in the development of new products and the improvement of products from corn. (*Signed by*) Marston T. Bogert.

HARRAR, NORMAN JACKSON, 348, Yandes Street, Franklin, Indiana, U.S.A. American. Professor of Chemistry and Head of Department, Franklin College of Indiana. B.Sc., Univ. of Pittsburgh; M.S., Pennsylvania State College; Ph.D., University of Colorado. Original research and publications, especially Fe compounds of organic acids. See *J. Phys. Chem.*, 1931, **35**, 1666; **35**, 2210; 1932, **36**, 688; also *Scientific Monthly*, 1927, **25**, 246; 1932, **34**, 353; and *J. Chem. Educ.*, 1925, **2**, 1054. Member: American Chemical Society, Society of Sigma Xi, Indiana Academy of Science, Alpha Chi Sigma Fraternity. Formerly teaching at: Colorado Agricultural College, the University of Colorado, Washington and Lee University. Biography in 5th edition of "American Men of Science." (*Signed by*) Jas. Lewis Howe.

MAICKI, EDWARD LEWIS, 12206, Mendota Avenue, Detroit, Michigan, U.S.A. Polish. Pharmaceutical chemist. Ph.C. (College of the City of Detroit, 1929); B.S. (same College, 1930). Research investigator in designing therapeutic agents for injection, producing both or either—local and general reactions. (*Signed by*) E. T. Sterne.

NARSIENGAR, GRAMA KASBA, c/o Mysore Pharmaceuticals, Ltd., Bangalore, South India. Indian. Chemist. Chemistry and Physics, Madras University. Desires to be in touch, through the Chemical Society, with the latest developments. Has 18 years' experience in manufacturing lime. (*Signed by*) A. Pell.

WRIGHT, ALFRED EDWARD, c/o Booker Bros. McConnell & Co., Ltd., P.O. Box 17, Georgetown, British Guiana. English. Registered Chemist and Druggist under the laws of British Guiana. Chemist to Booker Bros. McConnell & Co., Ltd., Georgetown, British Guiana, and 21, Mincing Lane, London, E.C. 3. (*Signed by*) Lionel S. Davis.

ADDITIONS TO THE LIBRARY.

I. Donations.

ABDERHALDEN, EMIL. [Editor.] Handbuch der biologischen Arbeitsmethoden. Abt. II. Physikalische Methoden, Teil 3, Heft i. Berlin 1933. pp. 2599 to 2690. ill. M. 4.50. (*Recd.* 2/5/33.) From the Publishers: Herren Urban & Schwarzenberg.

BRITISH PLASTICS YEAR BOOK 1933. London 1933. pp. 460. ill. (*Reference.*) From the Publishers: Plastics Press Ltd.

CANADIAN PULP AND PAPER ASSOCIATION. Pulp and Paper of Canada. Vol. XXXIV (N.S.) etc. Gardenvale, Que. 1933+. (*Reference.*) From the Bureau of Chemical Abstracts.

CURRENT METALLURGICAL ABSTRACTS. Vol. IV, etc. Pittsburgh 1933+. (*Reference.*) From the Bureau of Chemical Abstracts.

DAYNES, H. A. Gas analysis by measurement of thermal conductivity. Cambridge 1933. pp. viii + 358. ill. 16s. net. (*Recd.*

25/4/33.) From the Syndics of the Cambridge University Press.

DEUTSCHE KAUTSCHUK-GESELLSCHAFT. Kautschuk. Zeitschrift für wissenschaftliche und technische Kautschukforschung und Kautschukverarbeitung. Year IX, etc. Berlin 1933 +. (Reference.) From the Bureau of Chemical Abstracts.

HOLMBERG, ARNE. Bibliographie de J. J. Berzelius. Part I. Stockholm 1933. pp. xii + 152. (Reference.) From the K. Svenska Vetenskapsakademie.

KOHLFORSCHUNGSINSTITUT IN PRAG. Mitteilungen, No. 1, etc. Prag 1931 +. (Reference.) From the Director.

MENSCHUTKIN, BORIS NIKOLAEVITSCH. Chief periods in the development of chemistry in the last one hundred and fifty years. Leningrad 1932. pp. 116. [In Russian.] (Recd. 2/5/33.) From the Author.

METALS AND ALLOYS. The magazine of metallurgical engineering. Vol. IV, etc. Pittsburgh 1933 +. (Reference.) From the Bureau of Chemical Abstracts.

REVUE DE L'ALUMINIUM ET DE SES APPLICATIONS. Vol. X, etc. Paris 1933 +. (Reference.) From the Bureau of Chemical Abstracts.

TRAILL, THOMAS STEWART. Syllabus of a popular course of lectures on chemistry. Liverpool 1806. pp. 25. (Reference.) From the Executors of Jane Omond Stevenson.

ÚSTAV PRO VĚDECKÝ VÝZKUM UHLÍ V PRAZE. Zprávy. No. 1, etc. Prague 1931 +. (Reference.) From the Director.

WILDBORE, HERBERT J. W. Patents explained: a . . . summary of information and facts useful to manufacturers and inventors. London (1933). pp. 48. 5s. net. (Recd. 1/5/33.) From the Author.

II. By Purchase.

BECKER, KARL. Hochschmelzende Hartstoffe und ihre technische Anwendung. (Metallisch leitende Carbide, Nitride und Boride und ihre Legierungen.) Berlin 1933. pp. 228. ill. M. 21. (Recd. 27/4/33.)

BENSON, HENRY K. Chemical utilization of wood. Washington 1932. pp. vi + 152. ill. 15c. (Recd. 27/4/33.)

BÖTTGER, WILHELM. [Editor.] Physikalische Methoden der analytischen Chemie. Part I. Spektrometrische und radiometrische Analyse. By GÜNTER SCHELBE, HERMANN MARK, and R. EHRENBURG. Leipzig 1933. pp. x + 388. ill. M. 34. (Recd. 1/5/33.)

CHEMIE-INGENIEUR, DER. Ein Handbuch der physikalischen Arbeitsmethoden in chemischen und verwandten Industriebetrieben. Edited by ARNOLD EUCKEN and

MAX JAKOB. Vol. I. Part i. Hydrodynamische Materialbewegung. Wärmeschutz und Wärmeaustausch. By MAX JAKOB and S. ERK. Leipzig 1933. pp. xx + 539. ill. M. 54. (Recd. 27/4/33.)

— — — Vol. I. Part ii. Mechanische Materialtrennung. By C. NASKE, H. MADEL and W. SIEGEL. Leipzig 1933. pp. x + 385. ill. M. 38. (Recd. 27/4/33.)

— — — Vol. II. Part i. Kontroll- und Reguliereinrichtungen. Allgemeines und Gemeinsames. By P. GMELIN and J. KRÖNERT. Leipzig 1932. pp. x + 208. ill. M. 18.60. (Recd. 27/4/33.)

— — — Vol. II. Part ii. Mengenumessungen im Betriebe. By R. WITTE and E. PADEL. Leipzig 1933. pp. x + 274. ill. M. 27.60. (Recd. 27/4/33.)

— — — Vol. II. Part iv. Physikalisch-chemische Analyse im Betriebe. By P. GMELIN [and others]. Leipzig 1933. pp. xiv + 388. ill. M. 38. (Recd. 27/4/33.)

FRIEDRICH, ALFRED. Die Praxis der quantitativen organischen Mikroanalyse. Leipzig 1933. pp. xvi + 209. ill. M. 36. (Recd. 1/5/33.)

WIELAND, HEINRICH. On the mechanism of oxidation. New Haven 1932. pp. x + 122. ill. \$2.50. (Recd. 4/5/33.)

WILEY, HARVEY WASHINGTON. Principles and practice of agricultural analysis. 3rd edition. Vol. II. Fertilizers and insecticides. Edited by CHARLES ALBERT BROWNE and WILLIAM W. SKINNER. Easton, Pa. 1931. pp. xviii + 646. ill. \$10. (Recd. 27/4/33.)

III. Pamphlets.

BERNER, ENDRE. Über den thermischen Abbau von Inulin. (From the *Kgl. Norske Videnskab. Selskab Forhandlinger*, 1932, 5.)

BERTHOUD, ALFRED. Essai d'interprétation de quelques réactions inattendues en rapport avec l'isométrie géométrique des composés éthyléniques. (From the *Bull. Soc. neuchâteloise Sci. nat.*, 1931, 56.)

BRITISH SCIENCE GUILD. A symposium on the utilization of coal. London 1933. pp. 46.

CAMPANILE, SILVIA. Composizione chimica delle spore di parassiti vegetali di cereali. (From the *Ann. R. Staz. Chim.-Agrar. Sperim.*, 1932, [ii], 14.)

INDIAN LAC RESEARCH INSTITUTE. Bulletin No. 11. Resin secretion on different host plants by the lac insect. By M. VENUGOPALAN. Calcutta 1932. pp. 11. ill.

— — — Bulletin No. 12. Shellac drying oil combinations. Part I. By R. W. ALDIS. Calcutta 1933. pp. 4.

- INDIAN LAC RESEARCH INSTITUTE. Bulletin No. 13. Orpiment in shellac. By R. W. ALDIS. Ranchi 1933. pp. 7.
- Research Note No. 4. Some effects of baking shellac varnish films. By M. RANGASWAMI and R. W. ALDIS. Ranchi 1933. pp. 2.
- Research Note No. 5. Shellac-castor oil combinations. By R. W. ALDIS. Ranchi 1933.
- Research Note No. 6. A note on the use of lithophone in shellac paints. By R. W. ALDIS. Ranchi 1933.
- Research Note No. 7. Reconditioning shellac. By R. W. ALDIS. Ranchi 1933.
- INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Chemistry and life. By SIR FREDERICK GOWLAND HOPKINS. 4th Gluckstein Memorial Lecture, 1932. London 1933. pp. 21.
- Joseph Priestley. 1733–1804. By ROBERT MARTIN CAVEN. London 1933. pp. 25. ill.
- Science and the community. By ALEXANDER FINDLAY. London 1933. pp. 17.
- The chemist in the Far East. By ALEXANDER MARCAN. London 1933. pp. 18.
- INSTITUTION OF POST OFFICE ELECTRICAL ENGINEERS. Professional Paper No. 89. Corrosion of lead covered cables by electrolytic action. By S. C. BARTHOLOMEW. London 1922. pp. 72. ill.
- KITAGAWA, MATSUNOSUKE, and YAMADA, HIROSHI. Studies on a di-amino acid, canavanin (II). (From the *J. Biochem. Japan*, 1932, 16.)
- KRYŠPÍN, JAN. On the chemical testing of transformer oils. (From the *Rep. Fuel Tech. Inst., Czech. Poly. Highschool, Prague*, 1921, 1.) [In Czech. English summary.]
- MARK, HERMANN. Über den Aufbau der hochpolymeren Substanzen. (From *Scientia*, 1932.) ill.
- MENON, AMBAT KESAVA. Groundnut and its uses. pp. 18.
- MINISTRY OF AGRICULTURE AND FISHERIES. *Permanent Committee on Basic Slag*. 10th interim report. London (1932). pp. ii + 25. [In mimeograph form.]
- MŽOUREK, JOSEF. On the asphaltic substance in gas producer tars from lignite. (From *Chem. Listy*, 1921, 15.) [In Czech. English summary.]
- NATIONAL JOINT INDUSTRIAL COUNCIL FOR THE FLOUR MILLING INDUSTRY. Technical Education Series. Pamphlet No. 10. The wheats of commerce. II. Commercial wheat classes. By ERNEST ARTHUR FISHER and CHARLES ROBERT JONES. London 1933. pp. iv + [52].
- PENFOLD, ARTHUR RAMON. Commercial eucalyptus oils. (*Sydney Technological Museum Bulletin*, No. 2. 3rd edition.) Sydney 1933. pp. 35.
- REINER, L., and LEONARD, CLIFFORD SHATTUCK. Studies on the mechanism of chemotherapeutic action, IX–X. (From the *Proc. Soc. Exper. Biol. Med.*, 1932, 29.)
- RUBBER GROWERS' ASSOCIATION. *Technical Research and Development of New Uses Committee*. Digest of patents dealing with rubber and/or latex in road construction materials (excluding blocks). London 1933. pp. 58.
- SAH, PETER P. T., and CHEN, CHING SHENG. Sulphur and cystine contents of egg-membrane of Chinese hens. (From the *Sci. Rep. Nat. Tsing Hua Univ.*, 1932, A1.)
- SAH, PETER P. T., and LI, TSAN-WEN. Nutritional studies on Chinese dragon eyes. (From the *Sci. Rep. Nat. Tsing Hua Univ.*, 1932, A1.)
- SAH, PETER P. T. [and others]. Chemical studies on Chinese peanuts and peanut oils. (From the *Sci. Rep. Nat. Tsing Hua Univ.*, 1932, A1.)
- SCHÄFER, F. A. Über das dielektrische Verhalten von Niederspannungskondensatoren mit geschichteter Papierisolation. (From the *Arch. Elektrotech.*, 1929, 23.) ill.
- SCHULZ, FERDINAND. Analyses of Czechoslovak crude oils. (From *Hornický Vestník*, 1921, 3.) [In Czech. English summary.]
- Analyses of Czechoslovak coals. (From *Hornický Vestník*, 1921, 3.) [In Czech. English summary.]
- On waxy coals and tertiary boghead in Bohemia. (From the *Rep. Fuel Tech. Inst., Czech. Poly. Highschool, Prague*, 1921, 1.) [In Czech. English summary.]
- SCHULZ, FERDINAND, and GEBURA, JOSEF. Analyses of Czechoslovak peats. (From *Hornický Vestník*, 1921, 3.) [In Czech. English summary.]
- SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. *Building Research*. Special Report No. 19. B.N.F. ternary alloys of lead. Their use in buildings. London 1933. pp. iv + 32. ill.
- *Water Pollution Research*. Technical Paper No. 3. The purification of waste waters from beet sugar factories. By ERIC HANNAFORD RICHARDS and D. WARD CUTLER. London 1933. pp. x + 157. ill.
- THOMAS, FRITZ. Verzögerung und Beschleunigung chemischer Vorgänge durch Licht. Freiburg i. Br. 1908. pp. 68. ill.
- TOMMASI, GIUSEPPE. Il problema dell'autotrazione a gassogeno. Possibilità italiane. (From the *Ann. R. Staz. Chim. Agrar. Sperim.*, 1932 [ii], 14.) ill.

TOMMASI, GIUSEPPE. La chimica nei più moderni problemi della produzione agraria. (From the *Ann. R. Staz. Chim. Agrar. Sperim.*, 1932, [ii], 14.)

— La concimazione del grano. (From the *Ann. R. Staz. Chim.-Agrar. Sperim.*, 1932, [ii], 14.)

TUCHEL, HERBERT. Über die Einwirkung des Lichtes auf Chlorwasser. Königsberg i. Pr. 1913. pp. 59.

UNITED STATES. *Department of Agriculture*. Department Circular 128. The manufacture and use of peanut butter. Washington 1920. pp. 16. ill.

— — — Technical Bulletin No. 344.

Petrographic methods for soil laboratories. By W. H. FRY. Washington 1933. pp. 96. ill.

VOLLMER, K. Über die Schwankungen der Frequenz und Intensität der Lichtbogenschwingungen. Leipzig 1910. pp. 95. ill.

WAGNER, (KARL) WILLY. Der Lichtbogen als Wechselstromerzeuger. Göttingen 1910. pp. vi + 122. ill.

YAMAFUJI, KAZUO. The chemical constituents of tobacco. I. On the organic bases and acids of fresh tobacco leaves. (From the *J. Agr. Chem. Soc. Japan*, 1931, 7.) [In Japanese.]

FORTHCOMING MEETING IN LONDON.

Thursday, June 1st, 1933.

Ordinary Scientific Meeting.

The following papers will be read :

- "Hydrates of calcium sulphate." By C. S. GIBSON and S. HOLT.
- "The rotatory dispersion of organic compounds. Part XXI. Cyclic derivatives of tartaric and malic acids." By B. JONES.
- "The rotatory dispersion of organic compounds. Part XXIII. The rotatory dispersion and circular dichroism of aldehydic sugars." By H. HUDSON, M. L. WOLFROM, and T. M. LOWRY.
- "Volume effects of alkyl groups in aromatic compounds. Part I. Influence of 2:6-dinitration on a group $-Cr_1R_2Alk$. Part II. Influence of a group $-CR_1R_2Alk$ on vicinal substitution." By R. J. W. LE FÈVRE.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Extra Meeting, Thursday, May 25th, 1933, at 5.30 p.m., held at the Institution of Mechanical Engineers, Storey's Gate, S.W. 1.

The President, Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., was in the Chair.

In opening the proceedings, the PRESIDENT referred to the terms of the foundation of the Hugo Müller Lectureship in 1917, to the valuable services rendered to the Society by the late Dr. Hugo Müller, and to the distinguished list of Hugo Müller Lecturers. He then called upon Professor H. E. Armstrong to deliver the Sixth Hugo Müller Lecture entitled "Chemistry at the Cross Roads." At the conclusion of the lecture, a vote of thanks, proposed by Professor J. F. Thorpe, and seconded by Professor Arthur Smithells, was carried with acclamation and acknowledged by the Lecturer.

Ordinary Scientific Meeting, Thursday, June 1st, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on February 11th, 1932, of Mr. Thomas Darling, who was elected a Fellow on December 3rd, 1891.

It was announced that :

1. The Council had decided to publish the List of Fellows this year and issue it to Fellows at the charge of one shilling. Application should be made to the Assistant Secretary. In order that the new list may be as complete as possible, Fellows are asked to notify the Assistant Secretary of any change of address, or other alteration, before 31st July, 1933.

2. The Council had decided to publish shortly Volume III of the Memorial Lectures containing the following lectures delivered before the Society between 1914 and 1932 :

Emil Fischer, by Sir Martin Onslow Forster.

Adolf von Baeyer, by Professor W. H. Perkin.

J. D. van der Waals, by Sir James H. Jeans.

J. Kamerlingh Onnes, by Professor Dr. Ernst Cohen.

S. A. Arrhenius, by Sir James Walker.

T. W. Richards, by Sir Harold Hartley.

Otto Wallach, by Professor Dr. L. Ruzicka.

The volume will be sold to Fellows at 5s. post free, and will be obtainable on application to the Assistant Secretary.

Mr. H. G. Poole was formally admitted a Fellow of the Society.

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

John Carr Bennison, M.R.C.V.S., 53, Beaconsfield Road, Cannon Hill, Birmingham.

Gilbert Fatkin Caley, 1, Brockett Close, Welwyn Garden City, Herts.

Norman Henry Chamberlain, Ph.D., Regnal House, 6, Eccleston Street, Victoria, S.W. 1.

Henry Arthur Dane, 1, Waterloo Road, Upper Holloway, N. 19.

James Bankes Morice Herbert, M.Sc., 3, Ingoldsby Avenue, Richmond Grove, Manchester.

Dafydd Islwyn Jenkins, Ph.D., 3, Kingsland Road, Whitchurch, Cardiff.

Alan Edward Wilkinson, 49, Sydenham Hill, S.E. 26.

Miss E. Lakeman and Dr. J. N. E. Day were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected :

John Alleyne Adamson.	William Edward Jones, B.Sc.
Cecil Morris Bean, B.Sc.	Cyril Alec Lawrence.
Michael Benger, B.A.	Edward Lewis Maicki, Ph.C., B.S.
Robert David Blair, B.Sc., Ph.D.	Melchett of Landford.
John Burke.	Colin John Owen Rhonabwi Morris, M.Sc.
Dudley Ross Chesterman, M.Sc., A.R.C.S., D.I.C.	Grama Kasba Narsimiengar.
Edward Auty Coulson, M.A., D.Phil., M.Sc.	Randal George Arthur New, B.A., D.Phil.
William Harris Davies, B.Sc.	Joseph Beatty Parke, M.Sc.
Samuel Duxbury.	Leonard Edward Barton Powell, B.Sc.
Philip James Gay, B.Sc.	John Barnabas Price, B.Sc.
Lowell Oscar Gill, A.B., M.Sc.	Edith Marjorie Read.
Joshua Craven Gregory, B.Sc., F.I.C.	Thomas James Sage.
Norman Jackson Harrar, M.S., Ph.D.	Trent of Nottingham.
Jack Blatchley Harrison, B.Sc.	Owen Haddon Wansbrough-Jones, M.A., Ph.D.
Gilbert Spencer Hartley, M.Sc.	Esmond John Whitelock.
Fred Hudswell, B.A.	Harold Francis Wilmot, B.A.
Edith Florence Johnston.	Alfred Edward Wright.

The following papers were read :

- “Hydrates of calcium sulphate.” By C. S. GIBSON and S. HOLT.
- “The rotatory dispersion of organic compounds. Part XXI. Cyclic derivatives of tartaric and malic acids.” By B. JONES.
- “The rotatory dispersion of organic compounds. Part XXII. Borotartrates and boromalates.” By B. JONES.
- “The rotatory dispersion of organic compounds. Part XXIII. The rotatory dispersion and circular dichroism of aldehydic sugars.” By H. HUDSON, M. L. WOLFROM, and T. M. LOWRY.
- “Volume effects of alkyl groups in aromatic compounds. Part I. Influence of 2 : 6-dinitration on a group $-CR_1R_2Alk$. Part II. Influence of a group $-CR_1R_2Alk$ on vicinal substitution.” By R. J. W. LE FÈVRE.

THE LIBRARY.

The Library will be closed for stocktaking from Monday, August 7th, until Saturday, August 19th (inclusive). During the following four weeks (August 21st to September 16th) the Library will close daily at 5 p.m.

List of Papers, or Abstracts thereof, received between May 18th and June 15th, 1933. (This List does not include the titles of papers, or abstracts thereof, which have been read at an Ordinary Scientific Meeting, or which have appeared in the Journal.)

- “The separation and determination of copper by salicylaldehyde.” By H. L. RILEY
- “The molecular structure of some platinum and palladium co-ordination compounds.”
By E. G. COX and G. H. PRESTON.
- “Trypanocidal activity and chemical constitution. Part IV. New sulphur derivatives of aromatic organic arsenicals (*continued*). Mercury, lead, and thallium derivatives of 2-thiolbenzimidazole-5-arsonic acid.” By J. G. EVERETT.
- “Trypanocidal activity and chemical constitution. Part V. Derivatives of benzimidazole-5-arsonic acid.” By J. G. EVERETT.
- “Studies of the Beckmann change. Part I. The spontaneous rearrangement of oxime picryl ethers.” By A. W. CHAPMAN and C. C. HOWIS.
- “The co-ordination compounds of oximes. Part III. Compounds of 1-phenyl-3-methyl-4-isonitroso-5-pyrazalone with the alkali metals, nickel, and thallium.” By O. L. BRADY and (MISS) M. D. PORTER.
- “The preparation of alkyylanilines containing tertiary alkyl groups.” By W. J. HICKIN-BOTTOM.

- "The Reformatsky reaction with anisil." By J. W. COOK and W. LAWSON.
- "Addition reactions of the indole nucleus." By S. G. P. PLANT and (MISS) M. L. TOMLINSON.
- "Liquidus and solidus studies. Part IV." By K. LAYBOURN, W. M. MADGIN, and (in part) (MISS) D. FREEMAN.
- "The electrostriction produced by salts in some aliphatic alcohols." By W. C. VOSBURGH, (MISS) L. C. CONNELL, and J. A. V. BUTLER.
- "Substitution in compounds containing two or more phenyl groups. Part IV. Nitration of diphenyl derivatives containing meta-directing substituents." By W. S. M. GRIEVE and D. H. HEY.
- "Flame phenomena of carbon monoxide." By A. R. J. P. UBBELOHDE.
- "Experiments on the synthesis of rotenone and its derivatives. Part IV. Dehydrodihydrorotenonic acid and tephrosic acid." By A. ROBERTSON.
- "Explosions of mixtures of hydrogen and air. The specific heats of steam at high temperatures." By G. B. MAXWELL and R. V. WHEELER.
- "Reactions of olefinic compounds. Part III. The orienting influence of the phenyl group." By E. H. FARMER and C. G. B. HOSE.
- "Properties of conjugated compounds. Part XIX. The Michael reaction applied to a triene ester." By E. H. FARMER and S. R. W. MARTIN.
- "The electric moments of cyclic 1 : 1-dicarboxylic esters in relation to the valency-deflexion hypothesis." By E. H. FARMER and N. J. H. WALLIS.
- "Synthetical experiments in the chromone group. Part IX. A synthesis of 5 : 7 : 4'-trihydroxy-3' : 5'-dimethoxyflavone, believed to be identical with tricin, the colouring matter of 'Khapli' wheat." By K. C. GULATI and K. VENKATARAMAN.
- "The direct dibromination of *m*-bromophenol and an example of group migration." By H. H. HODGSON, J. WALKER, and (in part) J. NIXON.
- "Studies in electrolytic oxidation. Part III. The formation of dithionate by the electrolytic oxidation of potassium sulphite." By S. GLASSTONE and A. HICKLING.
- "The nitration of 4-nitro-*o*-tolyl *p*-toluenesulphonate." By F. H. CURD and A. ROBERTSON.
- "The benzoyl derivatives of indigotin." By E. HOPE, R. W. R. KERSEY, and D. RICHTER.
- "Walden inversion in the glucose series. Derivatives of altrose." By D. S. MATHERS and G. J. ROBERTSON.
- "The $\alpha\alpha\beta$ -trihalogenated butaldehydes." By F. D. CHATTAWAY, H. IRVING, and G. H. OUTHWAITE.
- "The structure of some amines of platinous chloride." By F. W. PINKARD, H. SAENGER, and W. WARDLAW.
- "A new route to chrysene and 1 : 2-benzanthracene." By R. D. HAWORTH and C. R. MAVIN.
- "Studies in chemisorption on charcoal. Part I. The acid constituent of charcoal." By A. KING.
- "A comparison of the densities of carbon monoxide and oxygen and the atomic weight of carbon." By M. WOODHEAD and R. WHYTLAW-GRAY.
- "Some substitution reactions of 4-aminodiphenylmethane." By W. A. WATERS.
- "The effect of solvent on the reaction between iodine and hydrogen sulphide." By M. R. A. RAO and B. S. RAO.
- "The relation of electromeric effects and relative polarisabilities of the halogen." By R. ROBINSON.
- "Anomalies in the reactivities of side-chain halogens with special reference to reaction mechanism." By J. W. BAKER.
- "Natural glycosides. Part V. Ruberythric acid." By E. T. JONES and A. ROBERTSON.
- "Some reduction products of chalcones." By A. RUSSELL.
- "The homogeneous catalysis of gaseous reactions. The influence of iodine on the decomposition of acids, esters, ketones, and halides." By S. BAIRSTOW and C. N. HINSHELWOOD.

- "The homogeneous catalysis of gaseous reactions. The influence of iodine on the decomposition of simple aliphatic amines and of hexane." By S. BAIRSTOW and C. N. HINSHELWOOD.
- "Alkaloidal chlorocuprates. The specific precipitation by cupric chloride of cinchona alkaloids containing the vinyl group." By A. COHEN.
- "A new reaction of certain diazosulphonates derived from β -naphthol-1-sulphonic acid. Part XI. Constitution of the phthalazine derivatives." By F. M. ROWE and A. T. PETERS.
- "Ionic interchange in sulphur sols. Part II. The influence of acids." By T. R. BOLAM and J. J. MUIR.
- "The effect of nuclear halogen substituents on triad prototropic systems in relation to aromatic side-chain reactivity." By C. W. SHOPPEE.
- "Lichen acids. Part VI. Usnic acid. Part III. Usnetol, usnetic acid, and pyrousnic acid." By F. H. CURD and A. ROBERTSON.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

GIUA, MICHELE, and GIUA-LOLLINI, CLARA. *Dizionario di chimica generale e industriale*. Vol. I. Torino 1933. pp. vi + 1083. ill. (*Reference.*) L. 165. From the Publishers: Unione Tipografico-Editrice Torinese.

IMPERIAL INSTITUTE. *The mineral industry of the British Empire and foreign countries*. Lead. 2nd edition. London 1933. pp. 254. (*Reference.*) 4s. net. From the Director.

INSTITUTUL EXPERIMENTAL PENTRU CULTIVAREA ŞI FERMENTAREA TUTUNULUI. *Buletinul cultivării și fermentării tutunului*. Vol. XXI, etc. Bucureşti 1932 +. (*Reference.*) From the Bureau of Chemical Abstracts.

INTERNATIONAL LABOUR OFFICE. *Safety in the manufacture and use of celluloid*. Geneva 1933. pp. viii + 164. 4s. net. (*Recd.* 22/5/33.) From the London Publishers: Messrs. P. S. King & Son.

LABORATOIRE DE PLASMOGÉNIE. *Bulletin*. Vol. I, etc. México 1932 +. (*Reference.*) From the Editor.

LAURENS, HENRY. *The physiological effects of radiant energy*. (American Chemical Society Monograph Series.) New York 1933. pp. 610. ill. \$6. (*Recd.* 2/6/33.) From the Publishers: The Chemical Catalog Company.

LEWIS, SAMUEL JUDD. *Spectroscopy in science and industry*. London 1933. pp. viii + 94. ill. 3s. 6d. net. (*Recd.* 30/5/33.) From the Publishers: Messrs. Blackie & Son.

MENSCHUTKIN, BORIS NIKOLAEVITSCH. *Course of general chemistry (inorganic)*. 4th edition. Leningrad 1933. pp. 738. ill. [In Russian.] (*Recd.* 12/6/33.) From the Author.

TAYLOR, FRANK SHERWOOD. *Organic chemistry*. London 1933. pp. xii + 587. ill. 10s. (*Recd.* 12/6/33.) From the Publishers: Messrs. William Heinemann.

UNITED PROVINCES OF AGRA AND OUDH. *Academy of Sciences. Bulletin*. Vol. I. 1931-32, etc., Allahabad 1932 +. (*Reference.*) From the Bureau of Chemical Abstracts.

II. *By Purchase.*

BENNETT, REGINALD RICHARD, and COCKING, THOMAS TUSTING. *The science and practice of pharmacy*. 2 vols. London 1933. pp. viii + 386, viii + 340. ill. 36s. net. (*Recd.* 15/6/33.)

BEUTNER, R. *Physical chemistry of living tissues and life processes as studied by artificial imitation of their single phases*. [Baltimore] 1933. pp. x + 338. ill. \$5. (*Recd.* 15/6/33.)

DAVIES, CECIL WHITFIELD. *The conductivity of solutions*. 2nd edition. London 1933. pp. x + 282. ill. 15s. net. (*Recd.* 15/6/33.)

EVERS, NORMAN. *The chemistry of drugs*. 2nd edition. London 1933. pp. 256. 55s. net. (*Recd.* 15/6/33.)

MAXTED, EDWARD BRADFORD. *Catalysis and its industrial applications*. London 1933. pp. xii + 530. ill. 36s. net. (*Recd.* 15/6/33.)

NORD, F. F. *Zum Mechanismus der Enzymwirkung unter Berücksichtigung der Kryolyse*. (Sammlung, N.F. Heft. 18.) Stuttgart 1933. pp. 51. ill.

THRESH, JOHN CLOUGH, BEALE, JOHN FOSTER, and SUCKLING, ERNEST VICTOR. *The examination of waters and water supplies*. 4th edition. London 1933. pp. xviii + 824. ill. 42s. net. (*Recd.* 15/6/33.)

III. *Pamphlets.*

AUSTRALIA, COMMONWELTH OF. *Council for Scientific and Industrial Research. Bulletin* No. 71. *Investigations on irrigated pastures*. By A. E. V. RICHARDSON and H. P. C. GALLUS. Melbourne 1932. pp. 45. ill.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, October 19th, 1933, at 8 p.m., held at the Royal Institution, Albemarle Street, W. 1., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Arthur Adams	Feb. 18th, 1892.	July 10th, 1933.
Walter C. Ball	Dec. 5th, 1901.	June 9th, 1933.
Albert R. Blackburn	May 6th, 1909.	May 9th, 1933.
Henry H. Bunting	March 6th, 1890.	Nov. 22nd, 1929.
Frederic Dunn	Dec. 6th, 1894.	March 4th, 1933.
Sydney A. Kay	May 4th, 1905.	May 26th, 1933.
John B. McNarey	Feb. 18th, 1932.	July 13th, 1933.
John B. Orr	Dec. 15th, 1881.	Sept. 23rd, 1933.
James C. T. Pollitt	Dec. 5th, 1901.	Jan. 8th, 1933.
William F. Sandrock	Feb. 19th, 1931.	May 8th, 1933.
William Alex. Smith	Dec. 3rd, 1876.	Aug. 3rd, 1933.
Victor H. Veley	April 17th, 1879.	Aug. 20th, 1933.
Frederick W. de Velling	Feb. 19th, 1891.	Aug. 22nd, 1933.
Richard A. Warren	Feb. 15th, 1906.	June 14th, 1933.
Charles S. S. Webster	March 1st, 1883.	June 9th, 1933.
James Wood	May 2nd, 1918.	April 4th, 1933.

It was announced that the following had been proposed by the Council as Honorary Fellows of the Society, and that a ballot for their election would be held at the Ordinary Scientific Meeting on November 2nd, 1933 :

Prof. Auguste Béhal (Paris).
 Prof. Edward C. Franklin (Stanford, California).
 Sir Frederick G. Hopkins, Pres. R.S. (Cambridge).
 Prof. Camille Matignon (Paris).
 Sir Prafulla Chandra Rây (Calcutta).
 Prof. F. A. H. Schreinemakers (Leyden).
 Prof. Dr. Adolf Windaus (Göttingen).

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

Gad Tawadrous Abd-el-Messih, Sanieh Secondary School, Sayeda Zeinab, Cairo, Egypt.
 Ewart Ingham Akeroyd, B.A., 5, Watford Street, Shelton, Stoke-on-Trent.
 Kenneth Frankland Armstrong, B.A., B.Sc., Merton College, Oxford.
 Richard Maling Barrer, M.Sc., Clare College, Cambridge.
 Vincent Christopher Barry, M.Sc., Mill Street House, Galway.
 Alexander Boden, 255, Mowbray Road, Chatswood, N.S.W., Australia.
 Georgina Elizabeth Canning, M.Sc., Belhaven, Whitehead, Co. Antrim.
 John Eugene Carruthers, B.A., Granby House, Whitehaven, Cumberland.
 Ailsa Victorian Crawley, B.Sc., A.I.C., 26, Perryn Road, W. 3.
 William Gardiner Dangerfield, Ph.D., Ottawa, Vicarage Road, Chelston, Torquay, Devon.
 Audrey Winifred David, B.Sc., 3, Colchester Avenue, Pen-y-lan, Cardiff.
 Mansel Morris Davies, B.Sc., Cefn Bryn, Abernant Road, Aberdare.
 William Charles Dovey, Ph.D., 113, Tewkesbury Road, Cheltenham.
 Raphael John Doyle, S. J., M.Sc., D.Sc.Tech., Milltown Park, Dublin.
 David Johnson Evans, Glen Cairn, Old Hadlow Road, Tonbridge.
 Arthur Flamank, King's Road, Shalford, Surrey.
 Emrys Manley Francis, B.Sc., Fern Bank, Llanberis, Carnarvon.

Philip James Garner, B.A., 14, Humberstone Road, Cambridge.
 James Blair Gillies, 32, Sutton Court Road, Cliswick, W. 4.
 Leonard James Goldsworthy, M.A., B.Sc., University College, Rangoon.
 Mohammad Abdul Hafeez, B.A., B.T., B 5227 Shanker Bagh, Nizam Shahi Road, Hyderabad, India.
 Harold Carl Happold, 182, Westcombe Hill, Blackheath, S.E. 3.
 Stanley Hugh Harper, A.R.C.S., 32, St. Luke's Road, Brighton.
 John Michael Hennessy, Gordon Institute of Technology, Geelong, Victoria, Australia.
 Edward William Jackson, A.M.I.E.E., 13, Vicarage Way, Harrow Garden Village.
 Edwin Ernest Jelley, B.Sc., A.I.C., 51, Bolton Road, Harrow.
 Baladeb Mukerji, B.Sc., M.B., 1, Hurtukibagan Lane, Calcutta.
 Theodore Lawrence Parkinson, B.Sc., Halstead Cottage, Wye, Kent.
 Ella Kathleen Parsons, 113, Herne Hill Road, S.E. 24.
 Edmund George Vincent Percival, Ph.D., Chemistry Department, King's Buildings, West Mains Road, Edinburgh.
 Archibald Pilgrim, B.Sc., 239, High Street North, East Ham, E. 6.
 Michael Polanyi, Prof., Ph.D., M.D., The University, Manchester.
 Bryan Pontifex, The Croft, Knowle, Warwickshire.
 William Charles Henry Potter-Mackenrot, The Laurels, Millfield Lane, N. 6.
 George Rowntree Ramage, M.Sc., Ph.D., 25, Craig-y-Don Road, Bangor.
 Edna Margaret Frances Roe, B.Sc., 66, Drury Road, Harrow.
 Alfred Rubenstein, B.Sc., 36, Lennox Road, N. 4.
 Olive Dora Saltmarsh, B.A., Girton College, Cambridge.
 Hugh Clifford Stephens, B.A., B.Sc., 24, Wood Street, Woolwich, S.E. 18.
 John Templeton, Dalkeith, Jones Island, Manning River, N.S.W., Australia.
 Samuel Travis Tong, 21, St. Andrews Avenue, Cleveleys, Blackpool.
 Arnold Weissberger, D.Phil., The Dyson Perrins Laboratory, South Parks Road, Oxford.
 Beatrice Muriel Wilson, Ph.D., Higher Trevarrick, St. Austell, Cornwall.
 Francis Thomas Winfield, B.Sc., Hill View, Coddington, Newark.

The following Forms of Recommendation have been accepted by the Council under Bye-Law I (2) :

Wilhelm Klemm, Prof., D.Phil., Rickertweg 3 II, Danzig-langfuhr.
 William D. Leech, M.A., Cooranbong, N.S.W., Australia.
 Ram Rao Parvatikar, Prof., M.A., 3120, Gowligada, Hyderabad, Deccan, India.

The PRESIDENT then called upon Professor W. A. Bone to deliver his Lecture entitled: "The Combustion of Hydrocarbons." At the conclusion of the Lecture, a vote of thanks, proposed by Professor H. E. Armstrong, and seconded by Professor A. Smithells, was carried with acclamation and acknowledged by the Lecturer.

A vote of thanks to the Officers and Managers of the Royal Institution for the use of the Lecture Theatre, moved by the PRESIDENT, was carried unanimously, and acknowledged by Sir Robert Robertson.

LIST OF FELLOWS.

The List of Fellows for 1933 can be obtained, price 1s., on application to the Assistant Secretary.

ANNUAL REPORTS.

Application for the Annual Reports for 1933 at the reduced price of 5s. 6d. should reach the Assistant Secretary by January 15th, 1934.

PUBLICATIONS OF OTHER SOCIETIES.

Fellows of the Chemical Society who are not Members of the American Chemical Society may procure its publications, and also *Chemical Reviews* and the *Journal of Physical Chemistry*, for 1934 at the following reduced prices :

	*Price to Public.	Postage.
1. <i>Journal of the American Chemical Society</i>	\$8.50	\$1.50
2. <i>Chemical Abstracts</i>	\$12.00	\$2.10
3 <i>Industrial and Engineering Chemistry</i> :		
(a) Industrial Edition	\$5.00	\$1.20
(b) News Edition	\$1.50	\$0.60
(c) Analytical Edition	\$2.00	\$0.30
(a) and (c) together	\$6.00	\$1.50
(a), (b), and (c) together	\$7.50	\$2.10

Application should be made direct to the Secretary, American Chemical Society, Mills Building, Washington, D.C., U.S.A., and should be sent as soon as possible.

A discount of 10 per cent. is allowed for any two journals or all three so long as (3) is ordered complete.

* A special discount of 10 per cent. off all the above prices is allowed to Fellows of the Chemical Society who are not Members of the American Chemical Society.

Fellows residing in Canada pay one-third postage rates, and for those residing in countries in the Pan-American Union and Spain there is no charge for postage.

<i>Chemical Reviews</i>	\$4.00	\$0.50
<i>Journal of Physical Chemistry</i>	\$8.00	post free

Application should be made to the Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore, Md., U.S.A.

RESEARCH FUND.

A Meeting of the Research Fund Committee will be held in December next. Applications for grants, to be made on forms obtainable from the Assistant Secretary, must be received on or before Friday, December 1st, 1933. Applications from Fellows will receive prior consideration.

All persons who have received grants, and whose accounts have not been declared closed by the Council, are reminded that reports must be returned by December 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.

List of Papers, or Abstracts thereof, received between June 15th and October 19th, 1933. (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.)

“Researches in the phenanthridine series. Part III. Meso-substituted derivatives.”
By L. P. WALLS.

“Period of induction of chemical reactions: action of phosphorous acid on alkali bromate and iodate.” By P. NEOGI, B. N. SEN, and S. MUKERJEE.

“The dissociation constants of organic acids. Part VII. Acetic acid: a correction. The solvent correction for salts of weak monobasic acids.” By G. H. JEFFERY, A. I. VOGEL, and (in part) H. V. LOWRY.

“Studies in the colour reactions of organic compounds. Part I. The colour reactions of aryl thiocarbamides.” By G. M. DYSON.

“The inhibitory effect of substituents in chemical reactions. Part III. The reactivity of the *isothiocyano*-group in substituted arylthiocarbamides.” By D. W. BROWNE and G. M. DYSON.

“The diazotisation of aromatic nitro-amines and the prevention of diaryl formation.” By H. H. HODGSON and J. WALKER.

“Benzylidene derivatives of 2-aminodiphenylamine-6'-carboxylic acid and 2-aminodiphenylamine and their thermal decomposition.” By H. B. NISBET.

- “Primary photochemical processes. Part III. The absorption spectrum and photochemical decomposition of keten.” By R. G. W. NORRISH, H. G. CRONE, and (MISS) O. SALTMARSH.
- “Attempts to prepare tellurophen.” By F. A. MCMAHON, T. G. PEARSON, and P. L. ROBINSON.
- “Homologues of phenol.” By G. T. MORGAN and A. E. J. PETTET.
- “Synthetical experiments in the chromone group. Part X. Coumarin and chromone formation.” By T. C. CHADHA, H. S. MAHAL, and K. VENKATARAMAN.
- “ α -Methyl-*trans*-hexahydroindenyl-2-acetic acid and the reduction of a few Δ^{α} - and Δ^{β} -unsaturated *trans*-hexahydrohydrindene (2) compounds.” By R. S. THAKUR.
- “Condensation products of dicyclic ketones.” By R. S. THAKUR.
- “Densities of molten inorganic nitrate mixtures.” By K. LAYBOURN and W. M. MADGIN.
- “Reduction products of the hydroxyanthraquinones. Part XIV.” By A. G. PERKIN and (in part) N. H. HADDOCK.
- “The interactions of chloro-substituted aldehydes with chloro-substituted arylhydrazines.” By F. D. CHATTAWAY and A. ADAIR.
- “The dipole moments of some long-chain molecules.” By J. W. SMITH.
- “The synthesis of *dl*-homolaudanoline and its dehydrogenation.” By S. SUGASAWA and H. YOSHIKAWA.
- “Equilibrium constants in terms of activities from cryoscopic data. Part II. The dissociation of pyridine *o*-chlorophenoxide in *p*-dichlorobenzene.” By H. M. GLASS and W. M. MADGIN.
- “A general method of preparing 2:4-dinitrophenyl ethers.” By F. R. STORRIE and S. H. TUCKER.
- “Physical relationships amongst the hydrides of the fifth group with special reference to association in these compounds.” By (MISS) A. A. DURRANT, T. G. PEARSON, and P. L. ROBINSON.
- “Action of pyridine-acetic anhydride on aldose oximes. Obtainment of hexa-acetyl aldose oxime.” By V. DEULOFEU, P. GATTANEO, and G. MENDIVELZUA.
- “The activity of ammonia in ammonium chloride solutions.” By H. E. MATTHEWS and C. W. DAVIES.
- “A rearrangement of *ortho*-acetamido-sulphoxides.” By A. LEVI, L. A. WARREN, and S. SMILES.
- “The dicarbazyls. Part V. Synthesis of 3:9'-dicarbazyl.” By (MISS) M. C. NELMES and S. H. TUCKER.
- “The acidic properties of disulphones. Part I. The preparation and attempted resolution of certain substituted disulphonyl methanes.” By F. B. KIPPING.
- “The acidic properties of disulphones. Part II. The preparation and resolution of α -*p*-carboxyphenylsulphonyl- α -*p*-tolylthiolethane.” By F. B. KIPPING.
- “The relationship between the three forms of *cis*-cinnamic acid.” By H. V. W. ROBINSON and T. C. JAMES.
- “7-Phenylthio-derivatives of deoxybenzoin.” By W. A. MITCHELL and S. SMILES.
- “Optical activity in relation to tautomeric change. Part I. Conditions underlying the transport of asymmetry in tautomeric systems.” By C. K. INGOLD and C. L. WILSON.
- “Arsonic acids of the fluorenone and the fluorenone series.” By G. T. MORGAN and (MISS) J. STEWART.
- “Electrometric studies of the precipitation of hydroxides. Part XII. The reaction of sodium hydroxide and platonic chloride in solution, and a note on the reaction of potassium cyanide and platonic chloride.” By H. T. S. BRITTON and E. N. DODD.
- “The homogeneous catalysis of stereoisomeric change in oximes.” By T. W. J. TAYLOR and D. C. V. ROBERTS.
- “The action of bromine on 2- and 6-chloro- and 2- and 6-iodo-3-bromophenols.” By H. H. HODGSON and J. NIXON.
- “A synthesis of tricin.” By K. C. GULATI and K. VENKATARAMAN.
- “Note on the preparation of halogeno- and other 2-phenylbenzopyrylium salts.” By (Mrs.) C. G. LE FÈVRE and R. J. W. LE FÈVRE.

- "1 : 4-Selenothian." By C. S. GIBSON and J. D. A. JOHNSON.
- " α -Dibromopentane." By J. D. A. JOHNSON.
- "Thioxan, selenoxan, and dithian." By J. D. A. JOHNSON.
- "Synthesis of octahydrophenanthrene derivatives." By J. D. FULTON and R. ROBINSON.
- "The measurement of surface and interfacial tensions." By J. C. SPEAKMAN.
- "Note on the preparation of homopiperonal." By H. ERDTMAN and R. ROBINSON.
- "The dielectric polarisation of hydrogen chloride in solution. Part II. Benzene, ethyl bromide, and ethylene dichloride." By F. FAIRBROTHER.
- "The use of phosphoric oxide as a drying agent for hydrogen chloride." By F. FAIRBROTHER.
- "The rotatory dispersive power of organic compounds. Part XXIV. Ascorbic acid." By T. M. LOWRY and S. A. PEARMAN.
- "Physico-chemical studies of complex formation involving weak acids. Part VII. Hydroferrocyanic acid, and the precipitation of ferrocyanides of silver, lead, copper, zinc, cadmium, cobalt, nickel, and manganese." By H. T. S. BRITTON and E. N. DODD.
- "Attempts to find new antimalarials. Part VI. Preparation of β -6 : 7-dimethoxy-quinaldyl(4)-ethylamine dihydrochloride." By K. MIKI and R. ROBINSON.
- "A synthesis of certain naphthalene (1 : 2)-(4' : 3')-coumarin derivatives." By R. ROBINSON and D. J. ROSE.
- "Experiments on the synthesis of physostigmine (eserine). Part VIII." By F. E. KING, R. ROBINSON, and H. SUGINOME.
- "Experiments on the synthesis of physostigmine (eserine). Part IX. An improvement in the synthesis of *dl*-eserethole." By F. E. KING, M. LIGUORI, and R. ROBINSON.
- "The phase volume theory and the homogenisation of concentrated emulsions." By J. B. PARKE.
- "The colouring matter on the stems of the tomato." By B. K. BLOUNT.
- "An attempted synthesis of primetin." By S. SUGASAWA.
- "The water-gas reaction in low-pressure explosions." By B. W. BRADFORD.
- "The properties of the chlorides of sulphur. Part VI. Chemical analysis." By A. H. SPONG.
- "Polycyclic aromatic hydrocarbons. Part XII. The orientation of derivatives of 1 : 2-benzanthracene, with notes on the preparation of some new homologues, and on the isolation of 3 : 4 : 5 : 6-dibenzphenanthrene." By J. W. COOK.
- "On the alleged colour and dyestuff-nature of some tetra-alkyl-methane derivatives." By A. WEISSBERGER and J. THIELE.
- "Studies in electrolytic oxidation. Part IV. Anodic polarisation in halide solutions." By S. GLASSTONE and A. HICKLING.
- "On the vaporous state of myristic acid films on aqueous solutions." By S. A. MOSS and E. K. RIDEAL.
- "The constituents of *Filix Mas*. Part II. The synthesis of filicinic acid." By A. ROBERTSON and (the late) W. F. SANDROCK.
- "Syntheses of glycosides. Part X. The synthesis of primeverin." By E. T. JONES and A. ROBERTSON.
- "On 2 : 3-dichlorodioxan." By W. BAKER and A. SHANNON.
- "The valency angle of sulphur." By G. M. BENNETT and S. GLASSTONE.
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ADDITIONS TO THE LIBRARY.

I. Donations.

ABDERHALDEN, EMIL. [Editor.] Handbuch der biologischen Arbeitsmethoden. Abt. I, Chemische Methoden, Teil 11, Heft vi. Alkaloide. By REINHARD SEKA. Berlin 1933. pp. 1069 to 1424. *M.* 19. (*Recd.* 21/8/33.) From the Publishers: Herren Urban & Schwarzenberg.

BOLITHO, HECTOR. Alfred Mond, first Lord Melchett. London 1933. pp. xiv + 392. ill. 21s. net. (*Recd.* 17/6/33.)

From Lord Melchett.

EVANS, ELLIOTT ALFRED. Lubricating and allied oils. 2nd edition. London 1933. pp. xvi + 175. ill. 9s. 6d. net. (*Recd.* 19/8/33.) From the Publishers: Messrs. Chapman & Hall

FARADAY SOCIETY. Liquid crystals and anisotropic melts. A general discussion. London 1933. pp. iv + 206. ill. 12s. 6d. net. (*Recd.* 6/10/33.) From the Society.

FINTER, F. B. An introduction to physical chemistry. Revised edition. London 1933. pp. xvi + 276. ill. 6s. (*Recd.* 28/9/33.)

INGLE, HERBERT. A manual of agricultural chemistry. 5th edition. London 1933. pp. x + 448. ill. 15s. net. (*Recd.* 27/6/33.)

From the Author.

INSTITUTION OF THE RUBBER INDUSTRY. I.R.I. Transactions. Vol. VIII, etc. London 1932 +. (*Reference.*)

From the Bureau of Chemical Abstracts.

MELLIAND TEXTILE MONTHLY. Vol. IV, etc. Brooklyn, N.Y. 1932 +. (*Reference.*)

From the Bureau of Chemical Abstracts.

MITCHELL, STOTHERD. The Cotton effect and related phenomena. London 1933. pp. viii + 192. ill. 7s. 6d. net. (*Recd.* 27/6/33.) From the Publishers: Messrs. G. Bell & Sons.

MOND, ALFRED, FIRST LORD MELCHETT. See BOLITHO, HECTOR.

MOODEY, H. S. Qualitative analysis. London 1933. pp. x + 182. ill. 5s. (*Recd.* 26/7/33.)

From the Publishers: Messrs. William Heinemann.

MORRIS, T. N. Principles of fruit preservation. Jam making, canning, and drying. (Monographs on Applied Chemistry.) London 1933. pp. xiv + 240. ill. 15s. net. (*Recd.* 4/8/33.)

From the Publishers: Messrs. Chapman & Hall.

NEW ZEALAND. Council of Scientific and Industrial Research. The New Zealand Journal of Science and Technology. Vol. XIV, etc. Wellington 1932 +. (*Reference.*)

From the Bureau of Chemical Abstracts.

REDGROVE, HERBERT STANLEY. Spices and condiments. London 1933. pp. xviii + 362. ill. 15s. net. (*Recd.* 8/7/33.)

From the Publishers: Sir Isaac Pitman & Sons.

SIDGWICK, NEVIL VINCENT. Some physical properties of the covalent link in chemistry. Ithaca 1933. pp. xii + 250. ill. (*Recd.* 11/9/33.) \$2.

From the Publishers: The Cornell University Press.

STEVENS, HENRY POTTER, and DONALD, MAXWELL BRUCE. Rubber in chemical engineering. London 1933. pp. iv + 57. ill. (*Recd.* 25/9/33.)

From the Publishers: The Rubber Growers' Association.

SURE, BARNETT. The vitamins in health and disease. New York 1933. pp. xiv + 206. \$2. (*Recd.* 23/9/33.)

From Mr. A. L. Bacharach.

TAYLOR, FRANK SHERWOOD. A short organic chemistry. London 1933. pp. viii + 378. ill. 5s. (*Recd.* 25/9/33.)

From the Publishers: Messrs. William Heinemann.

WILSON, WILLIAM. Theoretical physics. Vol. II. Electromagnetism and optics. Maxwell-Lorentz. London 1933. pp. xii + 316. ill. 18s. net. (*Recd.* 6/10/33.)

From the Publishers: Messrs. Methuen & Co.

WOTSCHKE, JOHANNES. Grundlagen des elektrischen Schmelzofens. Elektrische Gesetzmässigkeiten. Bauliche Gliederung. Energiehaushalt. (Monograph. angew. Elektrochem. Vol. 52.) Halle (Saale) 1933. pp. viii + 505. ill. *M.* 42. (*Recd.* 17/8/33.)

From the Publisher: Herr Wilhelm Knapp.

II. By Purchase.

CHEMIE-INGENIEUR, DER. Vol. I. Part iii. Thermisch-mechanische Materialtrennung. By S. ERK [and others]. Leipzig 1933. pp. x + 327. ill. *M.* 31.50. (*Recd.* 22/6/33.)

DANIELS, RICHARD GEORGE. Nitro-cellulose lacquer manufacture. London (1933). pp. xiv + 122. ill. 10s. net. (*Recd.* 20/6/33.)

EKKERT, LAD. Erkennung organischer Verbindungen im besonderen von Arzneimitteln. (Die chemische Analyse. Vol. XXXII.) Stuttgart 1933. pp. viii + 184. (*Reference.*)

EMPIRE MARKETING BOARD. Survey of oilseeds and vegetable oils. Vol. I. Oil palm products. Vol. II. Coconut palm products. A summary of production and trade. London 1932. pp. 130, 196. (*Reference.*) 3s. net.

— Oilseeds and vegetable oils. A summary of figures of production. London 1932. pp. 66. (*Reference.*) 6d. net.

FORTHCOMING MEETINGS, ETC., OUTSIDE LONDON.

GLASGOW.

Friday, December 8th, 1933, at 6.45 p.m. The Ramsay Chemical Dinner, Central Hotel, Glasgow.

MANCHESTER.

Thursday, November 9th, 1933, at 7 p.m. Lecture entitled "Molecules Pictorial," by Professor J. E. Lennard-Jones, D.Sc., Ph.D., F.R.S. In the Chemistry Lecture Theatre of the University.

Thursday, November 30th, 1933, at 7 p.m. Lecture entitled "The Relations between Photochemical and Thermochemical Reactions," by Professor A. J. Allmand, M.C., D.Sc., F.R.S. In the Chemistry Lecture Theatre of the University.

NEWCASTLE AND DURHAM.

Friday, November 3rd, 1933. The 23rd Bedson Lecture in the Chemistry Lecture Theatre, Armstrong College, Newcastle-on-Tyne, entitled "Recent Work on the Vitamin-B Complex," by Professor R. A. Peters, M.A., M.D.

Fellows of the Society are invited to attend this Lecture.

NORTH WALES.

Friday, December 1st, 1933, at 6 p.m. Lecture by Professor R. Robinson, D.Sc., F.R.S., at University College of N. Wales, Bangor, entitled "Group Protection Devices." The Lecture will be followed by a Dinner.

[*Note.*—The Discussion announced for February 2nd, 1934, on "The Early Training of the Chemist," will be opened by Professor T. C. James, M.A., D.Sc.]

SHEFFIELD.

Thursday, November 30th, 1933, at 7.30 p.m. Lecture at the University entitled "Some Modern Developments in Analytical Chemistry," by Mr. J. B. Smith, A.R.C.S.

SOUTH WALES.

Thursday, November 9th, 1933, at 6 p.m. A Meeting will be held jointly with the Chemical Society of the University College of Swansea in the Chemistry Lecture Theatre of the College, at which Professor S. Sugden, D.Sc., A.I.C., will deliver a Lecture on "Some Applications of Magnetism to Chemical Problems."

Friday, November 24th, 1933, at 4.30–6.30 p.m. and at 7.30 p.m. At the invitation of the University College of South Wales and Monmouthshire, Cardiff, an Ordinary Scientific Meeting will be held in the Lecture Theatre of the Tatem Laboratories, Cathay's Park, Cardiff. The meeting will be devoted to a discussion on "Chemical Applications of Optical and Morphological Crystallography." Professor G. T. Morgan, O.B.E., D.Sc., F.R.S. (President), will preside. Contributions to the discussion will be made by Professor G. M. Bennett, Dr. N. H. Hartshorne, Mr. E. G. Cox, Mr. F. M. Lea, Dr. Mary W. Porter, Dr. N. M. Cullinane, Mr. A. Stuart, Mr. R. G. Wood, and others.

There will be an informal dinner (about 3s.) during the interval, 6.30–7.30 p.m., and Fellows wishing to attend should notify the Local Representative (Professor J. E. Coates, O.B.E., D.Sc., University College, Swansea) before Monday, November 20th.

FORTHCOMING MEETINGS, ETC., IN LONDON.

Thursday, November 2nd, 1933, at 8 p.m.

Ordinary Scientific Meeting. The following papers will be read :—

- “Studies of the Beckmann change. Part I. The spontaneous rearrangement of oxime picryl ethers.” By A. W. CHAPMAN and C. C. HOWIS.
- “Primary photochemical processes. Part III. The absorption spectrum and photochemical decomposition of keten.” By R. G. W. NORRISH, H. G. CRONE, and MISS O. SALTMARSH.
- “Researches in the phenanthridine series. Part III. Meso-substituted derivatives.” By L. P. WALLS.
- “Homologues of phenol.” By G. T. MORGAN and A. E. J. PETTET.

Thursday, November 16th, 1933, at 8 p.m.

Discussion on “Condensed Aromatic Ring Systems,” to be opened by Dr. R. Fraser Thomson.

Thursday, December 7th, 1933, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, December 21st, 1933, at 8 p.m.

Ordinary Scientific Meeting.

INSTITUTE OF FUEL.

On Wednesday, November 8th, 1933, at 6 p.m., Drs. J. G. King, L. Horton, and F. A. Williams will read a paper before the Institute of Fuel entitled “The Progressive Action of Hydrogen on Coal.” The meeting will be held in the Meeting Room of the Chemical Society, and a cordial invitation is extended to any Fellows of the Chemical Society to attend and take part in the discussion. Advance proofs of the paper can be obtained on application to the Secretary of the Institute of Fuel, 53, Victoria Street, S.W. 1.

ANNUAL CHEMICAL DINNER.

The Annual Chemical Dinner will be held at the Wharnccliffe Rooms, Hotel Great Central, N.W. 1, on Tuesday, November 28th, 1933, at 7 for 7.30 p.m. Tickets, price 12s. 6d. each, can be obtained from Mr. F. A. Greene, Chemical Club, 2, Whitehall Court, S.W. 1.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Extra Meeting at the University, Sheffield, on October 26th, 1933, at 8 p.m., preceded by a dinner at which Professor S. R. Milner, F.R.S., was one of the guests. DR. R. H. PICKARD, F.R.S., Vice-President, was in the Chair. There were about 80 present. Professor A. J. Allmand, M.C., D.Sc., F.R.S., delivered his lecture entitled: "Relations between Photochemical and Thermal Reaction Mechanism," and at the conclusion of the lecture a vote of thanks to the lecturer, proposed by Mr. John Evans and seconded by Professor G. M. Bennett, was carried with acclamation.

Ordinary Scientific Meeting, Thursday, November 2nd, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Arthur Brand Chater	May 3rd, 1900.	Feb. 13th, 1932.
Frederick William Fletcher	April 16th, 1874.	Oct. 19th, 1933.

The following were formally admitted Fellows of the Society : Ralph J. B. Marsden, H. O. Jenkins, Miss E. F. Johnston, Miss E. M. Read, A. B. D. Cassie, and Miss M. M. T. Plant.

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

Henry George Alexander Anderson, B.Sc., A.I.C., 7, Leslie Street, Pollokshields, Glasgow, S. 1.
William Bernard Brown, B.Sc., A.R.C.S., 32, Portland Road, Rushden, Northants.
Derek John Campbell-Gamble, B.A., A.I.C., 7, Welby Gardens, Grantham, Lincs.
Archibald Barclay Crawford, Ph.D., 10, Burnbank Gardens, Glasgow, N.W.
Joseph Harold Crook, B.Sc., 4, Percy Street, Fartown, Huddersfield.
Isaac Vance Hopper, B.Sc., Ph.D., 469, Tantallon Road, Langside, Glasgow, S. 1.
Jagadish Kumar Lahiri, 109, Pollards Hill South, Norbury, S.W. 16.
Alan Harvey Leckie, B.Sc., Strathgarve, Bradmore Way, Brookmans Park, Hatfield, Herts.
Thomas Love, B.Sc., 20, McLelland Drive, Kilmarnock, Ayrshire.
William Smythe Moore, B.Sc., 30, Queen's Avenue, Woodford Green, Essex.
Frederick Denys Richardson, B.Sc., 11, Torrington Square, Bloomsbury, W.C. 1.
Dennis Frank Runnicles, 21, Ashling Road, Addiscombe, Croydon.
Francis Charles Julian Ruzicka, B.Sc., A.R.C.S., 94, Middle Lane, Hornsey, N. 8.
Mary Christina Thompson, B.Sc., 16, Elmwood Road, Herne Hill, S.E. 24.

Mr. F. P. Dunn and Dr. H. J. T. Ellingham were elected Scrutators, and a ballot for the election of Honorary Fellows was held. The following were subsequently declared elected :

Professor Auguste Béhal (Paris).
Professor Edward C. Franklin (Stanford, California).
Sir Frederick G. Hopkins, Pres.R.S. (Cambridge).
Professor Camille Matignon (Paris).
Sir Prafulla Chandra Rây (Calcutta).
Professor F. A. H. Schreinemakers (Leyden).
Professor Dr. Adolf Windaus (Göttingen).

The following papers were read :

- "Studies of the Beckmann change. Part I. The spontaneous rearrangement of oxime picryl ethers." By A. W. CHAPMAN and C. C. HOWIS.
- "Primary photochemical processes. Part III. The absorption spectrum and photochemical decomposition of keten." By R. G. W. NORRISH, H. G. CRONE, and MISS O. SALTMARSH.
- "Researches in the phenanthridine series. Part III. Meso-substituted derivatives." By L. P. WALLS.
- "Homologues of phenol." By G. T. MORGAN and A. E. J. PETTET.

A joint meeting of the Chemical Society with the Chemical Society of the University College of Swansea was held at the College on Thursday, November 9th, 1933, at 6 p.m. The chair was taken by Mr. D. E. Jones, President of the College Chemical Society. Professor S. Sugden, D.Sc., delivered a lecture entitled: "Some applications of magnetism to chemical problems."

After briefly explaining the phenomena of diamagnetism and paramagnetism, Professor Sugden described the experimental method used in his own work, and gave examples of the value of susceptibility measurements, dealing first with compounds suspected of being odd molecules (paramagnetic), and secondly with some compounds of transition elements, in particular of bivalent silver and of nickel (isomeric glyoximes).

A vote of thanks, proposed by Professor J. E. Coates and seconded by Mr. T. H. Walters, was accorded to Professor Sugden, who in the course of his reply referred to the special facilities offered by the Society to younger Fellows.

The meeting was well attended and Fellows from Aberystwyth and Cardiff were present.

Ordinary Scientific Meeting, Thursday, November 16th, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on July 3rd, 1933, of Mr. Johannes C. Brünnich, who was elected a Fellow on December 1st, 1898.

It was announced that the Council had appointed the following Representatives:

Bureau of Chemical Abstracts: Mr. F. P. Dunn, Mr. A. J. Greenaway, Dr. J. T. Hewitt, and Professor T. S. Moore, together with Mr. Emile Mond (Treasurer) ex officio.

Federal Council for Chemistry: Professor T. S. Moore, Sir William J. Pope, and Professor J. F. Thorpe.

British Editorial Board of the Journal of Physical Chemistry: Mr. E. J. Bowen, Professor W. E. Garner, and Professor T. M. Lowry.

Messrs. I. Hieger, K. Trouern Trend, and G. H. J. Neville were formally admitted Fellows of the Chemical Society.

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

Fritz Arndt, D.Phil., 5, Wellington Square, Oxford.
 Arthur Edward Bailey, Three Counties Hospital, Arlesey, Beds.
 Wilson Charles Geoffrey Baldwin, B.A., Christ's College, Cambridge.
 Jack Wheeler Barrett, B.Sc., A.R.C.S., 10a, Baron's Court Road, W. 14.
 Thomas Henry Goodwin, B.Sc., 26, Bournbrook Road, Selly Hill, Birmingham.
 William Edward James Hansford, 21, The Broadway, Thorpe Bay, Essex.
 William Hetherington, 108, Cold Harbour Road, Redland, Bristol.
 Henry Reginald Hirst, M.Sc., F.I.C., Wool Industries Research Association, Torridon, Leeds.
 Justus Kenneth Landquist, 4, Purley Avenue, N.W. 2.
 Constance Mary McDowell, Ph.D., 4, Brookfield Park, N.W. 5.
 Arthur Thomas Masterman, M.A., D.Sc., F.R.S., 3, Kedale Road, Seaford, Sussex.
 James William Skeen, 66, Basnett Road, Lavender Hill, S.W. 11.
 Robert Fraser Thomson, M.A., D.Sc., Thistlebank, Grangemouth.
 Ronald Branston Williams, B.A., B.Sc., Corpus Christi College, Oxford.
 Edmund Denys Yates, Ph.D., A.I.C., 4, Woodville Road, Cathays, Cardiff.

The following forms of Recommendation have been accepted by the Council under Bye-Law I (2) :

Francisco Gignoli, Prof. Dr., General Mitre 1117, Rosario de Santa Fé, Argentine.
 Stanley Haines Edwards, c/o Laboratory, Shell Co. of N.Z., Ltd., Hutt Road, Wellington,
 New Zealand.
 Edward William Fairbrass, Sohrab House, Hornby Road, Bombay.
 Eric Hume Phillips, Marine Terrace, Geraldton, W. Australia.

Forms of Recommendation for Fellowship in favour of 14 candidates were read for the second time.

A Discussion on "Condensed Aromatic Ring Systems," was opened by Dr. R. Fraser Thomson, and continued by Professor G. R. Clemo, Dr. J. W. Cook, Dr. G. A. R. Kon, Professor I. M. Heilbron, Professor R. Robinson, Dr. R. D. Haworth, and Dr. Ernst Bergmann.

LIST OF FELLOWS.

The List of Fellows for 1933 (corrected to August) contains information indicating the Societies and Institutions to which each Fellow belongs. It can be obtained, price *One Shilling*, on application to the Assistant Secretary.

ANNUAL REPORTS.

Application for the Annual Reports for 1933 at the reduced price of 5s. 6d. should reach the Assistant Secretary by January 15th, 1934.

THE LIBRARY.

The Library will be closed for the Christmas Holidays from Friday, December 22nd, at 1 p.m., until Thursday, December 28th, at 10 a.m.

List of Papers, or abstracts thereof, received between October 19th and November 16th, 1933. (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 asymmetric arsenic atom. Attempts to prepare optically active arsenicals." By J. D. A. JOHNSON.
- "Conditions for the formation of rings attached to the meta-positions of the benzene nucleus." By S. G. P. PLANT.
- "The combustion of hydrocarbons." By W. A. BONE.
- "Comparison of the directive powers of elements having consecutive atomic numbers. Part VI. Examinations of further possible comparative cases, and conclusions." By (MRS.) C. G. LE FÈVRE, R. J. W. LE FÈVRE, and J. PEARSON.
- "Beryllium benzoylacetate." By R. W. BAILEY, F. M. BREWER, and H. M. POWELL.
- "Some electrostatic factors which can operate in polar reactions." By W. A. WATERS.
- "The formation of alkali metal hydrides by atomic hydrogen." By E. FERRELL, T. G. PEARSON, and P. L. ROBINSON.
- "The preparation of isobutylenediamine." By H. D. K. DREW and F. S. H. HEAD.
- "The effect of pressure on the binary system monomethylaniline-dimethylaniline." By J. C. SWALLOW and R. O. GIBSON.
- "The purification of liquids by freezing." By A. R. J. P. UBBELOHDE.

- “The systems acetone–sodium hydroxide–water and acetone–potassium hydroxide–water at 0°.” By C. W. GIBBY.
- “Influence of poles and polar linkings on the course pursued by elimination reactions. Part XXI. Dynamics of the elimination of the *tert.*-butyl group from sulphonium compounds.” By E. D. HUGHES and C. K. INGOLD.
- “Synthesis of ketonorpnic acid and keto α popinanedicarboxylic ester.” By P. C. GUHA and R. C. DAS GUPTA.
- “The mobility of groups containing a sulphur atom. Part III.” By D. W. COWIE and D. T. GIBSON.
- “The kinetics of certain reactions of the alkyl halides in hydroxylic solvents.” By E. A. MOELWYN-HUGHES.
- “*n*-Nonane as an impurity in *o*-xylene.” By L. E. HINKEL, E. E. AYLING, and T. M. WALTERS.
- “Factors determining the electrolytic dissociation of salts.” By J. A. V. BUTLER and W. J. C. ORR.
- “The action of halogens upon the nitrophenylazobenzoylacetones.” By F. D. CHATTAWAY and D. R. ASHWORTH.
- “The heterogeneous combustion of carbonic oxide on quartz: water as a negative catalyst.” By B. W. BRADFORD.
- “The structure of the glutaconic acids and esters. Part VIII. Some cyclic compounds of the glutaconic and citraconic series.” By G. A. R. KON and B. L. NANDI.
- “Studies in chemisorption on charcoal. Part II. Experiments on the formation of acid in charcoal.” By A. KING.
- “Studies in chemisorption on charcoal. Part III. The effect of moisture on the adsorption of oxygen.” By A. KING.
- “Studies in Jaborandi alkaloids. Part I. Synthesis of *dl*-homopilocic acid.” By A. N. DEY.
- “The formation of organo-metalloidal compounds by micro-organisms. Part II. Dimethyl selenide.” By F. CHALLENGER and H. E. NORTH.
- “The optical activity of a diphenyl derivative, the dissymmetry of which is caused by the space effect of only one group.” By (MISS) M. S. LESSLIE and E. E. TURNER.
- “Optical rotatory dispersion in the carbohydrate group. Part II. Ascorbic acid.” By R. W. HERBERT, E. L. HIRST, and C. E. WOOD.
- “The nitration of alkyl benzenes. Part I. The nitration of *p*-ethyltoluene.” By O. L. BRADY and J. N. E. DAY.
- “The ignition of some explosive mixtures by modified coil discharges.” By B. W. BRADFORD, G. I. FINCH, and A. M. PRIOR.
- “New derivatives of methoxymalonic acid.” By J. PRYDE and R. T. WILLIAMS.
- “Optical activity in relation to tautomeric change. Part II. Comparison between the rate of racemisation of a tautomeric substance and the rate of its tautomeric interconversion.” By C. K. INGOLD and C. L. WILSON.
- “Optical activity in relation to tautomeric change. Part III. Constitutional and catalytic influences on the rates of racemisation of prototropic compounds.” By C. L. WILSON.
- “The synthesis of nine chloriodonaphthalenes.” By R. W. BEATTIE and F. C. WHITMORE.
- “The intramolecular strain in substituted dihydroresorcinols. Part II. Substituted phenyldihydroresorcinols.” By L. E. HINKEL, E. E. AYLING, and J. F. J. DIPPY.
- “The preparation of naphthastyril from 8-bromo-1-naphthoic acid.” By H. G. RULE and R. R. H. BROWN.
- “Substitution in the methyl-4'-nitro- and -4'-acetamidodiphenyl ethers.” By H. A. SCARBOROUGH and J. L. SWEETEN.
- “The electric dipole moments of nitromesitylene and of the bimolecular forms of nitrosomesitylene and 2-nitroso-2:5-dimethylhexane.” By D. LL. HAMMICK, R. G. A. NEW, and R. B. WILLIAMS.

- "The composition of precipitated cobalt sulphides." By A. W. MIDDLETON and A. M. WARD.
- "The influence of solvents and of other factors on the rotation of optically active compounds. Part XXXII. The rotation dispersion of esters of dibenzoyl-*d*-tartaric acid in various solvents." By T. S. PATTERSON and D. MCCREATH.
- "Preparation of camphorquinone." By W. C. EVANS, J. M. RIDGION, and J. L. SIMONSEN.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, DECEMBER 7th, 1933.

AKEROYD, EWART INGHAM, 5, Watford St., Shelton, Stoke-on-Trent, Staffs. British. Research Student, Cambridge University. B.A. (Cantab.). Part I, Natural Sciences Tripos, 1st; Part II, Natural Sciences Tripos, 1st (Chemistry). (*Signed by*) Jas. Wallace, R. G. W. Norrish, G. H. J. Neville.

ANDERSON, HENRY GEORGE ALEXANDER, 7, Leslie Street, Pollokshields, Glasgow, S. 1. Scottish. Assistant Lecturer, Royal Technical College, Glasgow. B.Sc. (Glasgow); A.R.T.C., A.I.C. Joint author with Messrs. Cumming, Duncan, and Ashcroft on "The Reduction of *o*- and *p*-Nitrobenzaldehydes and some of their Derivatives in Neutral Solution (*J. Roy. Tech. College*, Glasgow, 1932, 2, 596-600). Demonstrator in Roy. Tech. College since May 1928. (*Signed by*) W. M. Cumming, F. J. Wilson, R. M. Caven.

ARMSTRONG, KENNETH FRANKLAND, Merton College, Oxford. British. Student. B.A., B.Sc., Oxford. Publications: "Studies in the Chlorophyll Series, X," J. B. Conant and K. F. Armstrong, *J. Amer. Chem. Soc.*, 1933, p. 839; "The Glycosides," E. F. Armstrong and K. F. Armstrong, Longmans, Green & Co., 1931. (*Signed by*) D. Ll. Hammick, R. Robinson, E. Hope.

ARNDT, FRITZ, 5, Wellington Square, Oxford. German. Research work in Organic Chemistry at Oxford. Retired German full Professor of Chemistry. Dr. phil. (*Signed by*) Robert Robinson, N. V. Sidgwick, Alex. R. Todd.

BAILEY, ARTHUR EDWARD, Three Counties Hospital, Arlesey, Beds. English. Resident Chemist to Three Counties Hospital. Member of Pharmaceutical Society. Diploma in Biochemical Analysis (Pharm. Soc.). "Necessity of Sterilising 'T.I.P.'" (*Pharm. J.*, Dec. 1930) and two other papers in *Pharm. J.* (*Signed by*) R. B. Craig, V. W. Slater, A. N. C. Bennett, I. E. Weber, Raymond R. Butler.

BALDWIN, WILSON CHARLES GEOFFREY, Sandholm, St. George's Av., Dovercourt, Essex (Christ's Coll. Cambridge). British. Research Student. Nat. Sci. Tripos Pt. 1 (1st Class) and Pt. 2 (1st Class); B.A., 1933 (Cambridge). One year experience as chemist at The Explosives and Chemical Products, Ltd., Great Oakley, Essex. Date of birth April 9th, 1912. (*Signed by*) T. M. Lowry, S. G. Foord, Ronald B. Mooney.

BARRER, RICHARD MALING, Clare College, Cambridge. British. Student. M.Sc., Univ. of New Zealand. 1851 Exhibitioner, 1932. "Catalytic Hydrogenation of Hydrocyanic Acid" (Thesis, Univ. of N.Z., awaiting publication); "Activated Diffusion through Silica" (awaiting publication, Colloid Science Lab., Cambridge); "Interactions between Hydrogen and Charcoal" (research in progress). Date of birth June 16th, 1910. (*Signed by*) A. S. C. Lawrence, Eric K. Rideal, Gwyn Williams.

BARRETT, JACK WHEELER, 10A, Baron's Court Road, W. 14. British. Research Student. A.R.C.S. and B.Sc. (1st Class) at Royal College of Science. (*Signed by*) Jocelyn Thorpe, James C. Philip, R. P. Linstead.

BARRY, VINCENT CHRISTOPHER, Mill Street House, Galway. Irish. University Assistant. M.Sc., N.U.I. Publication: "Derivatives of Benzo-Difurfuran," with J. Algar and T. F. Twomey, *Proc. Royal Irish Academy*. Science Teacher in Technical Institute, Galway, since 1929. Asst. in Chemistry, Univ. College, Galway, since 1929. (*Signed by*) Thos. Dillon, A. G. G. Leonard, Thos. J. Nolan, A. O. Farrelly.

BENNISON, JOHN CARR, 53, Beaconsfield Road, Cannon Hill, Birmingham 12. British. Veterinary Surgeon. M.R.C.V.S. (Lond.). Student for D.V.S.M. (Vict.) at the Public Health

Lab., Manchester. Date of birth Nov. 8th, 1908. (*Signed by*) E. C. Bennison, F. W. Crossley-Holland, H. A. Caulkin.

BODEN, ALEXANDER, 255, Mowbray Road, Chatswood, N.S.W. British. Research Student. Engaged in research work on chemistry of hormones in collaboration with Dr. V. M. Trikojus. (*Signed by*) J. C. Earl, H. Finmore, C. E. Fawsitt, T. Iredale.

BROWN, WILLIAM BERNARD, 32, Portland Road, Rushden, Northants. British. Research Student. B.Sc., A.R.C.S. (Royal College of Science). I have just taken up Organic Research work at the Royal College of Science, and wish to avail myself of the facilities offered by the Society in this subject. Date of birth Oct. 3rd, 1912. (*Signed by*) G. A. R. Kon, M. A. Whiteley, E. H. Farmer.

CALEY, GILBERT FATKIN, Sydney, N.S.W. (1, Brockett Close, Welwyn Garden City, Herts.). British. Works Manager and Technical Chemist. Member of Australian Chemical Institute, Sydney, and of the Royal Society of New South Wales. Formerly General Manager in Sydney of Desikoko, Ltd. (Edible Oils, etc.). Manager of Glycerine Distillery Co., Ltd., Sydney. (*Signed by*) H. E. Cox, Bernard Dyer, George Taylor.

CAMPBELL-GAMBLE, DEREK JOHN, 7, Welby Gardens, Grantham, Lincs. British. Research Student. B.A. (Hons.) Cantab.; A.I.C. To receive the publications and make use of the library, and attend lectures, etc., also to apply for grants. Date of birth Sept. 16th, 1910. (*Signed by*) F. P. Bowden, W. H. Mills, R. G. W. Norrish.

CANNING, GEORGINA ELIZABETH, "Belhaven," Whitehead, Co. Antrim, N. Ireland. British. Assistant Lecturer, Dept. of Chemistry, Queen's University, Belfast. B.Sc., 1st Class Hons. Chem.; M.Sc. Both obtained at Queen's University, Belfast. "Research on Residual Affinity in Heterocyclic Organic Compounds," 1929-1933. Assistant Lecturer, Dept. of Chemistry, Q.U.B., 1930-1933. Awarded Post-Graduate Scholarship, and Andrews Research Studentship, 1929. (*Signed by*) A. W. Stewart, H. Graham, R. W. Kinkead.

CARRUTHERS, JOHN EUGENE, Granby House, Whitehaven, Cumberland. British. Research Student, Cambridge University. B.A. (Cantab.). Part I, Natural Sciences Tripos, Cambridge, 1st Class. Part II, Natural Sciences Tripos, Cambridge, 1st Class (Chemistry). (*Signed by*) Jas. Wallace, R. G. W. Norrish, G. H. J. Neville.

CHAMBERLAIN, NORMAN HENRY, Regnal House, 6, Eccleston Street, Victoria, S.W.1. British. Industrial Research Worker. B.Sc. (Hons.), Leeds; Ph.D., Leeds. Research Assistant, Dept. of Textile Industries, Leeds University, 1930-33. Use of library, attendance at meetings, publications desired. (*Signed by*) F. M. Rowe, W. Lowson, W. A. Wightman.

CRAWFORD, ARCHIBALD BARCLAY, 10, Burnbank Gardens, Glasgow, N.W. British. Lecturer in Chemistry. A.R.T.C., B.Sc. (with special distinction in Organic and Technical Chemistry), Glasgow. Ph.D. (Glasgow). Lecturer, Chemistry Dept., The Royal Technical College, Glasgow. *J.C.S.*, 1922, 121, 866; 1925, 127, 103. (*Signed by*) W. M. Cumming, F. J. Wilson, R. M. Caven.

CRAWLEY, AILSA VICTORIAN, 26, Perryn Road, W. 3. British. Senior Chemistry Mistress, Brondesbury and Kilburn High School. B.Sc. Hons. (in Chem., 2nd Class), London, Univ. College, 1923; A.I.C. As above, since 1928. 1915-1918, Assistant Analyst, Messrs. Watney, Combe, Reid & Co. 1923-1927, Senior Chemistry Mistress, Varndean School, Brighton. 1927, Temporary Senior Chemistry Mistress, Wycombe Abbey. 1927, Senior Science Mistress, Dereham High School. (*Signed by*) Julian L. Baker, Henry F. Everard Hulton, O. L. Brady.

CROOK, JOSEPH HAROLD, 4, Percy Street, Fartown, Huddersfield. British. Research Student. B.Sc., London. The papers quoted below have been published in conjunction with Dr. H. H. Hodgson: *J.C.S.*, 1932, 1812, 2976; 1933, 825. Date of birth Oct. 18th, 1909. (*Signed by*) Herbert H. Hodgson, James Bruce, Arnold Kershaw.

DANE, HENRY ARTHUR, 1, Waterlow Road, Upper Holloway, N. 19. English. Student (Royal College of Science, S. Kensington, S.W. 7). Date of birth Nov. 20th, 1912. (*Signed by*) James C. Philip, H. J. T. Ellingham, M. A. Whiteley.

DANGERFIELD, WILLIAM GARDINER, Ottawa, Vicarage Road, Chelston, Torquay, Devon. British. Research Student and Demonstrator. B.Sc. (Leeds); Ph.D. (Leeds). Date of birth April 11th, 1910. (*Signed by*) F. M. Rowe, Glyn Owen, A. T. Peters.

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DAVIES, MANSEL MORRIS, "Cefn Bryn," Abernant Road, Aberdare, Glamorgan. British. Student. B.Sc., 1st Class Hons. (Chemistry), Wales. State scholar. Intend proceeding to

research degree. Date of birth March 24th, 1913. (*Signed by*) T. Campbell James, C. R. Bury, L. J. Hudleston.

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EVANS, DAVID JOHNSON, Glen Cairn, Old Hadlow Road, Tonbridge, Kent. British. Technical Director, Electro-Chemical Development Co., Ltd. Patentee of E.C.D. Surgical Antiseptic Apparatus and Electrolytic Cells. Technical Director of Electro-Chemical Development Synd., Ltd. Anxious to make use of library, and keep in touch with latest developments in commercial chemistry. (*Signed by*) Norman Evers, Stanley Elliott, R. H. A. Plimmer.

FLAMANK, ARTHUR, King's Road, Shalford, Surrey. British. Chemist. Member of the Pharmaceutical Society of Great Britain. Works Chemist to Vulcanised Fibre Co., Ltd., Shalford. Previously for fourteen years Head Pharmacist and Lecturer in Pharmacy to the Royal Surrey County Hospital Training School, Guildford. Now interested in technical side of chemistry, and desirous of attending the meetings and receiving the publications. (*Signed by*) A. W. Morgan, F. H. Webb, Chas. H. Maile.

FRANCIS, EMRYS MANLEY, Fern Bank, Llanberis, Carnarvon. Welsh. Student. B.Sc., University College of North Wales. Research Student in Chemistry. Date of birth June 7th, 1910. (*Signed by*) J. L. Simonsen, F. G. Soper, A. E. Bradfield.

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GOLDSWORTHY, LEONARD JAMES, University College, Rangoon, Burma. British. Lecturer in Chemistry, University College, Rangoon. M.A. (2nd Class Hons. in the B.A. examination); B.Sc., Oxford. From 1914-16 Prof. of Chemistry, Victoria College of Science, Nagpur, India. Researches on resolutions of cyclic, dibasic acids, on carboxylic acids derived from cycloparaffins, on velocities of reactions, and on the use of tetramethylene dibromide in synthetical work. *J.C.S.*, 1914, 2639, 2655; 1924, 2012; 1926, 1102; 1931, 482. (*Signed by*) T. S. Moore, N. V. Sidgwick, F. D. Chattaway.

GOODWIN, THOMAS HENRY, 26, Bournbrook Road, Selly Hill, Birmingham. British. Research Worker. 1st Class Pass, B.Sc. (Dist. in Chemistry), 1930; 1st Class Hons., B.Sc. (Chem.), 1931. Both Birmingham. Publications: "Crystal Structure of Carbohydrate Compounds," *J.C.S.*, 1932, 1844; *Z. Krist (A)*, 1933, 85, 462; "Quantitative Measurement of Calcite-Aragonite Mixtures," *J. Soc. Chem. Ind.*, 1933, 52, 172. Cox and Goodwin, "X-Ray Evidence of the Structure of the Furanose and Pyranose Forms of α -Methylmannoside," *J.C.S.*, 1932, 1844. Date of birth Dec. 19th, 1909. (*Signed by*) W. N. Haworth, E. G. Cox, Wm. Wardlaw, S. R. Carter, W. J. Hickinbottom.

HAFEEZ, MOHAMMAD ABDUL, B.5227, Shanker Bagh, Nizam Shahi Road, Hyderabad (Deccan), India. Indian. Teacher (on study leave). B.A. (Osmania University, India); B.T. (Aligarh University, India). Author of "Mabadiati Science," Pt. I (Chemistry and Physics for Middle School in Hindustani); "Mabadiati Science," Pt. II (Chemistry for High School). Chemistry Teacher, H.E.H. The Nizam's Government, India. Chemistry Student in the University of Edinburgh. (*Signed by*) Neil Campbell, James Kendall, E. B. Ludlam.

HANSFORD, WILLIAM EDWARD JAMES, "Wyke Regis," 21, The Broadway, Thorpe Bay, Southend-on-Sea, Essex. English. Student. I desire to receive the Society's Publications, to attend the meetings, and to have the privilege of the use of the Society's Library. (*Signed by*) A. M. Ward, Henry J. T. Sand, A. W. Middleton.

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HENNESSY, JOHN MICHAEL, Gordon Institute of Technology, Geelong, Victoria, Australia. British. Analytical Chemist. Head of the Chemical Dept. of the Gordon Institute of Technology, Geelong, from 1916 until the present time. Acted as one of the Chemists to the Royal Commission on Sanitation, 1926. Analyst to the following Municipalities: Geelong, Geelong West, Newtown and Chilwell, Corio, Bannockburn, Barrabool, Bellarine, South Barwon, Winchelsea. Consultant to numerous industrial concerns in the Western District. Associate of the Australian Chemical Institute. (Signed by) E. T. M. Garlick, V. G. Anderson, D. Avery.

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HETHERINGTON, WILLIAM, 108, Coldharbour Road, Redland, Bristol, 6. British. Pharmaceutical Chemist. "Major" Diploma of Pharmaceutical Society of Gt. Britain, Edinburgh, July 1915. Lecturer in Chemistry at London College of Pharmacy, 1920-1922. Experimental Chemist Soaps and Detergents for Wool Scouring Industry, 1922-1923. Senior Asst. Pharmacist, Royal Infirmary, Edinburgh, 1925-1927. Chief Pharmacist, General Hospital, Bristol, 1927 to date, teaching Chemistry and Pharmacy. Desire to receive Society's publications to keep in touch with scientific developments and to have access to library. (Signed by) G. Baty Scott, M. W. Jones, S. Siddons-Wilson, J. Macvie Hill.

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LECKIE, ALAN HARVEY, "Strathgarve," Bradmore Way, Brookmans Park, Hatfield, Herts. British. B.Sc. Research Student in Chemistry, University College, London. (*Signed by*) F. G. Donnan, L. F. Gilbert, W. Rogie Angus.

LOVE, THOMAS, 20, McLelland Drive, Kilmarnock, Ayrshire. British. Assistant Lecturer and Demonstrator in Chemistry. B.Sc., Applied Chemistry (Glasgow). Assistant Lecturer at Royal Technical College, Glasgow, since 1930. (*Signed by*) W. M. Cumming, F. J. Wilson, R. M. Caven.

MCDOWELL, CONSTANCE MARY, 4, Brookfield Park, N.W. 5. British. Formerly Assistant Lecturer, Robert Gordons Technical College, Aberdeen. Now Assistant Director of Examinations, Civil Service Commission. B.Sc., 1st Class Hons. Chem.; Ph.D., University of Leeds. (With F. L. Usher) "Viscosity and Rigidity in Suspensions of Fine Particles." "Aqueous Suspensions," *Proc. Roy. Soc.*, 1931, A, 131, 409. "Non-Aqueous Suspensions," *ibid.*, 564. (Also with F. L. Usher) "The Distribution of Suspended Particles under Gravity," *Proc. Roy. Soc.*, 1932, A, 138, 133. (*Signed by*) R. Craven, A. R. Martin, T. Harold Reade.

MASTERMAN, ARTHUR THOMAS, 3, Kedale Road, Seaford, Sussex. English. Retired Civil Servant. D.Sc. (St. Andrews); D.Sc. (London); M.A. (Science Tripos) (Cambridge); Fellow of Royal Society; Consultant Chemist, Manufacturing Company. (*Signed by*) E. A. R. Bousfield, W. R. Bousfield, Eric K. Rideal.

MOORE, WILLIAM SMYTHE, 30, Queen's Avenue, Woodford Green, Essex. British. Post Graduate Research Student (2nd year). B.Sc., 2nd Class Hons. Chem., London. Date of birth July 4th, 1912. (*Signed by*) J. R. Partington, H. D. K. Drew, H. H. Hatt.

MUKERJI, BALADEB, 1, Hurtukibagan Lane, Calcutta, British India. Bengali (Indian). Physician. B.Sc. (Calcutta University); M.B. (Calcutta University). Lecturer of Chemistry, National Medical Institute, Calcutta, under the State Medical Faculty of Bengal for five years and examiner in the same subject at the Licentiate Examination of the State Medical Faculty of Bengal. (*Signed by*) Nani Gopal Chakravarti, M. Qudrat-i-Khuda, P. Neogi, Benimadhul Chakravarti.

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PERCIVAL, EDMUND GEORGE VINCENT, Chemistry Department, King's Buildings, West Mains Road, Edinburgh. English. B.Sc., Ph.D. (Birmingham). Lecturer in Chemistry, University of Edinburgh. (With Wm. Wardlaw) *J.C.S.*, 1929, 1317, 1505, 2628; (with W. N. Haworth) *J.C.S.*, 1931, 1342, 2850; 1932, 2277; (with W. N. Haworth and E. L. Hirst) *J.C.S.*, 1932, 2384. (*Signed by*) S. R. Carter, E. L. Hirst, Allan C. Waite, Wm. Wardlaw, M. Stacey.

PILGRIM, ARCHIBALD, 239, High Street, North, East Ham, E. 6. British. Research in Organic Chemistry. B.Sc. (London). In order to use the library of the Society and to receive the Journal. Date of birth Jan. 6th, 1913. (*Signed by*) H. H. Hatt, G. H. Wyatt, H. D. K. Drew.

PÓLÁNYI, MICHAEL, The Victoria University, Manchester. Austrian. Professor of Physical Chemistry. Ph.D., M.D. (Budapest). Research work in physical chemistry. (*Signed by*) Arthur Lapworth, I. M. Heilbron, Fred Fairbrother.

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ROE, EDNA MARGARET FRANCES, 66, Drury Road, Harrow, Middlesex. English. Research Scholar at Cancer Hospital (Free). B.Sc. (Spec. & Gen.), University College, London. Research Student in Physical Chemistry at University College, London up to May 1933 (working on Photochemistry and Spectroscopy). Date of birth July 4th, 1911. (*Signed by*) C. F. Goodeve, R. J. Macwalter, Bh. S. V. Raghava-Rao.

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TEMPLETON, JOHN, "Dalkeith," Jones Island, Manning River, N.S.W., Australia. British-Australian. Chief Engineer Manning River Dairy Co-op. Society, N.S.W. Considerable experience in industrial chemistry as applied to refrigeration. I wish to keep in touch with the latest developments of Chemical Research. (*Signed by*) George Z. Dupain, C. H. Cliff, R. W. Challinor.

THOMPSON, MARY CHRISTINA, 16, Elmwood Road, Herne Hill, S.E. 24. British. B.Sc., Bedford College, University of London. Research student, Department of Organic Chemistry, Bedford College. Date of birth Dec. 20th, 1910. (*Signed by*) Eustace E. Turner, Mary S. Lesslie, Elizabeth E. J. Marler.

THOMSON, ROBERT FRASER, Thistlebank, Grangemouth. British. Research Manager. M.A., D.Sc. (St. Andrews). (*Signed by*) T. S. Moore, G. T. Morgan, S. Sugden, J. Masson Gulland.

TONG, SAMUEL TRAVIS, The Oaks, 21, St. Andrews Avenue, Cleveleys, nr. Blackpool, Lancs. British. Technical Chemist. Passed 1st Class in the third year U.L.C.I. Examinations in Organic Theoretical, and Inorganic Practical. I wish to keep in touch with modern developments in Chemistry. (*Signed by*) Ernest Taylor, John C. Oxley, Robert Henry Jones, John Norman Aldington.

WEISSBERGER, ARNOLD, The Dyson Perrins Laboratory, South Parks Road, Oxford. German. Dr. phil. Leipzig, 1924; Privatdozent, Leipzig, 1928. (*Signed by*) D. Ll. Hammick, N. V. Sidgwick, R. Robinson.

WILKINSON, ALAN EDWARD, 49, Sydenham Hill, S.E. 26. British. Medical Student. 2nd M.B. (Part I, Organic Chemistry), London. I am interested in Biochemistry, and wish to make use of the Library and receive the *Journal*, and to attend the meetings. Date of birth July 19th, 1914. (*Signed by*) W. Gerrard, Herbert A. Mills, J. Kenyon.

WILLIAMS, RONALD BRANSTON, Corpus Christi College, Oxford. British. Student. 1st Class Hons., B.A. (Chemistry), Oxford; B.Sc., Oxford. Date of birth July 30th, 1911. (*Signed by*) D. Ll. Hammick, N. V. Sidgwick, T. W. J. Taylor.

WILSON, BEATRICE MURIEL, Higher Trevarrick, St. Austell, Cornwall. British. Ph.D. (London), June 1933; Physical Chemistry, B.Sc. (London); Honours in Chemistry, June 1931.

Research student, University College, Exeter. Papers published by H. T. S. Britton and Self in the *J.C.S.*: "Electrometric Studies of the Precipitation of Hydroxides, Parts VII, VIII, IX, X, and XI," *J.C.S.*, 1932, 2550; 1933, 9, 601, 1045, 1050. Date of birth Dec. 7th, 1910. (*Signed by*) H. T. S. Britton, Herbert Henstock, Patricia Jackson.

WINFIELD, FRANCIS THOMAS, Hill View, Coddington, Newark, Notts. British. Formerly Research student, now Lecturer in Science, Newark Technical College. B.Sc., London. Physico-Chemical Research, and three years teaching experience at Newark. *J.C.S.*, 1930 (E. B. R. Prideaux & F. T. W.) 1587. "The Dissociation Constants of Quinine, Cinchonine, and Cinchonidine." (*Signed by*) F. S. Kipping, J. B. Firth, B. D. Shaw, E. B. R. Prideaux.

YATES, EDMUND DENYS, 4, Woodville Road, Cathays, Cardiff. British. Research Chemist, Cardiff City Mental Hospital. B.Sc., Ph.D. (Lond. Ext.). A.I.C. Scientific and Research training at Cardiff Technical College. Engaged in research on the significance of bromine in the psychoses. *J.C.S.*, 1931, 2508; 1931, 3318; 1932, 1207; 1933, 220 (part author). Date of birth June 15th, 1911. (*Signed by*) J. H. Quastel, H. B. Watson, J. F. J. Dippy.

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CIGNOLI, DOCTOR FRANCISCO, Presidente del Colegio de Doctores en Bioquímica y Farmacia. Rosario de Santa Fé (Rep. Argentina), General Mitre, 1117. Rosario de Santa Fé (Rep. Argentina). Argentino. Profesor Universitario. Doctor en Bioquímica y Farmacia Farmacéutico. Farmacéutico, 1918; Doctor Bioquímica, 1920, Universidad de Buenos Aires. Profesor de Química Orgánica de la Escuela de Farmacia de la Facultad de Ciencias Médicas de Rosario. Profesor de Farmacia Galénica de las Universidades del Litoral y de Buenos Aires. (*Signed by*) Venancio Deulofeu.

EDWARDS, STANLEY HAINES, c/o Laboratory, Shell Co. of N.Z., Ltd., Hutt Road, Wellington, New Zealand. British. Chemist. One year Chemist, Messrs. Guest, Keen & Nettlefolds, Ltd., Cardiff, S. Wales; two years Assistant, Central Tuberculosis Lab., Welsh Nat. Memorial Ass., Cardiff; four and a half years Chemist, Shell Co. of N.Z., Ltd., Wellington, N.Z. (*Signed by*) P. W. Robertson.

FAIRBRASS, EDWARD WILLIAM, Sohrab House, Hornby Road, Bombay, India (Home Address: 63, New Colney Road, Dartford, Kent, England). English. Pharmacist. Member of the Pharmaceutical Society. Employed now with Messrs. Kemp & Co., Ltd., Bombay, Manufacturing Pharmaceutical Chemists. (*Signed by*) Harry Sharpe.

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LEECH, WILLIAM D., Cooranbong, New South Wales, Australia. U.S.A. Research chemist. A.B. from Union College, M.A. Univ. of S. California. *J. Ind. Eng. Chem.*, Jan. 1927, "U.S.A. Standard Methods of Chemical Analysis," "Oxidation of Ammonia to Nitric Acid, by Scott and Leech," "Tables of Solubilities," "Elementary Quantitative Analysis," "Determination of Traces of Manganese." (*Signed by*) J. C. Drummond.

PARVATIKAR, RAM RAO, No. 3120, Gowliguda, Hyderabad, Deccan, India. Indian. Professor of Chemistry, Nizam College, Hyderabad, Deccan. M.A. (Bombay University). Lecturer in Chemistry for the last 23 years; done original research work on the mutual solubility of glycerol and hydroxy and ammino compounds. *J.C.S.*, 1924, pp. 1484—1492. (*Signed by*) B. C. McEwen.

PHILLIPS, ERIC HUME, Marine Terrace, Geraldton, Western Australia. British. Pharmaceutical Chemist. A paper on "The Analysis of the Simple Tinctures of the B.P." As a student of Inorganic and Organic Chemistry, Materia Medica and Botany at the Perth Technical College and University. (*Signed by*) W. Brendon Garner.

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CAIN, JOHN CANNELL, and THORPE, JOCELYN FIELD. The synthetic dyestuffs and the intermediate products from which they are derived. 7th edition, entirely rewritten and revised by J. F. THORPE and REGINALD PATRICK LINSTAD. London 1933. pp. xvi + 472. 30s. net. (*Recd.* 19/10/33.)

From Professor J. F. Thorpe, C.B.E., F.R.S.

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FORTHCOMING MEETINGS OUTSIDE LONDON.*BIRMINGHAM.*

Monday, January 22nd, 1934, at 5.30 p.m., in the Chemistry Lecture Theatre of the University. Lecture entitled "Some Recent Work in the Alkaloid Group," by Professor R. Robinson, D.Sc., F.R.S.

BRISTOL.

Friday, January 26th, 1934, at 5.30 p.m. Discussion to be held in the Chemistry Lecture Theatre of the University on "Reactions in Gases and Solids." Papers will be contributed by Professor W. E. Garner, D.Sc., A.I.C., and Mr. C. N. Hinshelwood, M.A., F.R.S.

GLASGOW.

Friday, December 8th, 1933, at 6.45 p.m. The Ramsay Chemical Dinner in the Central Hotel, Glasgow. The Chair will be occupied by Sir Arthur Huddleston, C.M.G., O.B.E., M.A., the new Director of the Royal Technical College.

NORTH WALES.

Friday, December 1st, 1933, at 6 p.m. Lecture by Professor R. Robinson, D.Sc., F.R.S., at the University College of North Wales, Bangor, entitled "Group Protection Devices." The Lecture will be followed by a Dinner.

SHEFFIELD.

Thursday, January 25th, 1934, at 7.30 p.m. Symposium and discussion on "The Ignition of Gases," arranged by Professor R. V. Wheeler, D.Sc., F.I.C.

FORTHCOMING MEETINGS IN LONDON.

Thursday, December 7th, 1933, at 8 p.m.

Ordinary Scientific Meeting. The following papers will be read:

- "The thermal decomposition of solids." By W. E. GARNER, A. S. GOMM, and H. R. HAILES.
- "The acceleration of the decomposition of solids by the emission from radium." By W. E. GARNER and C. H. MOON.
- "The dielectric polarisation of hydrogen chloride in solution. Part II. Benzene, ethyl bromide, and ethylene dichloride." By F. FAIRBROTHER.
- "The effect of pressure on the binary system monomethylaniline-dimethylaniline." By J. C. SWALLOW and R. O. GIBSON.

Thursday, December 21st, 1933, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, January 18th, 1934, at 8 p.m.

Ordinary Scientific Meeting.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

A meeting under the auspices of the Society was held on November 9th, 1933, in the Chemistry Lecture Theatre of the University of Manchester, Dr. R. H. PICKARD, F.R.S., Vice-President, in the Chair.

Professor J. E. Lennard-Jones, F.R.S., gave a lecture entitled "Molecules Pictorial." By the use of analogies drawn from vibrating strings, plates, and other objects, the lecturer introduced in a non-mathematical form the idea of the wave nature of matter. The manner in which atoms joined together to form molecules was then explained and the electron distribution in several typical cases demonstrated by means of an ingenious floodlit rotating model. A short discussion followed, in which Dr. R. H. Pickard, Dr. F. Fairbrother, Mr. F. M. Neale, Dr. G. N. Burkhardt, Professor I. M. Heilbron, and Professor A. Lapworth took part. About 120 were present.

Ordinary Scientific Meeting held on Friday, November 24th, 1933, at 4.30 p.m., in the Lecture Theatre of the Tatem Laboratories, The University College of South Wales and Monmouthshire, Cardiff, Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

The Principal of the College, Principal J. F. Rees, M.A., in welcoming the Society to Cardiff, said that this was the first Ordinary Scientific Meeting of the Society to be held in Wales. He referred also to the new Physical and Chemical Laboratories and spoke with appreciation of the services of the late Professor Claude M. Thompson.

The PRESIDENT expressed the thanks of the Society to the Principal, and welcomed the visitors present.

Messrs. N. H. Hartshorne, F. M. Lea, and J. F. J. Dippy were formally admitted Fellows of the Society.

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

Reginald George Robert Bacon, B.Sc., A.R.C.S., 74, Hermitage Road, Finsbury Park, N. 4.
Michael Philip Balfe, Ph.D., B.A., British Leather Manufacturers' Research Association, 20, St. Thomas' Street, S.E. 1.
Abraham Cluer, 5, Nightingale Road, Clapton, E. 5.
Douglas Cecil Hibbit, B.Sc., A.R.C.S., 86, Weston Road, Strood.
William Ralph Maxwell, B.Sc., The Gables, Torrington Grove, Friern Park, N. 12.
Cecil Henry Miller, B.Sc., A.R.C.S., 54, Acland Road, Bournemouth.
Gilbert Freeman Smith, Ph.D., Hillcroft, King Lane, Alwoodley, Leeds.
Hardwicke Slingsby Tasker, New College, Oxford.

Forms of Recommendation for Fellowship in favour of 19 candidates were read for the second time.

The formal business having been completed, a discussion on "Chemical Applications of Optical and Morphological Crystallography" was opened by Dr. N. H. Hartshorne, who described the use of optical crystallographic methods in chemical practice, and by Professor G. M. Bennett, who explained by reference to a number of examples the value of goniometric data in chemical research. Professor Bennett also read a communication from Dr. Mary W. Porter on the Fedorov-Barker method of crystallochemical analysis, in the course of which she appealed for the co-operation of chemists in the preparation of the "Barker Index." There was some discussion on this matter.

After an informal dinner, the meeting was resumed at 8 p.m., when Messrs. N. M. Cullinane, A. Stuart, and R. G. Wood described an investigation of some organic compounds, existing in forms of different colours in which optical and goniometrical methods proved to be of value. Mr. F. M. Lea then described the use of optical crystallographic

methods in phase-rule equilibrium studies and demonstrated the value of these methods by reference to systems of oxides of high melting point and to aqueous systems.

Mr. E. G. Cox gave an account of the use of optical properties of crystals, especially refractivity, for the purpose of gaining information on the structure of the molecules of which they are formed. The method was illustrated by reference to a number of examples.

An account of the identification of some aromatic nitrocompounds by optical crystallographic methods, by E. S. Davies and N. H. Hartshorne, was given by Mr. E. S. Davies.

Most of the papers were followed by a discussion. The meeting was very well attended, and it was generally agreed that the topics dealt with had been of considerable interest and practical value.

An Extra Meeting of the Chemical Society was held in the University of Sheffield on Thursday, November 30th, at 7.30 p.m. Mr. T. B. Smith, B.Sc., A.R.C.S., of the University of Sheffield gave a lecture on "Modern Developments in Analytical Chemistry." The Chair was taken by Mr. John Evans, F.I.C., Sheffield City Analyst.

A joint meeting of the Chemical Society with the Chemical Society of the University College of North Wales, Bangor, was held in the Lecture Theatre of the Chemical Department of the College on Friday, December 1st, at 6 p.m., when Professor R. Robinson, D.Sc., F.R.S., delivered a lecture entitled "Group Protection Devices," the Chair being taken by Professor J. L. Simonsen, D.Sc., F.R.S.

Methods of protecting active hydroxy- and amino-groups during condensation and ring formation were surveyed and illustrated by examples gathered from a wide field of synthetic work in alkaloid, sugar, and anthocyanin chemistry.

Following a discussion, a vote of thanks to the Lecturer was proposed by Mr. E. M. Francis and seconded by Mr. E. R. Jones. The meeting was well attended and was followed by a Dinner.

Ordinary Scientific Meeting, Thursday, December 7th, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Richard Arthur Bush	Feb. 21st, 1884.	Oct. 7th, 1933.
Nial Patrick McClelland	Dec. 15th, 1921.	Dec. 1st, 1933.
Pattinson Banks Melmore	May 20th, 1875.	Nov. 20th, 1933.

Mr. A. P. Sachs was formally admitted a Fellow of the Society.

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

Rama Krishna Bahl, M.Sc., c/o Lloyd's Bank, Ltd., 67, Kingsway, W.C. 2.
 Ernest George Boyce, B.Sc., A.I.C., "Ranmore," 34, Regent Road, Surbiton, Surrey.
 Dorothy Ellen Cook, B.Sc., 36, Hanover Road, N.W. 10.
 Norman Charles Crane, 107, Salisbury Road, Barnet, Herts.
 Kenneth King-Len Dzo, B.Sc., 15, Alma Square, St. John's Wood, N.W. 8.
 Donald Percy Earp, B.Sc., 225, Western Road, Sheffield 10.
 Frederick John Flowerdew, B.Sc., 87, Liverpool Road, Birkdale, Southport, Lancs.
 Geoffrey Arthur Dering Haslewood, M.Sc., 15, Fitzroy Square, W. 1.
 John Francis Hopkins, 15, Downs Court Road, Purley, Surrey.
 Shing Kong Hsu, B.Sc., 17, Arlington Road, Campden Town, N.W. 1.
 Hilda Ellen Johnston, B.Sc., 126, Clifford Gardens, N.W. 10.
 Leslie John Jolley, A.R.C.S., 2, Holland Road, Westcliff-on-Sea, Essex.
 John Idris Jones, B.Sc., "Brynderyn," Elm Tree Avenue, Aberystwyth.
 Diana Lockhart, B.Sc., 36, Hanover Road, N.W. 10.
 Kurt Moers, Dr. Phil., I. G. Farbenindustrie Aktiengesellschaft, Frankfurt/Main-Hoechst, Germany.
 Friedrich Adolph Paneth, Prof., Ph.D., 9, Cecil Court, Hollywood Road, S.W. 10.
 Frank Howard Pearman, 49, Grosvenor Gardens, Woodford Green, Essex.
 Harold Valentine Walker Robinson, M.Sc., Plas Edwards, Towyn, Merioneth.
 John Donald Rose, B.A., Logastone, Greasborough, Rotherham, Yorks.
 Abel Bao-Len Wang, B.Sc., China House, 91, Gower Street, W.C. 1.
 Frederick Charles Webb, A.R.C.S., 47, Belmont Road, West Green, N. 15.

Forms of Recommendation for Fellowship in favour of 8 candidates were read for the second time.

Mr. K. K. Etchells and Mr. S. H. Woolhouse were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected :

Ewart Ingham Akeroyd, B.A.	Henry Reginald Hirst, M.Sc., F.I.C., M.I.Chem.E.
Henry George Alexander Anderson, B.Sc., A.I.C.	Isaac Vance Hopper, B.Sc., Ph.D.
Kenneth Frankland Armstrong, B.A., B.Sc.	Edward William Jackson, A.M.I.E.E.
Fritz Arndt, Dr. Phil.	Edwin Ernest Jelley, B.Sc., A.I.C.
Arthur Edward Bailey.	Dafydd Islwyn Jenkins, B.Sc., Ph.D.
Wilson Charles Geoffrey Baldwin, B.A.	Wilhelm Klemm, Dr. Phil.
Richard Maling Barrer, M.Sc.	Jagadish Kumar Lahiri, B.Sc.
Jack Wheeler Barrett, B.Sc., A.R.C.S.	Justus Kenneth Landquist.
Vincent Christopher Barry, M.Sc.	Alan Harvey Leckie, B.Sc.
John Carr Bennison, M.R.C.V.S.	William D. Leech, A.B., M.A.
Alexander Boden.	Thomas Love, B.Sc.
William Bernard Brown, B.Sc., A.R.C.S.	Constance Mary McDowell, B.Sc., Ph.D.
Gilbert Fatkin Caley.	Arthur Thomas Masterman, M.A., D.Sc., F.R.S.
Derek John Campbell-Gamble, B.A., A.I.C.	William Smythe Moore, B.Sc.
Georgina Elizabeth Canning, M.Sc.	Baladeb Mukerji, B.Sc., M.B.
John Eugene Carruthers, B.A.	Theodore Lawrence Parkinson, B.Sc.
Norman Henry Chamberlain, B.Sc., Ph.D.	Ella Kathleen Parsons.
Francisco Cignoli.	Ram Rao Parvatikar, M.A.
Archibald Barclay Crawford, B.Sc., Ph.D.	Edmund George Vincent Percival, B.Sc., Ph.D.
Ailsa Victorian Crawley, B.Sc., A.I.C.	Eric Hume Phillips.
Joseph Harold Crook, B.Sc.	Archibald Pilgrim, B.Sc.
Henry Arthur Dane.	Michael Pólányi, Ph.D., M.D.
William Gardiner Dangerfield, B.Sc., Ph.D.	Bryan Pontifex.
Audrey Winifred David, B.Sc.	William Charles Henry Potter-Mackenrot.
Mansel Morris Davies, B.Sc.	George Rowntree Ramage, M.Sc., Ph.D.
William Charles Dovey, B.Sc., Ph.D.	Frederick Denys Richardson, B.Sc.
Raphael John Doyle, M.Sc., D.Sc.Tech.	Edna Margaret Francis Roe, B.Sc.
Stanley Haines Edwards.	Alfred Rubenstein, B.Sc.
David Johnson Evans.	Dennis Frank Runnicles, B.Sc.
Edward William Fairbrass.	Francis Charles Julian Ruzicka, B.Sc., A.R.C.S.
Arthur Flamank.	Olive Dora Saltmarsh, B.A.
Emrys Manley Francis, B.Sc.	James William Skeen, B.Sc.
Philip James Garner, B.A.	Hugh Clifford Stephens, B.A., B.Sc.
James Blair Gillies.	John Templeton.
Leonard James Goldsworthy, M.A., B.Sc.	Mary Christina Thompson, B.Sc.
Thomas Henry Goodwin, B.Sc.	Robert Fraser Thomson, M.A., D.Sc.
Mohammad Abdul Hafeez, B.A., B.T.	Samuel Travis Tong.
William Edward James Hansford.	Arnold Weissberger, Dr. Phil.
Harold Carl Happold.	Alan Edward Wilkinson.
Stanley Hugh Harper, A.R.C.S.	Ronald Branston Williams, B.A., B.Sc.
John Michael Hennessy.	Beatrice Muriel Wilson, B.Sc., Ph.D.
James Banks Morice Herbert, M.Sc.	Francis Thomas Winfield, B.Sc.
William Hetherington.	Edmund Denys Yates, B.Sc., Ph.D., A.I.C.

The following papers were read :

- “The thermal decomposition of solids.” By W. E. GARNER, A. S. GOMM, and H. R. HAILES.
- “The acceleration of the decomposition of solids by the emission from radium.” By W. E. GARNER and C. H. MOON.
- “The dielectric polarisation of hydrogen chloride in solution. Part II. Benzene, ethyl bromide, and ethylene dichloride.” By F. FAIRBROTHER.
- “The effect of pressure on the binary system monomethylaniline–dimethylaniline.” By J. C. SWALLOW and R. O. GIBSON.

Ordinary Scientific Meeting, Thursday, December 21st, 1933, at 8 p.m., Professor G. T. MORGAN, O.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Col. Sir Frederic Lewis Nathan, K.B.E.	May 5th, 1921.	Dec. 10th, 1933.
Robert Elliot Steel	May 7th, 1885.	Oct. 6th, 1933.

Messrs. D. F. Runnicles, J. K. Landquist, F. Ruzicka, S. H. Harper, A. C. C. Newman, A. H. Leckie, G. F. Caley, Cecil Bean, E. Isaacs, and A. J. Leigh were formally admitted Fellows of the Society.

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

Paul Raywood Beaven, B.A., 9, Elm Vale, Fairfield, Liverpool.
 Kenneth Guy Blaikie, B.A., Ph.D., A.R.C.S., 138, Cedar Avenue, Shawinigan Falls, Que., Canada.
 William Robert Boon, B.Sc., 76, Croham Valley Road, Selsdon, Surrey.
 Kenneth Alfred John Chamberlain, B.Sc., Elmleigh, Cookhill, Alcester, Warwickshire.
 Richard Henry Henriksen, 65, Moss Lane, Liverpool 9.
 Victor Basil Jones, Coney Hill, Hayes, Kent.
 Kiichirō Kakemi, The Pharmaceutical Institute, Imperial University, Tokyo, Japan.
 Alexander McGookin, B.Sc., Ph.D., 26, Princes Avenue, Eastham, Cheshire.
 Dudley Maurice Newitt, D.Sc., Ph.D., A.R.C.S., 4, Coombefield Close, New Malden, Surrey.
 Walter Ritchings, M.Sc., A.I.C., 6, Harley Road, Sheffield 11.
 Samuel Aaron Rosenthal, Ph.C., 24, Brighton Square, Rathgar, Dublin.
 Isao Satoda, 40, 3-chome, Haramachi, Ushigomeku, Tokyo, Japan.
 Emma Stott, B.Sc., Ph.D., 57, Headingley Lane, Leeds, 6.
 Arthur William Charles Taylor, B.Sc., 86, Boundary Road, Hove, Sussex.
 Donald Thomas Alfred Townend, D.Sc., Ph.D., D.I.C., Briar Mount, Kents Hill Road, South Benfleet, Essex.
 Harry John Victory, B.Sc., 2, Brynhydryd Avenue, Newport, Mon.
 James Hunter Young, B.Sc., A.I.C., 7, Upper Hornsey Rise, N. 19.

The following forms of Recommendation have been accepted by the Council under Bye-Law I (2) :—

Ernst Bergmann, Ph.D., Daniel Chaim Sieff Institute, Rehoboth, Palestine.
 Sallet Chandra Bose, P.O. Dhakeswari Mills, Narayganj, Bengal, India.
 Joseph Koetschet, 6, Boulevard Suchet, Paris, France.
 Lionel Stratton Lightening, c/o Rhodesia Chrome Mines, Ltd., Railway Block, Selukwe, S. Rhodesia.
 Eduard Zintl, Ph.D., Chemisches Institut der Technischen Hochschule, Darmstadt, Germany.

Forms of Recommendation in favour of twenty-one Candidates were read for the second time.

The following papers were read :—

“The homogeneous catalysis of stereoisomeric change in oximes.” By T. W. J. TAYLOR and D. C. V. ROBERTS.
 “The intramolecular strain in substituted dihydroresorcinols. Part II. Substituted phenyldihydroresorcinols.” By L. E. HINKEL, E. E. AYLING, and J. F. J. DIPPY.
 “The mobility of groups containing a sulphur atom. Part III.” By D. W. COWIE and D. T. GIBSON.
 “The optical activity of a diphenyl derivative, the dissymmetry of which is caused by space effect of only one group.” By MISS M. S. LESSLIE and E. E. TURNER.

The Council has made the following grants from the Research Fund :—

	£	s.	d.
Effect of surface on the kinetics of sensitised gaseous explosions. E. I. Akeroyd. (Cambridge Univ.)	20	0	0
Complex compounds of olefine hydrocarbons and related substances with the platinum metals and their salts. J. S. Anderson. (Imperial Coll.)	8	0	0
Synthesis and properties of polyene chains. R. G. R. Bacon. (Imperial Coll.)	8	0	0
Periodic acids and periodates. R. K. Bahl. (East London Coll.)	8	0	0
Synthesis of dill and parsley apiole, and investigation of certain orientation problems arising therefrom. W. Baker. (Oxford Univ.)	10	0	0
Circular dichroism, absorption, and rotatory dispersion of acetylated sugars and other optically active compounds. W. C. G. Baldwin. (Cambridge Univ.)	8	0	0
High and low temperature processes in the interaction between hydrogen and charcoal. R. M. Barrer. (Cambridge Univ.)	8	0	0
Syntheses of dicyclic ketones. J. W. Barrett. (Imperial Coll.)	8	0	0
Reactivity of aromatic hydroxyl groups. H. Ll. Bassett. (Univ. Coll., Cardiff)	5	0	0
Concentration and properties of heavy isotope of hydrogen. R. P. Bell and J. H. Wolfenden. (Oxford Univ.)	8	0	0
Isolation and the determination of the chemical constitution of New Zealand alkaloids. L. H. Briggs. (Univ. Coll., Auckland)	15	0	0

	£	s.	d.
Adsorption of the fatty acids from very dilute solutions by silicic acid gel. G. Broughton. (East London Coll.)	8	0	0
Synthesis and properties of polyene chains. W. B. Brown. (Imperial Coll.) ...	7	0	0
Anionotropic and prototropic changes in cyclic systems. H. Burton. (Leeds Univ.)	5	0	0
Electrolytic and other properties of heavy hydrogen. J. A. V. Butler. (Edinburgh Univ.)	20	0	0
Primary photochemical processes. J. E. Carruthers. (Cambridge Univ.) ...	10	0	0
Isomeric change of aromatic compounds (<i>continued</i>). A. W. Chapman. (Sheffield Univ.)	10	0	0
Complex salts. D. R. Chesterman. (Woolwich Polytechnic)	10	0	0
Development of terpene chemistry, and in particular the synthesis of cyclic structures containing quaternary carbon atoms which are common members of the two ring systems (<i>continued</i>). G. R. Clemo. (Armstrong Coll.)	7	10	0
Nuclear isomerism of some cobalt compounds. A. Cluer. (East London Coll.) ...	5	0	0
Synthesis of fused ring systems (<i>continued</i>). A. H. Cook. (Imperial Coll.) ...	7	0	0
2:2'- <i>Spiro-cyclo</i> -derivatives of diphenyl and related compounds. (Miss) D. E. Cook. (Bedford Coll.)	8	0	0
Influence of substituents on chemical and physical properties of organic compounds (<i>continued</i>). D. M. Cowan. (Woolwich Polytechnic)	10	0	0
Magnetic susceptibility of binary alloys of thallium before and after heat treatment. (Miss) A. W. David. (Bedford Coll.)	8	0	0
Conductivities in non-aqueous solvents. M. M. Davies. (Univ. Coll., Aberystwyth)	5	0	0
Formation and decomposition of quaternary phosphonium salts. W. C. Davies. (Univ. Coll., Cardiff)	8	0	0
Studies in jaborandi alkaloids. A. N. Dey. (Imperial Coll.)	7	0	0
Synthesis of polycyclic hydrocarbons. K. K. Dzo. (Imperial Coll.)	5	0	0
Studies in non-aqueous colloid chemistry. K. K. Etchells. (Sir John Cass Tech. Inst.)	8	0	0
Synthesis and hydrogenation of hydrocarbons related to cholesterol. D. J. C. Gamble (Imperial Coll.)	5	0	0
Additive properties of acetylenic compounds. S. C. Ghosal. (Imperial Coll.) ...	6	0	0
Mobility of groups containing a sulphur atom. D. T. Gibson. (Glasgow Univ.)	5	0	0
Mechanism and dynamics of sulphonium degradations. J. L. Gleave. (Univ. Coll., London)	10	0	0
<i>cyclo</i> Pentadiene derivatives. F. R. Goss. (Leeds Univ.)	10	0	0
Magnetic study of nitric acid, nitrous acid, and inorganic and organic nitrates and nitrites and other nitric acid and nitrous acid derivatives. F. W. Gray. (Aberdeen Univ.)	5	0	0
Chemical dynamics of the reactions between sodium pseudo-cumerolate and alkyl iodides in ethyl alcohol. P. J. Hardwick. (Chelsea Polytechnic)	7	0	0
Syntheses of oxygen containing polycyclic compounds. S. H. Harper. (Imperial Coll.)	5	0	0
Linear velocity of polymorphic transformation of mercuric iodide. N. H. Hartshorne. (Univ. Coll., Swansea)	5	0	0
Heterocyclic compounds of nitrogen. H. H. Hatt. (East London Coll.) ...	10	0	0
Stereochemistry of some mixed β -tetrammines. F. S. H. Head. (East London Coll.)	8	0	0
Formation of alicyclic compounds. D. C. Hibbit. (Imperial Coll.)	6	0	0
Condition for the retention of enantiomeric identity of tautomeric systems. S. K. Hsü. (Univ. Coll., London)	10	0	0
Catalytic reduction of conjugated unsaturated substances. (Miss) H. E. Johnston. (Univ. Coll., London)	6	0	0
Chlorination of aromatic ethers. B. Jones. (Sheffield Univ.)	8	0	0
Studies in the cinnamic acid series. J. I. Jones. (Univ. Coll., Aberystwyth) ...	8	0	0
Organo-metallic compounds. J. K. Landquist. (East London Coll.)	12	0	0
Constitution of aconitine and picrotoxin. A. Lawson. (Univ. Coll., Southampton)	8	0	0
Naturally occurring centrosymmetric compounds. R. J. W. Le Fèvre. (Univ. Coll., London)	5	0	0
Organic compounds of mercury. J. D. Loudon. (Glasgow Univ.)	5	0	0
Hydroxyanthraquinones. P. G. Marshall. (Edinburgh Univ.)	5	0	0
Catalytic hydrogenation of polyene systems. S. R. W. Martin. Imperial (Coll.)	6	0	0
Dissociation constants of polybasic acids. W. R. Maxwell. (East London Coll.)	5	0	0
Syntheses of substances of possible physiological interest. E. M. Meade. (Tech. Coll., Middlesbrough)	5	0	0
Polymerisation of simple molecules. H. W. Melville. (Cambridge Univ.) ...	15	0	0
Syntheses of hydrocarbons related to cholesterol. C. H. Miller. (Imperial Coll.)	5	0	0

	£	s.	d.
Stereochemical study of semi-pinacolinic deamination. A. K. Mills. (Aberdeen Univ.)	10	0	0
Analogues and homologues of phenoxtellurine. W. S. Moore. (East London Coll.)	8	0	0
Three-carbon tautomerism in aldehydes. K. S. Nargund. (Gujarat Coll., India)	5	0	0
Phthalazines and derived keto-bodies. F. H. Pearman. (East London Coll.) ...	6	0	0
Formation of rings attached to the meta-positions of the benzene nucleus. S. G. P. Plant. (Oxford Univ.)	10	0	0
Terpene and sesquiterpene chemistry. G. R. Ramage. (Univ. Coll., Bangor) ...	10	0	0
Reduction of conjugated unsaturated substances by metals dissolving in an aqueous or alcoholic medium. M. A. T. Rogers. (Univ. Coll., London)	10	0	0
Nature of the thiazine dyestuffs. A. Rubenstein. (East London Coll.)	5	0	0
Syntheses of polycyclic substances. F. C. J. Ruzicka. (Imperial Coll.)	5	0	0
(a) Isomerisation of some acetylenic compounds. (b) Condensation with tertiary bromo-esters. H. N. Rydon. (Imperial Coll.)	8	0	0
Primary photochemical reactions. The quantum efficiency of the photochemical decomposition of acetone and other ketones. (Miss) O. D. Saltmarsh. (Cambridge Univ.)	8	0	0
Dissociation constants of cyano-acids. K. Sams. (Imperial Coll.)	6	0	0
Cyclic derivatives of phorone. C. W. Shoppee. (Leeds Univ.)	5	0	0
Oxidation-reduction potentials in non-aqueous solvents. J. W. Skeen. (East London Coll.)	5	0	0
Synthesis of long-chain aliphatic acids. J. C. Smith. (Oxford Univ.)	12	0	0
Effect of temperature on the relative ionisation constants of polybasic acids. F. G. Soper. (Univ. Coll., Bangor)	10	0	0
Relations between physical properties and chemical constitution of selected molecular species. H. C. Stephens. (Woolwich Polytechnic)	10	0	0
Formation and properties of diaryl compounds possessing a 2 : 2'-bridge. (Miss) M. C. Thompson. (Bedford Coll.)... ..	8	0	0
Stereochemistry of the platinum amines. H. J. Tress. (East London Coll.) ...	5	0	0
Magnetic susceptibility of thallos and thallic inorganic and organic compounds. (Miss) V. C. G. Trew. (Bedford Coll.)	8	0	0
(a) Thermal decomposition of substituted dibasic acids (<i>continued</i>). (b) Isolation of strainless forms of cyclohexane and substituted cyclohexane derivatives (<i>continued</i>). A. I. Vogel. (Woolwich Polytechnic)	10	0	0
Derivatives of substituted phthalic acids. A. B. Wang. (Imperial Coll.) ...	5	0	0
Synthesis and behaviour of polyene compounds. F. C. Webb. (Imperial Coll.)...	8	0	0
	£616	10	0

List of Papers, or Abstracts thereof, received between November 16th, 1933, and December 21st, 1933. (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*.)

- "Isomeric 6 : 6'-di-(2 : 4-bistrichloromethyl-1 : 3-benzdioxinyl)sulphones." By F. D. CHATTAWAY and A. E. BELL.
- "The effect of electrical leakage on the electromotive behaviour of the glass electrode. An improved direct-reading hydrogen-ion potentiometer." By C. MORTON.
- "The condensation of chloral and bromal with diamides." By F. D. CHATTAWAY and E. J. F. JAMES.
- "The energetics of catalysis. Part II. The poisoning coefficients and energies of activation of hydrogenation processes." By E. B. MAXTED and V. STONE.
- "The solubility of cupric oxide in salt solutions." By J. M. RIDGION and H. L. RILEY.
- "A note on the anil of 2-hydroxy-4-methylbenzaldehyde." By T. LOVE.
- "Iridium hydroxopentammines." By B. E. DIXON.
- "The constituents of Indian turpentine from *Pinus longifolia*, Roxb. Part III (*continued*)." By A. E. BRADFIELD, E. M. FRANCIS, and J. L. SIMONSEN.
- "The action of alkalis upon substituted 1 : 3-benzdioxins." By F. D. CHATTAWAY and H. IRVING.
- "On the Cannizzaro reaction." By A. WEISSBERGER and R. HAASE.
- "The modes of addition to conjugated unsaturated systems. Part VI. Addition of halogens and hydrogen halides to conjugated unsaturated carboxylic acids and esters." By C. K. INGOLD, G. J. PRITCHARD, and (in part) H. G. SMITH.

- "The modes of addition to conjugated unsaturated systems. Part VII. The addition of hydrogen cyanide and methyl malonate to methyl cinnamylidenemalonate." By (Miss) D. A. DUFF and C. K. INGOLD.
- "The reduction of permanganate in neutral solution : titration with hydrogen peroxide in presence of silicofluoride." By W. PUGH.
- " ∞ -Nitrophenylglyoxal-arylhydrazones." By G. D. PARKES and E. H. WILLIAMS.
- "Chemical constitution and the electrolytic dissociation of monocarboxylic acids. Part I. Some substituted phenylacetic acids." By J. F. J. DIPPY and F. R. WILLIAMS.
- "Some nitro-derivatives of *n*-propylbenzene." By O. L. BRADY and R. N. CUNNINGHAM.
- "Ascorbic acid and synthetic analogues." By D. K. BAIRD, W. N. HAWORTH, R. W. HERBERT, E. L. HIRST, F. SMITH, and M. STACEY.
- "Sodium in liquid ammonia as a dehydrohalogenation agent and its use in the synthesis of α -acetylenes." By T. H. VAUGHN.
- "The volatile hydrides. Part I. Periodicity as a means of correcting and supplementing determined physical properties. Part II. The parachor, the molecular volume at absolute zero, and the electronic structure and properties of compounds." By T. G. PEARSON and P. L. ROBINSON.
- "Structural and stereochemical relationships among the disulphines and diammines of platinum and palladium." By H. D. K. DREW and G. H. WYATT.
- "Syntheses of polycyclic compounds related to the sterols. Part II." By S. H. HARPER, G. A. R. KON, and F. C. J. RUZICKA.
- "The structure of the thio-ether compounds of platinous and palladous chlorides." By E. G. COX, H. SAENGER, and W. WARDLAW.
- "The mechanism of activated diffusion through silica glass." By R. M. BARRER.
- "An instance of the action of air in determining the course of bromination." By J. HANNON and J. KENNER.
- "The dissociation constants of organic acids. Part VIII. Phenylacetic acid." By G. H. JEFFERY and A. I. VOGEL.
- "The parachors of some substituted methanes." By D. LL. HAMMICK and H. F. WILMUT.
- "*N*-Oximino-ethers. Part III. Condensation of phenylchloroacetonitrile with nitroso-compounds. Stereoisomeric *N*-phenyl ethers of phenyloximinoacetonitrile." By F. BARROW and F. J. THORNEYCROFT.
- "The photochemical union of hydrogen and chlorine. Part III. The effect of wave-length on quantum efficiency. Experiments with dispersed light." By J. B. BATEMAN and A. J. ALLMAND.
- "Alkaline halogenation. Part I. The chlorination of sodium benzoate." By J. C. SMITH.
- "The nitration of some α -naphthalides." By H. H. HODGSON and J. WALKER.
- "The nitration of β -phenylethylpyridines and related compounds. Part II. The orienting influence of the vinyl radical." By E. A. WAGSTAFF.
- "4 : 6- and 2 : 4-Diacetoresorcinol." By W. BAKER.
- "Derivatives of 8-bromo- and 8-chloro-1-naphthoic acids and their orientation by dehalogenation and decarboxylation." By H. G. RULE, W. PURSELL, and R. R. H. BROWN.
- "Constitution of dinitro-acenaphthene quinone and of dinitronaphthalic acid. Preparation of a new dinitronaphthalene." By H. G. RULE and R. R. H. BROWN.
- "Physico-chemical studies of complex acids. Part XI. Vapour-pressure measurements." By R. A. ROBINSON and D. A. SINCLAIR.
- "Anionotropic and prototropic changes in cyclic systems. Part II. Hydroxy-3 : 4-diphenyl-5-benzylidenecyclopentenones." By H. BURTON and G. W. SHOPPEE.
- "Anionotropic and prototropic changes in cyclic systems. Part III. The isomeric chloro-3 : 4-diphenylcyclopentenones." By H. BURTON and C. W. SHOPPEE.
- "Anionotropic and prototropic changes in cyclic systems. Part IV. Hydroxy-5-*iso*-propylidene-3 : 4-diphenylcyclopentenones." By H. BURTON and C. W. SHOPPEE.
- "Researches in the carvone series. Part I. Some ketones and amines." By J. READ and R. G. JOHNSTON.

- “Researches in the carvone series. Part II. Some unsaturated alcohols.” By R. G. JOHNSTON and J. READ.
- “Degradation of quaternary ammonium salts. Part VIII. Necessary structural conditions for migration in radicals.” By J. L. DUNN and T. S. STEVENS.
- “Antiplasmodial action and chemical constitution. Part I. Cinchona alkaloidal derivatives and allied substances.” By A. COHEN, H. KING, P. TATE, and (Miss) M. VINCENT.
- “Active charcoal. Part II. The constitution of the surface and the activated adsorption of water.” By C. OCKRENT.
- “Hydroxymethylene-*d*-camphor, a potential instrument for the optical resolution of externally compensated alcohols.” By J. WALKER and J. READ.
- “The chlorination of the aceto-*o*-xylides.” By L. E. HINKEL, E. E. AYLING, and T. M. WALTERS.
- “Note on the aci-form of trinitromethane.” By L. W. ANDREW and D. LI. HAMMICK.
- “Some derivatives of *m*-phenylenediamine.” By F. BELL and R. COHEN.
- “The alkaloids of Alstonia barks. Part I. *A. constricta*, F. Muell.” By T. M. SHARP.
- “The catalytic hydrogenation of diosphenol.” By J. WALKER and J. READ.
- “Solubility of vapours in gases.” By W. MACFARLANE and R. WRIGHT.

ANNUAL REPORTS.

Fellows are reminded that applications for the Annual Reports for 1933, Volume XXX, at 5s. 6d. per copy, must be received by January 15th, 1934.

IXTH INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY.

The IXth International Congress of Pure and Applied Chemistry which was unavoidably postponed in 1932 will be held in Madrid from April 5th to 11th, 1934, under the patronage of His Excellency the President of the Spanish Republic and of the Spanish Government. The object of the Congress is to promote the progress of Pure and Applied Chemistry, as well as to strengthen relations between Chemists the world over.

The Congress is supported by a Committee of Honour consisting of His Excellency the President of the Spanish Republic, the Prime Minister, Foreign Secretary, Ministers for Education, Public Works, Economy, Agriculture, Industry and Trade, and many other important Government Officials, and by a Committee of Patronage consisting of representatives of all the important Academies, Universities, Colleges and Scientific Societies throughout Spain.

Professor Dr. Obdulio Fernandez is the President of the Bureau of the Congress, and Professor Dr. Enrique Moles the Honorary Secretary.

Membership is divided into three categories, viz :—

(a) *Honorary Members* : Comprising all members of the Committee of Honour and of Patronage, the official Delegates of the Spanish Government and of the Governments of other countries.

(b) *Supporting Members* : Consisting of persons who pay the minimum amount of 300 pesetas (£7 10s., approximately).

(c) *Active Members* : Consisting of those who pay the general fee of 75 pesetas (£1 17s. 6d., approximately).

In applying for membership each applicant is required to signify his agreement with all the Rules and Regulations of the Congress. Members will be entitled to receive all publications *in extenso*, to take part in the sessions of the Congress, to receive copies of the daily bulletin, which will be published, as well as a separate issue of all the summaries of the communications and documents referring to the Congress, including the final report on the proceedings. Members will also be entitled to attend the receptions and festivities organised in connection with the Congress, except in such cases as may be expressly indicated on the programme which will accompany the identification cards.

Tickets at 25 pesetas each will be issued for ladies wishing to accompany members. Ladies will have the same rights as members except that they will not be privileged to take active part in the sessions, or to receive the publications.

The Congress will be divided into the following Groups and Sections:—

Group 1. Physical and Theoretical Chemistry.

Sections :

- A. Pure Physical and Theoretical Chemistry (Electrochemistry, Photochemistry).
- B. Applied Physical and Theoretical Chemistry (Colloid-Chemistry, Rubber, Tanning and Leather Materials, Electrometallurgy).

Group 2. Inorganic Chemistry.

Sections :

- A. Pure Inorganic Chemistry.
- B. Applied Inorganic Chemistry (Glass, Ceramics, Cement, Mineralogy, Metallurgy).

Group 3. Organic Chemistry.

Sections :

- A. Pure Organic Chemistry.
- B. Applied Organic Chemistry (Colouring Materials, Explosives, Sugars, Starches, Cellulose, Paper, Fats, Oils, Soaps, Colours, Paints, Varnishes).

Group 4. Biological Chemistry.

Sections :

- A. Pure Biological Chemistry.
- B. Applied Biological Chemistry (Medical and Pharmaceutical Chemistry, Industries of Fermentation).

Group 5. Analytical Chemistry.

Sections :

- A. Pure Analytical Chemistry.
- B. Applied Analytical Chemistry.

Group 6. Agricultural Chemistry.

Group 7. History and Teaching of Chemistry : Economics and Chemical Legislation.

The Executive Committee is authorised to increase the number of Sections as the need of the Congress may demand.

Members attending the Congress should enrol at the Offices of the Organising Committee as soon as they arrive in Madrid, giving their temporary addresses, and indicating the Groups and Sections in which they are desirous of participating.

The number of general meetings in connection with the Congress, the meeting-place, and the agenda for each meeting will be determined by the Executive Committee, and announced in the daily bulletin of the Congress at least twenty-four hours before each meeting.

In accordance with the desires expressed and decisions taken at the Conference at Liège, the articles in connection with the Congress may be in the language with which the author is familiar. Nevertheless, the Organising Committee suggests the use of such languages as will avoid typographical difficulties when they are rendered in the printer's type of the Latin countries.

The summary of every paper must be in English, French, German, Italian, or Spanish. The Congress will comprise :

- (a) General Lectures.
- (b) Lectures in the various groups, followed by discussions.
- (c) Original Communications.

The general lectures will deal with Mineral Chemistry (pure and applied), Organic Chemistry (pure and Applied), and Biochemistry.

The time-table will be approximately :

9 to 11 a.m. Sectional Meetings for original communications.

4 to 5 p.m. General Lectures.

5.30 to 7.30 p.m. Group Lectures.

All scientific communications intended for the Congress should be forwarded by February 5th, 1934.

Membership is open to Societies, Institutions, etc., connected with Pure and Applied Chemistry or with any one of its branches, and to individuals interested therein, either in the capacity of Supporting Members or as Ordinary Members. Application for membership should be sent to Professor Dr. E. Moles, General Secretary, IXth International Congress of Chemistry, San Bernardo 49, P.O. Box 8043, Madrid (8), before February 15th, 1934, from whom further particulars can be obtained. A remittance for the amount due, made payable to the Treasurer of the IXth International Congress of Chemistry, must accompany each application.

Pamphlets containing the rules of the Congress and also rules for submitting scientific communications can be obtained from Mr. S. E. Carr, The Chemical Society, Burlington House, Piccadilly, London, W. 1. Further particulars regarding hotel accommodation and charges and travelling facilities will be announced later.

The 11th Conference of the Union Internationale de Chimie will be held at Madrid at the same time as the Congress.

ADDITIONS TO THE LIBRARY.

I. Donations.

COUPER, ARCHIBALD SCOTT. On a new chemical theory and researches on salicylic acid, 1858. (Alembic Club Reprints, No. 21.) Edinburgh 1933. pp. 45. 2s. 6d. net. (*Recd.* 1/12/33.) From the Alembic Club.

INSTITUTION OF GAS ENGINEERS. Transactions. Vol. 78, 1928—29, etc. London (1933) +. (*Reference.*) From the Institution.

KING, ALEXANDER, and ANDERSON, JOHN STUART. Chemical calculations: their theory and practice. London 1933. pp. x + 182. ill. 4s. 6d. net. (*Recd.* 1/12/33.) From the Publishers: Messrs. Thomas Murby & Co.

PARSONS, THOMAS RICHARD. Fundamentals of biochemistry in relation to human physiology. 4th edition. London 1933. pp. xii + 435. ill. 10s. 6d. net. (*Recd.* 27/11/33.) From the Publishers: Messrs. W. Heffer & Sons.

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. Fuel Research. Technical Paper No. 37. The action of solvents on coal. By WILLIAM EDGAR BAKES. London 1933. pp. viii + 216. ill. (*Reference.*) 4s. 6d. net. From the Director.

II. By Purchase.

AMERICAN INSTITUTE OF PHYSICS. The Journal of Chemical Physics. Vol. I, etc. Lancaster, Pa. 1933 +. (*Reference.*) \$10 per annum.

JÄNECKE, ERNST. Ueber heterogene Gleichgewichte chemischer Stoffe in Wissenschaft,

Natur und Technik. (Sammlung, N.F. Heft 21.) Stuttgart [1933]. pp. 32. ill.

III. Pamphlets

ANSBACHER, STEFAN. Une étude de chimiothérapie de la tuberculose. Genève 1933. pp. 88. ill.

ARAKATSU, BUNSAKU. On the anomalous absorption of γ -rays. (From the *Mem. Fac. Sci. Agr. Taihoku Imp. Univ.*, 1932, 5.)

ARAKATSU, BUNSAKU, and KIMURA, K. The activation of air by the electrodeless ring discharge. (From the *Mem. Fac. Sci. Agr. Taihoku Imp. Univ.*, 1932, 5.)

ARAKATSU, BUNSAKU, and UEMURA, K. The electrodeless ring discharge through potassium vapour. (From the *Mem. Fac. Sci. Agr. Taihoku Imp. Univ.*, 1932, 5.)

ARMSTRONG, HENRY EDWARD. Pharmacy of the future: a fantasy in greens. (From the *Pharm. J.*, 1933, 131. [with additions]). ill.

ATKINSON, RALPH HALL, and RAPER, ALAN RICHARDSON. The electrodeposition of palladium. (From the *J. Electrodepositors' Tech. Soc.*, 1933.) ill.

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- AUSTRALIA, COMMONWEALTH OF. *Council for Scientific and Industrial Research*. Bulletin No. 74. Observations on soil moisture and water tables in an irrigated soil at Griffith, N.S.W. By ERIC S. WEST. Melbourne 1933. pp. 40. ill.
- — — Bulletin No. 76. A soil survey of the Hundreds of Laffer and Willalooka, South Australia. Report of the Division of Soils. Edited by J. K. TAYLOR. Melbourne 1933. pp. 41. ill.
- — — Pamphlet No. 37. The sheep blowfly problem in Australia. Report No. 1. By the Joint Blowfly Committee. Editors: R. J. TILLYARD and H. R. SEDDON. Melbourne 1933. pp. 136. ill.
- — — Pamphlet No. 44. The chemistry of Australian timbers. Part 3. The chemical composition of four pale-coloured woods of the genus *Eucalyptus*:—*E. gigantea*, *E. obliqua*, *E. regnans*, *E. sieberiana*. By W. E. COHEN, A. C. CHARLES, and A. B. JAMIESON. Melbourne 1933. pp. 22. ill.
- BERCKEL, FRITS WILEM VAN. Onderzoekingen over de circulatie in het koelsysteem van de vuurhaardwanden van een stoomketel. Deventer 1933. pp. 85. ill.
- BIILMANN, EINAR, and KLIT, ANDREAS. Untersuchungen über Kristallkernbildung bei Piperonal und Allozimtsäure. (From the *K. Danske Vidensk. Selskab*, 1932, 12.)
- BRITISH SCIENCE GUILD. Industrial research and the nation's balance sheet. Being the 8th annual Norman Lockyer lecture. By SIR FRANK EDWARD SMITH. London 1932. pp. 31.
- BRITISH STANDARDS INSTITUTION. No. 496. British standard specification for the sampling and analysis of coke. London 1933. pp. 34. ill.
- No. 501. Report on metric units of volume. London 1933. pp. 8.
- No. 503. British standard specification for creosote for fuel in furnaces. London 1933. pp. 17. ill.
- No. 506. British standard specification for methyl alcohol (methanol). London 1933. pp. 17. ill.
- No. 507. British standard specification for ethyl alcohol. London 1933. pp. 6.
- No. 508. British standard specification for normal butyl alcohol (butanol). London 1933. pp. 12. ill.
- No. 509. British standard specification for acetone. London 1933. pp. 12. ill.
- BROOKS, MATILDA MOLDENHAUER. Effect of methylene blue on CN and CO poisoning. (From the *Proc. Soc. Exper. Biol. Med.*, 1932, 29.)
- The effect of methylene blue on HCN and CO poisoning. (From the *Amer. J. Physiol.*, 1932, 102.)
- BROOKS, MATILDA MOLDENHAUER. Methylene blue as an antidote to CO poisoning. (From the *Proc. Soc. Exper. Biol. Med.*, 1933, 30.)
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- BUCH, KURT. Om borsyran i havet och dess inverkan på kolsyrejämviktssystemet. (From the *Finska Kem. Medd.*, 1933, 42.)
- COHEN, L. The problem of the toxicity of solid arsenious oxide. (From the *Rep. Australian Assoc. Adv. Sci.*, 1933, 21.)
- DALEN, EGBERT VAN. Oriënteerende onderzoekingen over tandcementen. Assen 1933. pp. 165. ill.
- DAS, ANANDA KISHORE, SEN, GOPAL CHANDRA, and PAL, CHANDRA KUMAR. The composition of the rain water of Sylhet. (From the *Indian J. Agric. Sci.*, 1933, 3.)
- DAYTON, RUSSELL WENDT. An investigation of methods of decarburizing iron-nickel-chromium alloys. (*Rensselaer Poly. Inst. Bull. Eng. Sci. Ser.* 41.) Troy 1933. pp. 28. ill.
- DENNE, R. A. Laboratory aspects of fire control. (From the *Proc. Autumn Conf. Nat. Fire Brigades' Assoc.* 1931.)
- DEWAR, SIR JAMES. A record of the scientific work of. London 1933. pp. 68.
- DUBSKÝ, J. V., and DOSTAL, V. Ein Beitrag zum Studium der Cis-Trans-Isomerie der Salze vom Typus MeX₂. 2A. (*Publ. Fac. Sci. Univ. Masaryk*, No. 160). Brno 1932. pp. 20. [In Czech. German summary.]
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- EWIJK, LEOPOLD JOHAN GERARD VAN. Het verband tusschen het onderwerp, het negatief en het positief en methoden tot het verkrijgen van secundaire beelden in de fotografie. Amsterdam 1932. pp. 197. ill.
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- HORI, TAKEO. Über das Bandenspektrum des Kaliumhydrids. (From the *Mem. Ryojun Coll. Eng.*, 1933, 6.)
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— Research Note No. 8. A note on wax-free shellac. By M. RANGASWAMI. Ranchi 1933. pp. 2.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Three lectures embodying "A survey of modern inorganic chemistry." By GILBERT THOMAS MORGAN. London 1933. pp. 106. ill.

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— Paper No. 80. The ignition of firedamp by the filaments of broken electric light bulbs. By G. ALLSOP and T. S. E. THOMAS. London 1933. pp. 13. ill.

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others]. On the nature of the reactions responsible for soil acidity. Part II. Titration curves of silicic acid sol, humic acid sol and aluminium hydroxide sol. (From the *Indian J. Agric. Sci.*, 1932, 2.)

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— Das Haupttheorem der Chemie. Stockholm 1933. pp. 16.

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PILAAR, WILLEM MARINUS MARIE. De hygiënische beteekenis van automobieltgassen. Amsterdam 1932. pp. xii + 146. ill.

RISI, JOSEPH, and BOIS, ELPHÈGE. Contributions à l'étude de la matière aromatique des produits de l'éérable à sucre. I. Recherches analytiques. (From the *Natural. Canad.*, 1933, 60.)

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— Studies on starch-iodide color reaction and its application to quantitative analysis. (From the *Sci. Rep. Nat. Tsinghua Univ.*, 1933, 2.)

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SAH, PETER P. T., LEI, HSING HAN, and WANG, TIEN HUA. Nitration of benzo-trichloride. (From the *Sci. Rep. Nat. Tsinghua Univ.*, 1933, 2.)

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— — — *Food Investigation*. Special Report No. 8. The measurement of humidity in closed spaces. (Revised edition, 1933.) London 1933. pp. viii + 70. ill.

— — — *Forest Products Research*. Bulletin No. 1. Dry rot in wood. 2nd edition. London 1933. pp. viii + 34. ill.

— — — Special Report No. 3. Practical kiln-drying. By WILLIAM CORNWALL STEVENS. London 1933. pp. iv + 26. ill.

— — — *Fuel Research*. Physical and chemical survey of the national coal resources, No. 27. The Northumberland and Durham coalfield. Durham area. The Hutton seam. London 1933. pp. vi + 126. ill.

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— — — Technical Paper No. 38. Design of a coal gas induction burner for a horizontal retort setting. By R. COOK. London 1933. pp. vi + 16. ill.

— — — Technical Paper No. 39. The viscosity of pitch. By ALEXANDER BERNARD MANNING. London 1933. pp. iv + 20. ill.

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— — — Über die Oxydierung des Graphits durch elektrische Entladungen. (From the *Ann. Acad. Sci. Fenn.*, 1933, **A38**.)

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FORTHCOMING MEETINGS OUTSIDE LONDON.*BIRMINGHAM.*

Monday, January 22nd, 1934, at 5.30 p.m., in the Chemistry Lecture Theatre of the University. Lecture entitled "Some Recent Work in the Alkaloid Group," by Professor R. Robinson, D.Sc., F.R.S.

BRISTOL.

Friday, January 26th, 1934, at 5.30 p.m. Discussion to be held in the Chemistry Lecture Theatre of the University on "Reactions in Gases and Solids." Papers will be contributed by Professor W. E. Garner, D.Sc., A.I.C., and Mr. C. N. Hinshelwood, M.A., F.R.S.

GLASGOW.

Friday, February 9th, 1934, at 7.30 p.m., at the Royal Technical College. Lecture entitled "Diamonds," by Sir Robert Robertson, K.B.E., LL.D., F.R.S.

NEWCASTLE.

Friday, February 2nd, 1934, at 6.30 p.m., in the Chemistry Lecture Theatre, Armstrong College. Bedson Lecture entitled "The Chemical and Physical State of the Upper Atmosphere," by Dr. G. C. Simpson, C.B., F.R.S., Director of the Metereological Office.

NORTH WALES.

Friday, February 2nd, 1934, at 6 p.m., at the University College of North Wales, Bangor. Discussion on "The Early Training of the Chemist," to be opened by Professor T. C. James, M.A., D.Sc.

SHEFFIELD.

Thursday, January 25th, 1934, at 7.30 p.m., at the University. Symposium and Discussion on "The Ignition of Gases," arranged by Professor R. V. Wheeler, D.Sc., F.I.C.

FORTHCOMING MEETINGS IN LONDON.

Thursday, January 18th, 1934, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, February 1st, 1934, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, February 15th, 1934, at 8 p.m.

Discussion on "Some Aspects of the Electronic Theory of Valency," to be opened by Professor J. E. Lennard-Jones, D.Sc., Ph.D., F.R.S.

Thursday, February 22nd, 1934, at 8 p.m.

Fourth Pedler Lecture entitled "Chlorophyll," by Professor Dr. Hans Fischer in the Lecture Theatre of the Royal Institution, Albemarle Street, W. 1 (by the courtesy of the Managers).

