

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

A meeting under the auspices of the Society and in conjunction with the University of Birmingham Chemical Society was held in the Chemistry Lecture Theatre of the University at Edgbaston on Monday, December 2nd, 1935, at 5 p.m., when Professor G. Barger, F.R.S., gave a lecture on "Alkaloids. General Ideas and Methods." At the conclusion of the lecture a vote of thanks to the Lecturer was carried with acclamation.

On Monday, December 9th, 1935, at 5 p.m., Dr. R. G. W. Norrish lectured on "The Decomposition of Molecules by Light" before an appreciative audience and a cordial vote of thanks was given to the Lecturer.

Ordinary Scientific Meeting, held in the Lecture Theatre of the Royal Institution (by the courtesy of the managers) on Thursday, January 16th, 1936, at 8 p.m. Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, was in the Chair.

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

	Elected.	Died.
John Harold Edge	1909	12th October, 1932.
John K. H. Inglis	1904	19th September, 1935.
William A. McCubbin	1890	10th January, 1936.
Thomas H. Pope	1898	12th January, 1936.
Francis Ransom	1889	19th December, 1935.

The PRESIDENT announced that

1. 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 :—

Vice-Presidents who have filled the office of President : Professor G. G. HENDERSON and Professor W. P. WYNNE.

Vice-Presidents who have not filled the office of President : Professor F. G. DONNAN and Professor C. S. GIBSON.

Ordinary Members of Council—

(a) *Town Members* : Dr. J. KENYON, Dr. G. A. R. KON, and Mr. J. DAVIDSON PRATT.

(b) *Country Members* : Dr. R. G. W. NORRISH, Dr. E. H. RODD, and Professor R. WHYTLAW-GRAY.

In April 1935, Professor R. Robinson was appointed to fill the vacancy among Vice-Presidents who have not filled the office of President caused by the election of Professor N. V. Sidgwick to the office of President, and in June Professor H. E. Armstrong was appointed to fill the vacancy among Vice-Presidents who have filled the office of President caused by the death of Sir James Walker. The appointments were until the next Annual General Meeting; these two vacancies, therefore, fall due to be filled.

In December last, the Council accepted the resignation of Professor S. Sugden from the office of Honorary Secretary, as from the date of the next Annual General Meeting. This vacancy also falls due to be filled.

The following vacant places in the Council fall due to be filled at the Annual General Meeting of the Society, which will be held at the University, Bristol, on Thursday, April 16th, 1936, at 4.15 p.m. :—

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

Ordinary Members of Council—

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

In accordance with Bye-Law VI the Council has made the following nomination :—

Honorary Secretary : Professor J. W. COOK.

2. The Council had sent congratulations to the following Fellows who were included in the list of New Year Honours :—

Knights Bachelor.

Mr. Bryce Chudleigh Burt, C.I.E., M.B.E., B.Sc.
Professor Arthur Harden, D.Sc., F.R.S.

Order of the British Empire.

Professor Shanti Sarup Bhatnagar, D.Sc.

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

John Desmond Bernal, M.A., 68, Walnut Tree Avenue, Cambridge.
Charles Edwin Clarkson, B.Sc., "Greylow," Chilcompton, Bath.
Antony Lester Elliott, 68, Rotton Park Road, Edgbaston, Birmingham, 16.
Sydney John Mortimer Fisher, B.A., B.Sc., Rydal School, Colwyn Bay.
Fred Hulse, 33, Grove Road, Halton, Leeds.
Harry Munroe Napier Hetherington Irving, M.A., B.Sc., D.Phil., A.I.C., L.R.A.M., 2B, Crick Road, Oxford.
Helen Mackay McKenzie, M.A., B.Sc., 12, Irvine Place, Aberdeen.
Ewart Marsden, B.Sc., 3, West View, Hipperholme, Halifax.
William McGillivray Morgan, B.Sc., 59, Church Road, Gosforth, Newcastle-on-Tyne, 3.
Leonard Alfred O'Neill, M.Sc., 20, Shirland Road, Maida Hill, W. 9.
John Alfred Rawlinson, 24, Rosemary Gardens, East Sheen, S.W. 14.
Basil Roland Record, B.Sc., 9, Woodville Road, Harborne, Birmingham.
John Chapman Smith, M.P.S., 18, Francis Road, Acocks Green, Birmingham.
Augustus William Wellings, M.Sc., 27, Acacia Road, Leamington Spa, Warwickshire.

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

Suryakant Rupshanker Oza, B.A., B.Sc., Shri Shakti Alkali Works, Dhrangadhra, India.
Albert S. Richardson, A.M., Ph.D., The Procter and Gamble Co., Ivorydale, Ohio, U.S.A.

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

A Discussion on "Stereochemistry" was opened by Dr. W. H. Mills. The following took part in the discussion :

- Dr. P. Maitland on "Allene Dissymmetry."
Professor S. Sugden on "Stereochemistry of 4-Co-ordination Compounds of the Transitional Elements."
Professor Alexander McKenzie on "Stereochemistry of Intramolecular Changes."
Dr. E. E. Turner on "Stereoisomerism Dependent on Restricted Rotation about a Single Bond."

Dr. William Wardlaw, Mr. E. G. Cox, Dr. J. Kenyon, and Dr. A. Weissberger also joined in the discussion.

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 with acclamation.

List of papers, or abstracts thereof, received between December 19th, 1935, and January 16th, 1936. (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 apparent dipole moments of benzene, diphenyl, carbon disulphide, etc., when dissolved in polar solvents.” By (Mrs.) C. G. LE FÈVRE and R. J. W. LE FÈVRE.
- “Studies in chelation. Part III. The stabilisation of Kekulé forms in *o*-hydroxy carbonyl compounds.” By W. BAKER and (Miss) O. M. LOTHIAN.
- “Mechanism of, and constitutional factors controlling, the hydrolysis of carboxylic esters. Part VIII. Energies associated with induced polar effects in the hydrolysis of substituted benzoic esters.” By C. K. INGOLD and W. S. NATHAN.
- “Mechanism of substitution at a saturated carbon atom. Part VI. Hydrolysis of *iso*-propyl bromide.” By E. D. HUGHES, C. K. INGOLD, and U. G. SHAPIRO.
- “The mechanism of aromatic side-chain reactions with special reference to the polar effects of substituents. Part VII. Attack at a saturated carbon atom by a charged ion.” By J. W. BAKER and W. S. NATHAN.
- “Studies in the pyrone series. Part III. The influence of the phenyl group in the Kostanecki reaction.” By I. M. HEILBRON, D. H. HEY, and B. LYTHGOE.
- “15-Phenylpentadecanoic acid and 22-phenylbehenic acid.” By G. M. HILLS and R. ROBINSON.
- “Tricosanoic and tetracosanoic acids and certain derivatives.” By R. ASHTON, R. ROBINSON, and J. C. SMITH.
- “Free radicals and atoms in primary photochemical processes. The free *n*-propyl radical.” By T. G. PEARSON and R. H. PURCELL.
- “Solvent effect in dipole moment measurements. The polarisation of chloro- and nitro-benzenes, chloroform, and bromoform in a series of polar solvents.” By R. J. W. LE FÈVRE and P. RUSSELL.
- “The apparent dipole moment of paraldehyde in various solvents.” By R. J. W. LE FÈVRE and P. RUSSELL.
- “Nitro- and amino-3-arylpthalaz-4-ones, and corresponding 1-methyl compounds.” By F. M. ROWE, G. M. HEATH, and C. V. PATEL.
- “Chlorination of toluene in presence of (*a*) activated charcoals, (*b*) iron-impregnated silica gel. Production of—side chain substitution—nuclear substitution—tolane derivatives.” By J. B. FIRTH and T. A. SMITH.
- “Some derivatives of 4:4'-diaminodiphenylmethane.” By G. D. PARKES and R. H. H. MORLEY.
- “Studies in graphite formation. Part II. The chemical nature of graphite and amorphous carbon.” By A. E. BALFOUR, H. L. RILEY, and R. M. ROBINSON.
- “Syntheses in the phenanthrene series. Part I. 2-Methoxy-1-methylphenanthrene.” By P. HILL, W. F. SHORT, and (in part) (Miss) A. HIGGINBOTTOM.
- “Studies on hydrogen cyanide. Part VII. Aldehydes from aromatic hydrocarbons.” By L. E. HINKEL, E. E. AYLING, and J. H. BEYNON.
- “Syntheses in the phenanthrene series. Part II. 7-Methoxy-1-methylphenanthrene and a new route to phenanthrene.” By W. F. SHORT, H. STROMBERG, and A. E. WILES.
- “Syntheses in the phenanthrene series. Part III. 9-Hydroxyphenanthrene.” By I. R. SHERWOOD, W. F. SHORT, and J. WOODCOCK.
- “Derivatives of chelidamic acid.” By C. S. GIBSON and B. LEVIN.
- “The organic compounds of gold. Part VI. Heterocyclic compounds containing gold.” By A. BURAWOY and C. S. GIBSON.

- “The action of nitrosyl chloride on *n*-hexane in presence of light.” By S. MITCHELL and S. C. CARSON.
- “*o*-Nitrophenylsulphenates of phenols.” By E. K. LEARMONTH and S. SMILES.
- “A rearrangement of carbamido-sulphones and sulphides.” By W. J. EVANS and S. SMILES.
- “The action of selenium dioxide on sterols and bile acids. Part II. *apo*Cholic acid and dihydroxycholenic acid. The formation of isomeric dihydroxycholadienic acids.” By R. K. CALLOW.
- “The action of ammonia upon esters.” By F. D. CHATTAWAY.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, FEBRUARY 20th, 1936.

ABRAHART, EDWARD NOAH, 13, Silver Hill Rd., Derby. British. Research Student. B.Sc. (External), London University, 1934. Research, University College, Nottingham. Date of birth Dec. 9th, 1911. (*Signed by*) F. S. Kipping, E. B. R. Prideaux, H. H. Barber, B. D. Shaw, J. B. Firth.

AGAR, JOHN NEWTON, 24, Parsonage St., Cambridge. British. Research Student. B.A., Cambridge. 1st class, Part II, Nat. Sci. Tripos (Chemistry), Cambridge, 1935. B.A. Research Scholarship, Sidney Sussex College. Date of birth Aug. 11th, 1914. (*Signed by*) Philip Bowden, T. M. Lowry, A. S. C. Lawrence.

BADDELEY, GEORGE, College of Technology, Manchester. British. Demonstrator. B.Sc., M.Sc., Ph.D. Sheffield University. Research Student at Sheffield University, 1930—1933. Demonstrator at the College of Technology, Manchester, since 1933. *J.C.S.*, 1933, 46, 261; 1934, 633; 1935, 303. (*Signed by*) J. Kenner, W. F. Short, W. Bradley.

BAKER, GEORGE PETER, 41, Preston Park Avenue, Brighton 6. British. Student at Trinity College, Cambridge. Reading for Part II of the Natural Sciences Tripos (Chemistry). Date of birth Aug. 14th, 1915. (*Signed by*) Peter Maitland, F. B. Kipping, F. G. Mann.

BASFORD, FREDERICK ROBERT, 101, Huntingtower Road, Grantham, Lincolnshire. British. B.Sc. (Hons. Chemistry), External, London University. Research Student, University College, Nottingham. Date of birth Dec. 16th, 1912. (*Signed by*) F. S. Kipping, E. B. R. Prideaux, H. H. Barber, B. D. Shaw, J. B. Firth.

BATEMAN, LESLIE CLIFFORD, 16, St. Stephens Rd., Yiewsley, Middlesex. British. Research Student. 1st Class Hons., London University. B.Sc. (Special) Chemistry, 1935 (degree will not be awarded until July 1936). Recently commenced research in Organic Chemistry at University College, London. Date of birth March 21st, 1915. (*Signed by*) E. D. Hughes, A. D. Scott, C. K. Ingold.

BENNETT, WILLIAM FRANK, 12, Chalk Pit Hill, Chatham, Kent. British. A.R.C.S., A.I.C. Analytical Chemist (War Department). (*Signed by*) A. I. Vogel, W. L. German, R. A. E. Galley.

BERNAL, JOHN DESMOND, 68, Walnut Tree Avenue, Cambridge. British. Assistant Director of Research in Crystallography. M.A., Cambridge. Many published papers on Structure of Crystals. Among them “The Structure of Graphite,” *Proc. Roy. Soc.*, 1924, 106, 749. “The Metallic State,” *Trans. Faraday Soc.*, 1929, 25, 367. “Calciferol,” *Nature*, 1932, 129, 277. “A Theory of Water and Ionic Solution,” *J. Chem. Phys.*, 1933, 1515. “Pepsin,” *Nature*, 1934, 133, 794. “The Function of Hydrogen in Intermolecular Forces,” *Proc. Roy. Soc.*, 1935, 151, 384. “Structure of Some Hydrocarbons Related to the Sterols,” *J.C.S.*, 1935, 93. “Annual Reports, Crystallography,” 1928, 29, 30—31, 32—33. (*Signed by*) H. McCombie, F. G. Mann, R. G. W. Norrish.

BRANDT, CARL WILLIAM, c/o Dominion Laboratory, Sydney Street, Wellington, New Zealand. British. Assistant Analyst. M.Sc., University of New Zealand. Publications: “The Chemistry of Diterpene Compounds from the Woods of *Dacrydium* Species.” Hosking and Brandt, *Ber. Deutsch. Chem. Ges.*, 1934, 67, 1173; 1935, 68, 37, 286, 1311. “The Alkaloid of *Senecio Jacobeus*.” Hosking and Brandt. *New Zealand Jour. of Science and Technology* (now in the printer's hands). (*Signed by*) J. S. Maclaurin, R. L. Andrew, W. Donovan.

BROOKMAN, ERNEST FRANCIS, 124, Durrington Rd., Clapton, E. 5. British. Research Assistant. B.Sc. (Special), University College, London. 1st Class Hons. in B.Sc. (Special),

Chemistry. Research Assistant to Dr. Norrish under D.S.I.R. at Cambridge. Date of birth July 6th, 1913. (*Signed by*) S. G. Foord, E. J. Buckler, R. G. W. Norrish.

BUSH, LEONARD ALBERT, 40, High Street, Kingswood, Bristol. British. Works Chemist. Holder of National Certificate in Chemistry. Engaged in Manufacturing Chemistry for 8 years. Student at Merchant Venturers' Tech. College. Date of birth April 9th, 1912. (*Signed by*) E. B. Maxted, M. Taylor, M. W. Travers, M. Nierenstein.

CLARKE, THOMAS ELLISS, 18, Oak Bank Avenue, Moston, Manchester 9. English. Student. B.Sc. (London—2nd Class Hons.), A.I.C., A.K.C. 3-Year Chemistry Course at King's College, London. At present am investigating the Variation of Apparent Molar Volume with Concentration. Date of birth Aug. 23rd, 1914. (*Signed by*) C. W. Davies, J. Kenyon, A. Houssa.

CLARKSON, CHARLES EDWIN, "Greylow," Chilcompton, Bath, Somerset. British. B.Sc., (Manchester). Senior Science Master, County Secondary School, Midsomer Norton, Bath. Been engaged in teaching of Chemistry for sixteen years. Joint paper with T. Malkin, "Alternation in Long-Chain Compounds. Part II. An X-Ray and Thermal Investigation of the Triglycerides." (*Signed by*) E. B. Maxted, M. Taylor, T. Malkin.

COWDREY, WILLIAM ARTHUR, 86a, Ingelow Rd., Battersea, S.W. 8. British. Research Student at University College. B.Sc. (Special) London, 1st Class Hons. Date of birth Sept. 2nd, 1912. (*Signed by*) E. D. Hughes, A. D. Scott, C. K. Ingold.

DRAKE, JACK WARD, "Oakwell View," Oxford Rd., Gomersal, nr. Leeds. English. I am a third-year student in the Honours School of Chemistry at Leeds University. I wish to become a member of the Society in order to keep in touch with modern chemical progress. Date of birth July 25th, 1914. (*Signed by*) H. M. Dawson, R. Spence, J. W. Baker.

ELLIOTT, ANTONY LESTER, 68, Rotton Park Rd., Edgbaston, Birmingham, 16. British. Student, Demonstrator in Pharmaceutical Chemistry. Chemist and Druggist. Date of birth May 15th, 1911. (*Signed by*) J. Newton Friend, Reece H. Vallance, J. Cooper Duff.

FISHER, SYDNEY JOHN MORTIMER, Rydal School, Colwyn Bay. British. Schoolmaster. B.A. and B.Sc. (Oxon.). A paper on "Acetonesulphonic Acid, etc.," recently submitted by Dr. Parkes for possible publication. Date of birth Aug. 20th, 1912. (*Signed by*) G. D. Parkes, S. G. P. Plant, D. Ll. Hammick.

FISK, NEIL REGINALD, 18, Bowood Rd., Clapham Common, S.W. 11. British. Freelance technical journalist (shall be editor of a monthly trade journal next month). Inter. B.Sc. Lond. Completed Final Hons. Course in Chemistry at University of London. 5½ years at Paint Research Station, Teddington (4½ years Assistant in Chemical Research Labs., 1 year Librarian). One year assistant editor of two monthly trade journals (one dealing with chemicals, one with food). (*Signed by*) Gerald Druce, J. Outram Cutter, L. A. Jordan, P. J. Gay, T. Hedley Barry.

GAUBERT, PETER, 36, Oxhey Rd., Oxhey, Herts. British. Student. B.Sc., A.R.C.S. (B.Sc. subject to satisfactory completion of a further year), Royal College of Science, London. Date of birth Sept. 20th, 1914. (*Signed by*) G. A. R. Kon, H. N. Rydon, R. P. Linstead.

HAYES, ALEXANDER HENRY, Helan Brae, Winifred Rd., Coulsdon, Surrey (Business: Hazlitt House, Southampton Buildings, W.C. 2). British. Technical Consultant and Editor. (Editor of "The Fuel Economist"). 27 years technical editing, and writing on metallurgy, combustion, water softening, steam, etc. (*Signed by*) Gerald Druce, Jules Cofman Nicoresti, Gabriel Cofman-Nicoresti.

HEBBS, LEWIS GOODIN SPIRE, Croy-Brae, Powys Lane, Broomfield Park, N. 13. British. Consulting Chemist. A.I.C. In Cross & Bevan laboratories for past fourteen years, and member of firm for last five years. (*Signed by*) C. Dorée, H. Lambourne, W. Taylor.

HOLMES, KENNETH EDWIN, 21, Fawcett St., West Brompton, S.W. 10. British. Research Student at Royal College of Science, London. B.Sc., London. 3½ years in Government Laboratory, London, as Assistant III (March 1932 to Sept. 1935). Date of birth Aug. 3rd, 1914. (*Signed by*) Jocelyn Thorpe, G. A. R. Kon, E. H. Farmer.

HUGHES, THOMAS PICTON, Bradford House, Llandovery, South Wales. British. Research Student. B.A. (Cambridge). Nat. Sci. Tripos, Part I, Class II; Part II, Class II, Div. I. Late Exhibitioner of Gonville and Caius College; Rhondda Student. Date of birth, Sept. 17th, 1914. (*Signed by*) Philip Bowden, T. M. Lowry, A. S. C. Lawrence.

HULSE, FRED, "Firdale," 33, Grove Rd., Halton, Leeds. British. Managing Director. 1913—1915, Chief Chemist with the Denaby & Cadeby Collieries, Ltd., working chiefly in connection with the prevention of gob fires and explosions. 1915—1919, Chief Chemist with Messrs. Brotherton & Co., Ltd., Stourton, Leeds. 1919 to the present time, Managing Director of F. Hulse & Co., Ltd., Woodlesford, Leeds. (*Signed by*) H. H. Hodgson, John Evans, James Bruce.

IRVING, HARRY MUNROE NAPIER HETHERINGTON, 2b, Crick Rd., Oxford. English. University Lecturer and Demonstrator in the Old Chemistry Department, Oxford. M.A., B.Sc., D.Phil. (Oxon.); A.I.C.; L.R.A.M. Sometime Lecturer in Organic Chemistry, The Queens College, Oxford; Tutor and Lecturer at St. Edmund Hall, Oxford; Head of the Science Department, the School of Arts, Crafts and Technology, Oxford, and University Lecturer and Demonstrator in the O.C.D. *J.C.S.*, 1929, 1038; 1930, 87; 1931, 751, 786, 1740, 2492; 1933, 993, 142; 1934, 325; 1935, 90. Also papers in the *J.A.C.S.*, etc. (*Signed by*) F. D. Chattaway, D. Ll. Hammick, F. E. King.

JARRETT, STANLEY GRAHAM, 87, Stanmer Villas, Brighton 6, Sussex. British. Research Student at University College, London. B.Sc. (ext. London University) (1st Class). Holder of Brighton Technical College Leaving Schol., and the Henry Hallett Science Scholarship for Research Work in Organic Chemistry at University College, London. Date of birth Sept. 19th, 1914. (*Signed by*) O. L. Brady, E. D. Hughes, J. N. E. Day.

JONES, GRIFFITH GLYN, 7, Arran Place, Ardrossan, Ayrshire. British. M.Sc. Cantab, B.Sc. Wales. Research Chemist, 1926—1935. Imperial Chemical Industries, (Explosives Group), Stevenston, Ayrshire. *J.C.S.*, 1926, 55, 720; 1927, 746. (*Signed by*) J. Weir, Norman Pictou, A. G. White.

KAMTHONG, BUA, 51, Barkston Gardens, S.W. 5, at present 6, Heathfield Rd., Liverpool 15. Siamese. Research Student. (B.Sc. Hons.) Liverpool. Working for Ph.D. degree (Liverpool). (*Signed by*) R. A. Morton, Wm. Doran, A. McGookin.

McKENZIE, HELEN MACKAY, 12, Irvine Place, Aberdeen. British. Research Chemist, Papermill. M.A., B.Sc., Aberdeen. Assistant Works Chemist (Paper Manufacture), 1930—1934. Assistant Research Chemist (Paper Manufacture), 1934 to date. Lecturer in Testing of Paper and Paper-making Materials, Robert Gordon's Colleges 1931 to date. (*Signed by*) Stephen R. H. Edge, R. Craven, Alex. Findlay.

MARSDEN, EWART, 3, West View, Hipperholme, Halifax. British. Teacher. B.Sc. (London) 1917—1926, Assistant Chemist, British Dyestuffs Corporation. 1931—1935, Research Student. Desire to keep in touch with recent chemical developments. (*Signed by*) Herbert Henry Hodgson, Walter Fletcher, James Bruce.

MOIGNARD, LIONEL ARTHUR, Jesus College, Oxford. British. Research Student. B.A., Oxford. Engaged in research and desirous of keeping in touch with the literature. Date of birth Feb. 11th, 1914. (*Signed by*) J. C. Smith, D. L. Chapman, H. J. George.

MORGAN, WILLIAM MCGILLIVRAY, 59, Church Rd., Gosforth, Newcastle-on-Tyne 3. British. Research Student. B.Sc. (Hons.) University of Durham, 1934. Demonstrator. Chem. Dept., Armstrong College, Newcastle (1934—1936). *J.C.S.*, 1935, 1743. Date of birth Aug. 20th, 1913. (*Signed by*) G. R. Clemo, H. L. Riley, R. Raper, R. D. Haworth.

MORSE, GILBERT OWEN, 22, Chester Rd., Tottenham, N. 17. British. Research Student (Chemistry), Royal College of Science. B.Sc. (London, 1st Class), A.R.C.S. (Imperial College of Science, S.W. 7). Reason for desiring admission: to keep abreast of the advancement of chemistry. Date of birth, Dec. 4th, 1915. (*Signed by*) E. H. Farmer, B. Saunders, P. Winsor, J. S. Fitzgerald, C. H. Miller.

O'NEILL, LEONARD ALFRED, 20, Shirland Rd., Maida Hill, W. 9. English. Research Chemist. B.Sc., M.Sc. (Queen Mary College, London). Investigation on "The Effect of One Salt on the Solubility of Another," *Trans. Faraday Soc.*, 1934, 30, 12, 1134. Research Chemist to the Research Association of British Paint, Colour and Varnish Manufacturers. Date of birth Aug. 4th, 1913. (*Signed by*) J. Outram Cutter, D. R. Duncan, S. H. Bell.

PEILL, PETER LIVINGSTONE DAVIES, "Chanctonbury," Oakdale, Southgate, N. 14. British. Research scholar. B.Sc., Lond. (External) (2nd Class Hons. in Special Chem.), A.I.C. Joseph Blamires Research Scholar in Colour Chemistry at Huddersfield Technical College, 1935 to date. Student at Brighton Technical College, 1931—1935. Date of birth April 17th, 1914. (*Signed by*) Herbert H. Hodgson, Gordon E. Watts, James Bruce.

PETROW, VLADIMIR A., 106, Edith Rd., West Kensington, W. 14. British. B.Sc., 1st Class Hons. Chem. (Lond.), A.I.C. Research Student. *J.C.S.*, 1934, 1129 (with Dr. C. Dorée); 1935, 1391 (with Dr. C. Dorée). Date of birth June 8th, 1914. (*Signed by*) J. C. Crocker, F. H. Lowe, C. Dorée, George S. Rolph.

PITKETHLY, ROBERT CHALMERS, 163, Tudor Avenue, Hampton-on-Thames, Middlesex. British. Student. B.Sc. (London), 1st Class, due after an additional year's study, A.R.C.S. (1st Class). Intermediate B.Sc. taken at school 3 years after Matriculation. Two years course for Final at the Royal College of Science. Date of birth Sept. 15th, 1915. (*Signed by*) H. J. T. Ellingham, Jocelyn Thorpe, E. H. Farmer.

RAWLINGS, ALAN ABRAHAM, 47, Spencer Place, Leeds 7, Yorks. British. Research Chemist. B.Sc. (1st Class Hons. Chemistry, 1934), Leeds University. 2nd year Ph.D. course in Organic Chemistry under Professor Challenger. Date of birth June 18th, 1914. (*Signed by*) Frederick Challenger, E. Rothstein, D. Ivor James, J. L. Stoves.

RAWLINSON, JOHN ALFRED, 24, Rosemary Gardens, Sheen Lane, East Sheen, S.W. 14. British. Chemist. 1928—1934, Research Chemist, Messrs. Colas Products, Ltd. From 1934 Assistant Chemist, Shell Marketing Co. Research work on colloid-chemical problems, particularly in connection with bitumens, soaps, and emulsions. (*Signed by*) J. Kewley, J. Kenyon, A. Houssa.

RAYNOR, GEOFFREY VINCENT, 28, Elm Tree Avenue, West Bridgford, Nottinghamshire. (Present address: 31, Warnborough Rd., Oxford.) British. Research Student. B.A. (Honour School of Chemistry, Oxford University). Date of birth Oct. 2nd, 1913. (*Signed by*) F. M. Brewer, G. D. Parkes, W. Hume-Rothery.

REASON, HAZEL ALDEN, 3, Wilderness Road, Onslow Village, Guildford. British. Secondary School Teacher. B.Sc. (Hons. Chem.), London University (Bedford College); M.Sc. (History Methods and Principles of Science, Pt. I). Private Study. Senior Science Mistress, County School for Girls, Guildford. At present studying for Pt. II, M.Sc. Access to Library required for seventeenth- and eighteenth-century publications on Chemistry. (*Signed by*) Phyllis V. McKie, Corona G. Trew, James F. Spencer.

RECORD, BASIL ROLAND, 9, Woodville Rd., Harborne, Birmingham. English. Research Student. B.Sc. (1st Class Hons.), Birmingham University. At present engaged on research work on "The Molecular Weight of Polysaccharide Derivatives by Osmotic Pressure Measurements." A summary of this work was given at the British Association Meeting (Norwich), 1935. (*Signed by*) W. N. Haworth, S. R. Carter, Wm. Wardlaw.

SHARMAN, IVAN MICHAEL, Kelvin Lodge, 1, Morella Rd., Wandsworth Common, S.W. 12. British. Laboratory Assistant to Government Chemist. Inter B.Sc. and subsidiary subject for B.Sc. (Spec.), London. Proceeding for B.Sc. (Special) Honours in Chemistry as an internal student of the University of London. Date of birth May 30th, 1914. (*Signed by*) J. Kenyon. R. Robertson, J. J. Fox, L. G. Groves.

SLATER, WILLIAM CHARLES, 4, Carlisle Avenue, E.C. 3. British born. Chemical manufacturer. Diploma of the City Guilds Technical College, Finsbury, in 1907. From 1907 to 1923 employed in various capacities as analytical chemist; since 1923 as a chemical manufacturer. (*Signed by*) C. Edwd. Sage, William H. Gough, R. Doumin.

SMITH, ARTHUR, 31, Lower Stanton Rd., Ilkeston. British. B.Sc., London. Teacher of Science. (*Signed by*) F. S. Kipping, E. B. R. Prideaux, B. D. Shaw, J. B. Firth, F. C. Laxton.

SMITH, JOHN CHAPMAN, 18, Francis Rd., Acocks Green, Birmingham. British. Student-demonstrator in Pharmaceutical Chemistry. M.P.S. (London). Date of birth May 16th, 1913. (*Signed by*) J. Newton Friend, Reece H. Vallance, J. Cooper Duff.

STILLER, ERIC THOMAS, 11E, Fawley Rd., Hampstead, N.W. 6. British. Research Chemist. B.Sc. (Glasgow); Ph.D. (St. Andrews). Researches in Carbohydrate Chemistry. Publications: *J. Amer. Chem. Soc.*, 1932, **54**, 1079, 1486. *J. Biol. Chem.*, 1933, **102**, 187; 1934, **104**, 299; **105**, 153; **106**, 421. *J.C.S.*, 1930, 2119. Part-author of "Textbook of Biochemistry," Saunders & Co., Philadelphia, 1935. (*Signed by*) Harold King, I. M. Heilbron, F. Fairbrother.

STYLE, DERRICK WILLIAM GRAHAM, King's College, Strand, W.C. 2. British. University Lecturer. B.Sc., Ph.D. (London). Teaching and Research at King's College since 1927. *J.C.S.*, 1930, 596, Allmand and Style. (*Signed by*) A. J. Allmand, Samuel Smiles, E. W. McClelland.

TIDD, ERNEST, 12, Raeburn Rd., Clarendon Park, Leicester. English. Research Student. B.Sc., 2nd Class Hons., Chem., University College, Nottingham, External, London. Am doing research in organic chemistry. Date of birth Oct. 14th, 1914. (*Signed by*) J. B. Firth, B. D. Shaw, F. C. Laxton, E. B. R. Prideaux, F. S. Kipping.

WAINWRIGHT, WILLIAM GLYN, 25, Astonmead, Aston, Hawarden, Chester. British. Research Student. B.Sc. (Hons.), Wales (1st Class Hons.). I wish to obtain the publications of the Chemical Society, and also to avail myself of the library facilities. Date of birth Dec. 16th, 1913. (*Signed by*) J. L. Simonsen, F. G. Soper, A. E. Bradfield.

WELDON, LEONARD HARVEY POCOCK, 9, Belsize Square, Hampstead, N.W. 3. English. Research Student. B.Sc., London (University College). To receive publications and use the Library. Date of birth July 5th, 1912. (*Signed by*) C. K. Ingold, C. G. Raison, C. L. Wilson.

WELLINGS, AUGUSTUS WILLIAM, 27, Acacia Rd., Leamington Spa, Warwickshire. English.

M.Sc. and B.Sc., University of Bristol. Researches on "Adsorption Indicators," published in *Trans. Faraday Soc.*, 1932, and in the *Analyst*, 1933 and 1935. Author of (i) "Chemical Symbols, Formulæ, and Calculations," (ii) "Volumetric Analysis" (both Methuen & Co.). Chemistry Master, Leamington College, since 1925. Vice-Principal, Leamington Evening Technical School since 1934. (*Signed by*) W. E. Garner, M. Nierenstein, M. Taylor.

WESTMORELAND-WHITE, BERYL, "Menewethan," 99, Norfolk Avenue, Sanderstead, Surrey. British. Research Student. B.Sc. (London); A.R.C.S. Date of birth June 9th, 1912. (*Signed by*) James C. Philip, H. V. A. Briscoe, H. J. Emelús.

WILKINSON, JOHN BERNARD, Lincoln College, Oxford. British subject. Undergraduate; reading for Honours Chemistry in University of Oxford. Date of birth Aug. 9th, 1916. (*Signed by*) N. V. Sidgwick, S. G. P. Plant, D. Ll. Hammick.

WOOD, FREDERICK CHARLES, 20, South Farm Road, Worthing, Sussex. British. Research Chemist and Mycologist. B.A. (Hons.), Cambridge. I wish to keep in touch, *via* the Chemical Society, with latest chemical information. (*Signed by*) F. G. Mann, H. McCombie, F. B. Kipping.

WORK, THOMAS SPENCE, c/o Pearcey, 13, Montpelier Park, Edinburgh. Scottish. Research Student. B.Sc. (Hons. Chem.), Edinburgh. I am at present engaged in research under Professor G. Barger (since October 1934) and hold the post of demonstrator in his department. I have not yet published any papers on the work in which I am engaged. (*Signed by*) George Barger, Alex R. Todd, Alexander Lauder.

Forms of Recommendation for Fellowship accepted by the Council under Bye-Law 1 (2) :—

DOYLE, THOMAS FRANCIS, 45, Belgrave Square, Rathmines, Dublin, S.W. 1. F.F.Sc., A.B.R.I. Irish. Chief Chemist, W. & R. Jacob & Co., Ltd., Biscuit Manufacturers, Dublin. With above firm since 1910 as Chief Assistant Chemist. Present position held since June 1934. Full Course Diploma Applied Chemistry, D.A.T.I., 1916. Foy Scholarship winner in Applied Chemistry. Member : S.P.A., S.C.I., American Chem. Soc. (*Signed by*) Frank Sykes.

JOHNSTON, HENRY WYATT, 4048, Gage Rd., Montreal, P.Q., Canada. (Mailing Address : Officer in charge, Pulp and Paper Division, Forest Products Laboratories of Canada, 3420, University St., Montreal.) Canadian. Civil Servant. B.Sc. (Chem. Eng.), 1921, McGill University. M.Sc., 1927; Ph.D., 1929, McGill University. Chemist at Pulp and Paper Division since July 1929. Officer in charge since June 1934. (*Signed by*) G. S. Whitby, R. H. Manske.

KINLAY, HUGH BREEN, c/o Messrs. Heynes Mathew, Ltd., P.O. Box 242, Cape Town, S.A. Temporary address : c/o Messrs. Davis and Soper, Ltd., 54, St. Mary Axe, E.C. 3. South African National, and therefore British subject. Chemist and Druggist. C. and D. (South Africa); M.P.S. (Gt. Brit.). I wish to become a Fellow of the Society in order to make use of Library whilst in London, also to obtain copies of Journal in order to keep abreast in advancement of chemical science. As a student was foundation member, Treasurer, and Chairman of Cape Peninsula Pharmaceutical Students Association. (*Signed by*) Charles Alex. Hill.

OZA, SURYAKANT RUPSHANKER, Dhrangadhra, Kathiawar, India, B.P. Hindu. Shift Manager, Shri Shakti Alkali Works. B.A. (Phys. & Chem.) and B.Sc. (Principle Chemistry) of Bombay University. Working in the above works for the last seven years. Worked as Assistant Chemist, Laboratory Superintendent, etc. Rose to the present responsible post. Carried out investigation and research work in Ammonia Soda Industry and allied subjects, such as Water Softening, Burning of Limestone, Ammonia Distillation and Absorption, Carbonation, Calcining, Brine Purification, Utilization of Waste and Effluent Liquors, over and above keeping general and technical control of the whole works. (*Signed by*) Kantilal M. Sheth.

RICHARDSON, ALBERT S., The Procter and Gamble Co., Ivorydale, Ohio, U.S.A. United States. Director of Chemical Research, The Procter and Gamble Co. A.B., A.M., Ph.D., Princeton University. Publications include : "Detergent Value of Sodium Silicate," *Ind. Eng. Chem.*, 1923, 15, 241; "Some New Detergents," *Oil and Soap*, 1934, 11, 10. Joint publications include papers on fatty oils or soaps in *J. Am. Chem. Soc.*, 1924, 46, 157; *Ind. Eng. Chem.*, 1924, 16, 519; *ibid.*, 1925, 17, 80; *ibid.*, 1926, 18, 570; *ibid.*, 1932, 24, 1329; *Oil and Fat Ind.*, 1929, 6, No. 9, 19; *J. phys. Chem.*, 1929, 33, 1142. (*Signed by*) Frank C. Whitmore.

RYLAND, GARNETT, University of Richmond, Richmond, Virginia, U.S.A. American. Professor of Chemistry, Univ. of Richmond. M.A. (University of Richmond); Ph.D. (Johns Hopkins). Formerly Professor of Chemistry at the University of Maine and at Georgetown

College (Ky.). Author "Liquid Mixtures of Constant-Boiling Points," *American Chemical Journal*, Vol. XXII, *Chemical News*, Vol. 73. (Signed by) Walter A. Patrick.

SANDLER, EDGAR GEORGE, P.O. Box 2684, Capetown, Union of South Africa. British. Technical Representative for South Africa: The Trinidad Lake Asphalt Operating Company, Ltd. 1. As Technical Representative of the above-mentioned Company, the candidate is responsible for its engineering and chemical activities in South Africa. 2. Certificate of passing University of South Africa examination in Chemistry (1932). 3. Much interested and concerned with science of Chemistry, and now a part-time student of Advanced Chemistry at Capetown University. 4. Two Engineering Diplomas. (Signed by) D. C. Broom.

ADDITIONS TO THE LIBRARY.

I. Donations.

ATTWOOLL, A. W., and BROOME, D. C. Trinidad Lake asphalt. London 1935. pp. 56. ill. (Recd. 21/12/35.) From

the Limmer & Trinidad Lake Asphalt Co.

BOMBAY. *Royal Institute of Science*. Second report (1926—1934). Bombay 1935. pp. iv + 73. ill. (Reference.)

From the Principal.

LABORATOIRES DU BATIMENT ET DES TRAVAUX PUBLICS. (From *L'Entreprise Française*, 1935, 5.) pp. 195. ill. 50 fr. (Recd. 9/1/36.) From

the Publishers: "L'Entreprise Française."

REMINGTON, JOHN STEWART. The paint laboratory note book: a handy guide to works practice. London 1935. pp. xii + 68. ill. 10s. (Recd. 6/1/36.)

From the Publishers: Messrs. Leonard Hill.

SIEGEL, W. Die Verfahren der anorganisch-chemischen Industrie. Jahresberichte über die Patente und die technische Literatur der Industrieländer. Vol. I. Berichtsjahr 1934. Berlin 1935. pp. xvi + 501. ill. (Reference.) M. 34. From the Author.

II. By purchase.

AMERICAN ASSOCIATION OF CEREAL CHEMISTS. Cereal laboratory methods, with reference tables. 3rd edition. Omaha 1935. pp. viii + 204. ill. \$3. (Recd. 23/12/35.)

AMERICAN SOCIETY FOR TESTING MATERIALS. Symposium on paint and paint materials. Philadelphia 1935. pp. vi + 150. \$1.50. (Recd. 2/1/36.)

ANDREWS, ANDREW I. Enamels: the preparation, application, and properties of vitreous enamels. Champaign 1935. pp. xviii + 410. ill. \$5.50. (Recd. 1/1/36.)

BHATNAGAR, S. S., and MATHUR, K. N. Physical principles and applications of magnetochemistry. London 1935. pp. xiv + 375. ill. 21s. net. (Recd. 19/12/35.)

BÖTTGER, W. [Editor.] *Physikalische Methoden der analytischen Chemie*. Part II. Leitfähigkeit, Elektroanalyse und Polaro-

graphie. Leipzig 1936. pp. xii + 343. ill. M. 28. (Recd. 17/12/35.)

BRAME, J. S. S., and KING, J. G. Fuel, solid, liquid and gaseous. London 1935. pp. xvi + 422. ill. 25s. net. (Recd. 23/12/35.)

CLAYTON, WILLIAM. The theory of emulsions and their technical treatment. 3rd edition. London 1935. pp. x + 458. ill. 25s. net. (Recd. 19/12/35.)

COMPTON, ARTHUR H., and ALLISON, SAMUEL K. X-rays in theory and experiment. 2nd edition of "X-rays and electrons." [New York] 1935. pp. xiv + 828. ill. \$7.50. (Recd. 23/12/35.)

CREIGHTON, H. JERMAIN, and KOEHLER, W. A. Principles and applications of electrochemistry. 2 vols. New York 1935. pp. xviii + 502, xiv + 545. ill. \$9. (Recd. 23/12/35.)

DOCZEKAL, RUDOLF, and PITTSCH, HEINRICH. Absolute thermische Daten und Gleichgewichtskonstante. Anleitung, Tabellen und Nomogramme zur praktischen Durchführung von Berechnungen. Wien 1936. pp. iv + 69. ill. M. 6.60. (Recd. 8/1/36.)

ELLIS, CARLETON. The chemistry of synthetic resins. 2 vols. New York 1935. pp. 1615. ill. \$19.50. (Recd. 3/1/36.)

FINDLAY, ALEXANDER. Practical physical chemistry. 6th edition. London 1935. pp. xii + 318. ill. 8s. 6d. net. (Recd. 23/12/35.)

FRANCIS, FRANCIS. Notes on organic chemistry. London 1935. pp. viii + [264]. 12s. 6d. net. (Recd. 23/12/35.)

FRIEND, JOHN NEWTON. [Editor.] A text-book of inorganic chemistry. Vol. XI. Part iii. Derivatives of phosphorus, antimony and bismuth. By ARCHIBALD EDWIN GODDARD. London 1936. pp. xxviii + 318. (Two copies.) 20s. net.

HEERMANN, PAUL. Färberei und textilchemische Untersuchungen. 6th edition. Berlin 1935. pp. xii + 396. ill. M. 22.50. (Recd. 8/1/36.)

INTERNATIONAL CONGRESS OF SOIL SCIENCE, 3rd. Transactions. Vols. I and II. London

1935. pp. xii + 428, vi + 194. ill. (*Reference.*) 41s. net.

JÖRGENSEN, HOLGER. Die Bestimmungen der Wasserstoffionenkonzentration (p_H) und deren Bedeutung für Technik und Landwirtschaft. Dresden 1935. pp. xvi + 264. ill. *M.* 16. (*Recd.* 6/1/36.)

LAER, MARC H. VAN. La chimie des fermentations. Paris 1935. pp. 350. ill. 75 fr. (*Recd.* 30/12/35.)

MCKIE, DOUGLAS, and HEATHCOTE, NIELS H. DE V. The discovery of specific and latent heats. London 1935. pp. 155. ill. 6s. net. (*Recd.* 23/12/35.)

OPPENHEIMER, CARL. Die Fermente und ihre Wirkungen. Supplement. Lieferung i, etc. Den Haag 1935 +.

RADLEY, J. A., and GRANT, JULIUS. Fluorescence analysis in ultraviolet light. 2nd edition. pp. xii + 326. ill. 21s. net. (*Recd.* 19/12/35.)

SEDLACEK, FRANZ. Auer von Welsbach. Wien 1934. pp. viii + 85. ill. *M.* 3.60. (*Recd.* 8/1/36.)

TREADWELL, F. P. Analytical chemistry. 8th edition. Vol. II. Quantitative analysis. Translated, enlarged and revised by W. T. HALL. New York 1935. pp. xiv + 858. ill. \$6. (*Recd.* 23/12/35.)

WATERS, WILLIAM A. Physical aspects of organic chemistry. London 1935. pp. xvi + 501. 25s. net. (*Recd.* 19/12/35.)

III. Pamphlets.

BRITISH STANDARDS INSTITUTION. British standard specifications, No. 642—1935. Carbide of calcium (graded sizes).

— No. 647—1935. Methods of testing glues. (Bone, skin, and fish glues.)

DEULOFEU, VENANCIO, and MENDIVE, JORGE R. Quimica de las vitaminas. Buenos Aires 1935. pp. 36.

DHAR, N. R. A new method of nitrogen fixation and conservation and reclamation of alkali lands. [Allahabad] 1935. pp. 46.

ELECTROCHEMICAL SOCIETY. Lithium: theoretical studies and practical applications. By HANS OSBORG. New York 1935. pp. 68. ill.

GODBOLE, N. N., and SADGOPAL, —. A comparative study of the utility of the milks and ghees, of the Indian cow and buffalo, as human food materials. Benares [1935].

HANNAH DAIRY RESEARCH INSTITUTE. Bulletin No. 6. An inquiry into the design, operation and efficiency of pasteurising plants. By A. W. SCOTT and NORMAN C. WRIGHT. Kirkhill 1935. pp. 72. ill.

INDIAN LAC RESEARCH INSTITUTE. Lac and the Indian Lac Research Institute. 2nd edition. Calcutta 1935. pp. x + 66. ill.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Food and the consumer. By G. W. MONIER-WILLIAMS. London 1935. pp. 15.

— Laboratory organisation. By LESLIE H. LAMPITT. London 1935. pp. 26. ill.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications. Series A. No. 26. The mechanical properties of tin-base alloys. By D. J. MACNAUGHTAN and B. P. HAIGH. London 1935. pp. 12. ill.

UNITED STATES. *Department of Agriculture.* Technical Bulletin No. 485. Effects of particle size on the properties and efficiency of fertilizers. By A. L. MEHRING [and others]. Washington 1935. pp. 26. ill.

FORTHCOMING MEETINGS OUTSIDE LONDON.*BRISTOL.**95th Annual General Meeting and Anniversary Dinner.*

Provisional Programme.

- Thursday, April 16th, 1936. 3.45 p.m. Tea in the Reception Room of the University.
 4.15 p.m. Annual General Meeting in the large Lecture Theatre of the Department of Chemistry.
 7.30–8 p.m. Reception by the President, and Anniversary Dinner in the Great Hall of the University.
- Friday, April 17th, 1936. 10.30 a.m. Hantzsch Memorial Lecture by Professor T. S. Moore, in the Lecture Theatre of the Department of Physics.
 1.0 p.m. Lunch.
 2.30 p.m. Inspection of work in the Departments of Chemistry and Physics.
 Visits—Particulars to be announced later.

GLASGOW.

Friday, February 7th, 1936, at 7.30 p.m. Lecture on "Some Recent Developments in Surface Action," by Professor E. K. Rideal, M.B.E., D.Sc., F.R.S., at the Royal Technical College.

LIVERPOOL.

Friday, February 7th, 1936, at 6 p.m. Lecture on "The Play of the Molecules in a Simple Chemical Reaction," by Professor H. M. Dawson, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

MANCHESTER.

Tuesday, February 4th, 1936, at 4.30 p.m. Joint Meeting with the University of Manchester Chemical Society. Lecture on "The Structure of Benzene," by Professor C. K. Ingold, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

Thursday, February 20th, 1936, at 7 p.m. Joint Meeting with the Manchester Sections of the Institute of Chemistry and the Society of Chemical Industry. Lecture on "Chemistry and Medicine," by Dr. J. F. Wilkinson, M.Sc., Ph.D., M.D., F.I.C., in the Lecture Theatre of the Manchester Central Library, St. Peter's Square.

Thursday, March 12th, 1936, at 7 p.m. A meeting for the reading of original papers in the Chemistry Lecture Theatre of the University.

NEWCASTLE AND DURHAM.

Friday, March 27th, 1936. Annual Dinner of the North East Coast Chemical and Allied Professions.

Fellows are invited to attend the Thirty-Third Bedson Lecture to be held in the Chemistry Lecture Theatre, Armstrong College:—

February, 1936, at 6.30 p.m. Lecture on "The Application of X-ray Diffraction to Chemistry," by Mr. J. D. Bernal, M.A. (Date not yet fixed.)

NORTH WALES.

Friday, February 7th, 1936, at 8 p.m. Lecture on "Ergot and Ergotism," by Professor G. Barger, M.A., D.Sc., F.R.S., in conjunction with the University College Chemical Society, in the Chemistry Lecture Theatre, University College, Bangor.

ST. ANDREWS AND DUNDEE.

Friday, February 28th, 1936, at 5 p.m. Joint meeting with St. Andrews University Chemical Society. Lecture on "The Chemistry of the Sesquiterpenes," by Professor J. L. Simonsen, D.Sc., F.R.S.

SHEFFIELD

Saturday, February 8th, 1936, at 2.30 p.m. Joint Meeting with the Yorkshire Branch of the Science Masters' Association in the Chemistry Lecture Theatre of the University.

2.30-4.0 p.m. Discussion on "The teaching of new ideas in chemistry in school and university." Attention will be directed to three topics: (1) valency, (2) electrolytic dissociation, (3) indicators.

4.0-4.30 p.m. Tea.

4.30-6.30 p.m. Inspection of exhibits and experimental demonstrations in the University Chemical Laboratories.

Friday, March 13th, 1936, at 5.30 p.m. Lecture on "Carbohydrates," by Professor W. N. Haworth, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

FORTHCOMING MEETINGS IN LONDON.

Thursday, February 6th, 1936, at 8 p.m.

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

"1 : 2 : 3-Triketotetramethylcyclopentane: A Blue Triketone." By C. W. SHOPPEE.

"Electrolytic Reduction of Organic Compounds. Part I. Analogies between Cathodic Reduction and the Action of Dissolving Metals. Reduction of Sorbic Acid." By E. ISAACS and C. L. WILSON.

"Some Points Arising from the Modern Theories of Corrosion. Part I. Waterline Corrosion." By J. E. O. MAYNE.

Wednesday, February 12th, 1936, at 5.30 p.m.

Sixteenth Faraday Lecture entitled "Radioactivity and Atomic Theory," by The Rt. Hon. Lord Rutherford of Nelson, O.M., F.R.S., in the Lecture Theatre of the Royal Institution, Albemarle Street, London, W. 1.

Thursday, February 20th, 1936, at 8 p.m.

Joint discussion with the Faraday Society on "The Kinetics of Gaseous Combustion," to be opened by Dr. R. G. W. Norrish, B.A., followed by Professor W. A. Bone, Dr. H. F. Coward, Professor W. E. Garner, and Mr. C. N. Hinshelwood.

Thursday, March 5th, 1936.

Extraordinary General Meeting at 7.45 p.m., to consider a proposal by the Council for the alteration of the Bye-Laws, notice of which was sent to Fellows resident in the United Kingdom on January 29th, 1936.

Ordinary Scientific Meeting, at 8 p.m.

Thursday, March 19th, 1936, at 8 p.m.

Joint discussion with the Biochemical Society on "The Chemistry and Biochemistry of Lipoids."

INSTITUTE OF FUEL.

A meeting of the Institute of Fuel will be held in the Meeting Room of the Chemical Society on Thursday, February 13th, 1936, at 6 p.m., when a paper on "The Co-ordination of Fuel and Power Supplies of Great Britain" will be present by Mr. O. W. Roskill. Fellows are invited to attend the meeting, and advance proofs can be obtained from the Secretary of the Institute of Fuel, 58, Victoria Street, London, S.W. 1, after February 6th.

KEY INDUSTRY DUTY (PARACETAMINOPHENOL).

An announcement has been received from the Board of Trade that representation has been made for the exemption of paracetaminophenol from the duty imposed by Section 1 of the Safeguarding of Industries Act, 1921. Any communication should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, S.W. 1, within one month from the 23rd of January, 1936.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting. Thursday, February 6th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT stated that the Council, at its meeting that afternoon, had sealed and signed an Address of Condolence for presentation to His Majesty King Edward VIII. He asked those present to pay homage to the memory of His Majesty King George V by standing while the Address was read :

TO HIS MOST EXCELLENT MAJESTY KING EDWARD THE EIGHTH.

May it please Your Majesty,

We, the President, Council, and Fellows of The Chemical Society, your humble and devoted servants, most respectfully beg to present to Your Majesty this expression of our profound sorrow at the death of His Most Excellent Majesty King George the Fifth. In common with all your loving subjects throughout the length and breadth of the land we feel it to be our personal loss.

We beg leave to offer to Your Majesty and to Her Most Gracious Majesty Queen Mary and to the other Members of the Royal Family our deepest sympathy in this time of sorrow.

We ask Your Majesty to accept this expression of our loyalty on your accession to the Throne, and we pray that Your Majesty may long be spared to reign over a loyal and loving people.

N. V. SIDGWICK	<i>President.</i>
EMILE MOND	<i>Treasurer.</i>
S. SUGDEN	} <i>Honorary</i> <i>Secretaries.</i>
J. MASSON GULLAND	
H. J. T. ELLINGHAM	

Signed and Sealed in the presence of the Council of The Chemical Society this sixth day of February, One Thousand Nine Hundred and Thirty-Six.

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

	Elected.	Died.
Walter Hibbert	1876	19th October, 1935.
Charles Frederick Seymour Rothwell	1892	18th April, 1935.
George Henry Rowland	1935	31st January, 1936.

Mr. J. H. Williams was formally admitted a Fellow of the Society.

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

Hugh David Anderson, Oriol College, Oxford.
 Ronald Oliver Blench, A.I.C., Eldon House, South Parade, Whitley Bay.
 Norman Colman Cross, 17, Osborne Terrace, Leeholme, Bishop Auckland.
 James William John Fay, B.Sc., A.R.C.S., 292, Fulham Palace Road, S.W. 6.
 Robert Francis Garwood, B.Sc., 41, Munster Gardens, Palmers Green, N. 13.
 Harry Baxter Gibson, B.Sc., A.I.C., Sunnybank, Oakenshaw Lane, Walton, Wakefield.
 Albert Edward Gillam, M.Sc., F.I.C., 4, Buckingham Grove, Timperley.
 Douglas Charles Harrod, B.Sc., 207, New Kings Road, Parsons Green, S.W. 6.
 Ernest Haworth, B.Sc., 99, Stanhill Lane, Oswaldtwistle.

Wallace Heyes, B.Sc., 45, Kensington Road, Blackpool.
 Arthur Trobridge Horton, B.A., B.Sc., 10, St. Michael's Street, Oxford.
 Mrs. Lisbeth Landsberg, Dr.-Ing., Sea Foam, Middle Colaba, Bombay.
 Henry McIlwain, B.Sc., 28, Pendower Way, Newcastle-on-Tyne.
 Hector Murray McLean, A.I.C., Development Department, General Electric Co., Witton, Birmingham.
 Geoffrey Jones Marriott, B.A., 33, Kelvin Road, Ipswich.
 Albert Ronald Moss, B.Sc., 40, Walthew Avenue, Holyhead.
 Norman Hunt Pratt, B.Sc., Elmhurst, High Road, South Woodford, E. 18.
 John Temple Settington, M.P.S., 62, Rodney Street, Liverpool.
 Alan Gordon Ward, B.A., 17, Kimberley Road, Cambridge.
 Clifford Whitworth, M.Sc., Ph.D., A.I.C., 6, Charnwood Road, Loughborough.
 Philip George Wickens, 19, Bower Mount Road, Maidstone.

and for the second time in favour of 16 candidates.

The following papers were read :

- "1 : 2 : 3-Triketotetramethylcyclopentane : A Blue Triketone." By C. W. SHOPPEE.
 "Electrolytic Reduction of Organic Compounds. Part I. Analogies between Cathodic Reduction and the Action of Dissolving Metals. Reduction of Sorbic Acid." By E. ISAACS and C. L. WILSON.
 "Some Points Arising from the Modern Theories of Corrosion. Part I. Waterline Corrosion." By J. E. O. MAYNE.

A meeting under the auspices of the Society and in conjunction with the University of Manchester Chemical Society was held in the Chemistry Lecture Theatre of the University on February 4th, 1936, at 4.30 p.m., when Professor C. K. Ingold, F.R.S., gave a lecture on "The Structure of Benzene," Professor M. Polanyi being in the Chair. There were over 200 present at the lecture.

A meeting under the auspices of the Society was held on Friday, February 7th, 1936, at 6 p.m. at the University of Liverpool, when Professor H. M. Dawson, F.R.S., delivered a Lecture entitled "The Play of the Molecules in a Simple Chemical Reaction." Professor W. C. M. Lewis presided. A cordial vote of thanks to the lecturer was proposed by Dr. R. A. Morton, seconded by Dr. R. G. Heyes, and carried with acclamation.

A joint meeting of the Chemical Society and the Science Masters' Association (Yorkshire Branch) was held in the Chemistry Lecture Theatre of the University of Sheffield at 2.30 p.m. on Saturday, February 8th, 1936. Professor F. Challenger, President of the Yorkshire Branch of the Science Masters' Association, occupied the Chair. After both societies had been welcomed to the University by the Vice-Chancellor, Dr. A. W. Pickard-Cambridge, a conference on "The Teaching of New Ideas in Chemistry in School and University" was opened by Professor G. M. Bennett, Dr. S. Glasstone, and Dr. T. B. Smith, who dealt, respectively, with the subjects of Valency, Electrolytic Dissociation, and Indicators. An active discussion followed in which many members of both the Chemical Society and the Science Masters' Association took part. After tea, at which the societies were the guests of the University, there were demonstrations of apparatus and experiments, most of which were suitable for teaching in schools. The meeting was attended by about 80, made up of Fellows of the Chemical Society and members of the Science Masters' Association, and visitors.

Sixteenth Faraday Lecture held in the Lecture Theatre of the Royal Institution on Wednesday, February 12th, 1936, at 5.30 p.m.

The President, Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., was in the Chair.

The PRESIDENT welcomed the visitors, mentioning that among those present was Professor Niels Bohr, who was Faraday Lecturer in 1930. He referred to the origin of the lectures in 1868 and to the names of some of the distinguished lecturers.

Lord Rutherford of Nelson was then called upon by the PRESIDENT to deliver the Faraday Lecture entitled "Radioactivity and the Atomic Theory."

At the conclusion of the lecture, the PRESIDENT presented the Faraday Medal to Lord Rutherford and proposed a Vote of Thanks to him for the lecture. This was seconded by Professor H. E. Armstrong and carried with acclamation, Lord Rutherford making acknowledgment.

The PRESIDENT expressed the thanks of the Society to the Officers and Managers of the Royal Institution for the hospitality enabling the Faraday Lecture to be given in the historic Lecture Theatre.

Joint Discussion with the Faraday Society, Thursday, February 20th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Kendall C. Browning	1899	January 25th, 1936.
Hugh M. Galt	1914	February 14th, 1936.
Max Henius	1912	November, 1935.
Charles Tapp	1909	September, 1935.

The PRESIDENT announced that he had conveyed the congratulations of the Society to Dr. John M. H. Munro, who completed 60 years of Fellowship on 17th February, 1936.

The following were formally admitted Fellows of the Chemical Society : Messrs. R. A. P. Guest, R. Spence, R. R. Davidson, L. A. Bashford, W. J. Allum, B. A. Scott, J. R. Robinson, H. Vine, J. Idris Jones, and M. M. Davies.

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

Joseph Arthur Cooper, Cranford, Oxford Street, Rotherham.

William Davey, 168, Barrow Hill, Chesterfield.

William Davison, B.Sc., F.I.C., The Old House, Potters Heath, Welwyn.

Frank Courtney Harwood, B.Sc., F.I.C., A.M.I.Chem.E., The Laboratory, Hill View Gardens, Hendon, N.W. 4.

George Leonard Randles Joynson, B.Sc., 21, Ashbourne Grove, Whitefield, Manchester.

Frederick John Llewellyn, B.Sc., 4, Valentine Road, Kings Heath, Birmingham 14.

Ole Bailli Asbjörn Nilssen, M.Sc., Devonshire Hall, Cumberland Road, Leeds 6.

Arthur Phillips Portchmouth, 32, Clifton Avenue, Wembley Hill, Middlesex.

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

Dwarkanath Bhargar Kulkarni, M.B., B.S., M.R.C.S., L.R.C.P., Medical and Public Health Department, Nizam's Government, Hyderabad, India.

Reginald Ernest Massey, Ph.C., Government Botanist, Khartoum.

Pleasant Thomas Miller, Prof., M.A., University of Wyoming, Laramie, U.S.A.

Charles Sannié, Prof., Dr., Faculté de Médecine, Paris.

Forms of Recommendation for Fellowship were read for the second time in favour of 21 candidates, and for the third time in favour of 63 candidates.

Dr. R. J. W. Le Fèvre and Mr. J. Idris Jones were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows :

Edward Noah Abraham, B.Sc.

John Newton Agar, B.A.

George Baddeley, M.Sc., Ph.D.

George Peter Baker.

Frederick Robert Basford, B.Sc.

Leslie Clifford Bateman.

William Frank Bennett, A.R.C.S., A.I.C.
 John Desmond Bernal, M.A.
 Carl William Brandt, M.Sc.
 Ernest Francis Brookman, B.Sc.
 Leonard Albert Bush.
 Thomas Elliss Clarke, B.Sc., A.I.C.
 Charles Edwin Clarkson, B.Sc.
 William Arthur Cowdrey, B.Sc.
 Thomas Francis Doyle.
 Jack Ward Drake.
 Antony Lester Elliott.
 Sydney John Mortimer Fisher, B.A., B.Sc.
 Neil Reginald Fisk.
 Peter Gaubert, A.R.C.S.
 Alexander Henry Hayes.
 Lewis Goodin Spire Hebbs, A.I.C.
 Kenneth Edwin Holmes, B.Sc.
 Thomas Picton Hughes, B.A.
 Fred Hulse.
 Harry Munroe Napier Hetherington Irving,
 M.A., B.Sc., D.Phil.
 Stanley Graham Jarrett, B.Sc.
 Henry Wyatt Johnston, M.Sc., Ph.D.
 Griffith Glyn Jones, M.Sc.
 Bua Kamthong, B.Sc.
 Hugh Breen Kinlay.
 Helen Mackay McKenzie, M.A., B.Sc.
 Ewart Marsden, B.Sc.
 Lionel Arthur Moignard, B.A.

William McGillivray Morgan, B.Sc.
 Gilbert Owen Morse, B.Sc., A.R.C.S.
 Leonard Alfred O'Neil, M.Sc.
 Suryakant Rupshanker Oza, B.A., B.Sc.
 Peter Livingstone Davies Peill, B.Sc., A.I.C.
 Vladimir A. Petrow, B.Sc., A.I.C.
 Robert Chalmers Pitkethly, A.R.C.S.
 Alan Abraham Rawlings, B.Sc.
 John Alfred Rawlinson.
 Geoffrey Vincent Raynor, B.A.
 Hazel Alden Reason, M.Sc.
 Basil Roland Record, B.Sc.
 Albert S. Richardson, A.M., Ph.D.
 Garnett Ryland, Prof., M.A., Ph.D.
 Edgar George Sandler.
 Ivan Michael Sharman.
 William Charles Slater.
 Arthur Smith, B.Sc.
 John Chapman Smith.
 Eric Thomas Stiller, B.Sc., Ph.D.
 Derrick William Graham Style, B.Sc., Ph.D.
 Ernest Tidd, B.Sc.
 William Glyn Wainwright, B.Sc.
 Leonard Harvey Pocock Weldon, B.Sc.
 Augustus William Wellings, M.Sc.
 Beryl Westmoreland-White, B.Sc., A.R.C.S.
 John Bernard Wilkinson.
 Frederick Charles Wood, B.A.
 Thomas Spence Work, B.Sc.

A discussion on "The Kinetics of Gaseous Combustion" was opened by Dr. R. G. W. Norrish and continued by Dr. H. F. Coward, Professor W. E. Garner, Mr. C. N. Hinshelwood, Dr. D. M. Newitt, Mr. A. R. J. P. Ubbelohde, Dr. R. Spence, Dr. H. J. Emeléus, Dr. R. W. Lunt, and Mr. E. Kilburn-Scott.

BOARD OF TRADE.

Exemption from Key Industry Duty.

The Treasury have made an Order under Section 10 (5) of the Finance Act 1926 exempting Safrol from Key Industry Duty from 12th February, 1936, until 19th August, 1936.

Representation has also been made to the Board of Trade regarding the exemption of glyceryl stearic esters from the duty imposed by the Safeguarding of Industries Act, 1921. Communications should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, S.W. 1.

BRITISH STANDARDS INSTITUTION.

Copies of draft specifications dealing with the British Standard Methods for the sampling and analysis of cheese and for the sampling and chemical analysis of butter have been received from the British Standards Institution for technical comment and criticism. The copies have been placed in the Library.

List of papers, or abstracts thereof, received between January 16th and February 20th, 1936. (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 mechanism of addition to double bonds. Part III. Molecular forces between benzoquinone and *cyclopentadiene*." By A. WASSERMANN.

"Diffusion in zeolitic solids." By M. H. HEY.

- "The constituents of natural phenolic resins. Part IV. Synthesis of dehydroanhydro-picropodophyllin." By R. D. HAWORTH and T. RICHARDSON.
- "Synthetical experiments in the chromone group. Part XIX. A synthesis of genkwanin." By H. S. MAHAL and K. VENKATARAMAN.
- "Telfairic acid." By G. D. GOODALL and R. D. HAWORTH.
- "Studies in chelation. Part IV. Some properties of 2:3-dihydroxyphenyl ketones." By W. BAKER and A. R. SMITH.
- "The synthesis of *cis*- and *trans-dl*-norcaryophyllenic acids and of dehydronorcaryophyllenic acid." By H. N. RYDON.
- "Experiments on the synthesis of rotenone and its derivatives. Part IX." By R. W. H. O'DONNELL, F. P. REED, and A. ROBERTSON.
- "The veratrine alkaloids. Part III. The preparation of cevanthrol, and the X-ray crystallographic examination of cevanthrol and cevanthridine." By B. K. BLOUNT and (MISS) D. M. CROWFOOT.
- "Velocity of the reaction between *o*-nitrobenzyl bromide and pyridine. Addendum to mechanism of aromatic side-chain reactions, etc. Part IV." By J. W. BAKER.
- "Observations on the preparation of aldehydes from nitriles (Stephen's method). γ -Phthalimidobutaldehyde." By F. E. KING, PH. L'ECUYER, and (in part) H. T. OPENSHAW.
- "Tetra-anisylpyrrole." By F. E. KING and G. D. PATERSON.
- "The photolysis of formaldehyde, acetaldehyde, and acetone at high temperatures." By E. I. AKEROYD and R. G. W. NORRISH.
- "The concentration of artificially produced radio-elements by means of an electric field." By F. A. PANETH and J. W. J. FAY.
- "Direct production of organic compounds containing artificial radio-elements." By E. GLÜCKANF and J. W. J. FAY.
- "The interaction of alkylchlorosulphinates and pyridine in ethereal solution." By W. GERRARD.
- "The oxidation of ring compounds by potassium permanganate." By C. A. WINKLER and C. N. HINSHELWOOD.
- "On bimolecular reactions in solution." By C. N. HINSHELWOOD and C. A. WINKLER.
- "The thermal decomposition of silver oxalate. Part I." By J. Y. MACDONALD.
- "The electric moments of some chlorinated naphthalenes. Dipole moment and structure of organic compounds. Part XV." By G. C. HAMPSON and A. WEISSBERGER.
- "The Jaborandi alkaloids. Part I. The synthesis of inactive homopilopic and *isohomopilopic* acids." By A. N. DEY.
- "The Jaborandi alkaloids. Part II. The synthesis of pilocarpidine, *isopilocarpidine*, pilocarpine, and *isopilocarpine*." By A. N. DEY.
- "Digitalis glucosides. Part VI. The existence of two anhydrodigoxigenins." By S. SMITH.
- "An improved preparation of 1-methyl- α -naphthoxazole." By J. FRASER and (MISS) F. M. HAMER.
- "The reaction of nitric oxide with hydrogen and with deuterium." By J. W. MITCHELL and C. N. HINSHELWOOD.
- "Interaction of carbon monoxide and alcohols. Part II. Synthesis of propionic and *isobutyric* acids." By D. V. N. HARDY.
- "Interaction of carbon monoxide and alcohols. Part III. Synthesis of methylethylacetic and pivalic acids." By D. V. N. HARDY.
- "Interaction of olefins, carbon monoxide, and steam." By D. V. N. HARDY.
- "Identification of acids and esters." By D. V. N. HARDY.
- "Studies in the synthesis of vitamin-A. Part II." By I. M. HEILBRON, W. E. JONES, A. LOWE, and H. R. WRIGHT.
- "The kinetics of the reaction between hydrogen and sulphur. Part III. (1) Reaction at 350—412° and 50—150 mm. (2) Behaviour of sulphur on a hot glass surface." By R. P. COOK and P. L. ROBINSON.
- "Reactivity of the imino group in 1-imino-2-methylbenzthiazoline." By L. M. CLARK.

- "The slow combustion of formaldehyde." By R. SPENCE.
- "Fused carbon rings. Part VII. The preparation of cyclic hydrocarbons from unsaturated tertiary alcohols. The synthesis of *cis*-9-methyl-octalin and -decalin, and a proof of the presence of the bridge methyl group." By D. C. HIBBIT and R. P. LINSTEAD.
- "Fused carbon rings. Part VIII. The dehydration of 2-methyl-1- Δ^3 -butenylcyclohexanol." By D. C. HIBBIT, R. P. LINSTEAD, and A. F. MILLIDGE.
- "Fused carbon rings. Part IX. The synthesis of stereoisomeric 1-methylcyclohexane-1:2-dicarboxylic acids and of various methylcyclohexanecarboxy-acetic acids. The influence of the bridge methyl group on the stability of their anhydrides." By R. P. LINSTEAD and A. F. MILLIDGE.
- "Relationships between reaction velocities and ionisation constants." By J. F. J. DIPPY and H. B. WATSON.
- "Analogues of rotenone and related compounds. Part I. Chromeno-(3':4':4:3)-coumarins." By W. HILTON, R. W. H. O'DONNELL, F. P. REED, A. ROBERTSON, and G. L. RUSBY.
- "Methyl-alkoxy glyoximes as chelate groups." By E. SHARRATT and W. WARDLAW.

ADDITIONS TO THE LIBRARY.

I. Donations.

DUPONT, GEORGES. Cours de chimie industrielle. Vols. I and II. Paris 1936. pp. vi + 184, iv + 337. ill. 35. fr., 55 fr. (*Recd.* 6/2/36.) From the Publishers: Messrs. Gauthier-Villars.

ELLIS, OLIVER C. DE C., and KIRKBY, WILLIAM A. Flame. London 1936. pp. vi + 106. ill. 3s. net. (*Recd.* 30/1/36.) From the Publishers: Messrs. Methuen & Co.

FINDLAY, ALEXANDER. The teaching of chemistry in the Universities of Aberdeen. Aberdeen 1935. pp. viii + 92. ill. (*Recd.* 11/2/36.) From the Author.

INTERNATIONAL CONGRESS OF SOIL SCIENCE, 2nd. Proceedings and papers. 7 vols. Moscow 1932-35. ill. (*Reference.*)

From Mr. C. H. Wright.

SCHÜLEIN, JULIUS. Die Bierhefe als Heil-, Nähr- und Futtermittel. Dresden 1935. pp. viii + 194. ill. M. 9. (*Recd.* 16/1/36.)

From Sir Arthur Harden, F.R.S.

SPIERS, H. M. [Editor]. Technical data on fuel. 4th edition. London 1935. pp. xvi + 358. ill. (*Reference.*) 12s. 6d. net.

From the Editor.

THORPE, SIR EDWARD. Dictionary of Applied chemistry. Supplement. By JOCELYN FIELD THORPE and MARTHA ANNIE WHITELEY. Vol. III. Glossary and index. London 1936. pp. viii + 166. (*Reference.*) 21s. net.

From the Editors.

WHEELER, T. S. On the theory of liquids. Calcutta 1934-35. pp. [71]. (*Recd.* 6/2/36.)

From the Author.

II. By purchase.

[RAZI, ABU BAKR MUHAMMAD IBN ZAKARIYAH AL-] Das Buch der Alaune und Salze. Ein Grundwerk der spätlateinischen Alchemie. Edited, translated and annotated by JULIUS RUSKA. Berlin 1935. pp. 127. M. 15. (*Recd.* 13/1/36.)

ROSENDAHL, F. Motoren-Benzol. Gewinnung-Reinigung-Verwendung. (Sammlung, N.F. Heft 27.) Stuttgart 1936. pp. 144. ill. (*Reference.*) M. 10.30.

TILDEN, SIR W. A. Chemical discovery and invention in the twentieth century. 6th edition. Revised by S. GLASSSTONE. London 1936. pp. xvi + 492. ill. 15s. net. (*Recd.* 3/2/36.)

III. Pamphlets.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Fuel Research*. Technical Paper No. 42. The action of hydrogen upon coal. Part ii.—Early experiments with the Bergius process. By L. HORTON, F. A. WILLIAMS and J. G. KING. London 1935. pp. 58. ill.

INDIAN LAC CESS COMMITTEE. *London Shellac Research Bureau*. Technical Paper No. 6. Sulphitation of lac. By R. BHATTACHARYA and LAL C. VERMAN. London 1936. pp. 20.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications, Series A. No. 30. The corrosion of tinplate. By T. P. HOAR. (From the *Proc. Swansea Tech. Coll. Met. Soc.*, 1936.)

FORTHCOMING MEETINGS OUTSIDE LONDON.

BRISTOL.

Anniversary Meetings, April 16th and 17th, 1936.

Thursday, April 16th :

- 3.45 p.m. Reception by the Vice-Chancellor of the University in the Reception Room. Tea will be provided.
- 4.15 p.m. Business portion of the meeting (open to Fellows only) in the Small Lecture Theatre (Chemistry Department).
- 4.45 p.m. Presentation of the Longstaff Medal for 1936 and of the Harrison Memorial Prize for 1935, followed by the Presidential Address entitled "Structural Chemistry Old and New" to be given by the President in the Large Lecture Theatre (Chemistry Department).
- 7.30 for 8 p.m. Reception and Anniversary Dinner in the Great Hall of the University.

Friday, April 17th :

- 10.15 a.m. Meeting of Local Representatives.
- 11.30 a.m. Hantzsch Memorial Lecture by Professor T. S. Moore in the H. H. Wills Laboratory.
- 1.0 p.m. Luncheon in the Great Hall.
- 2.30 p.m. Visits to :
- (a) The University of Bristol Agricultural Research Station at Long Ashton.
 - (b) The Works of the National Smelting Co., Ltd., at Avonmouth.
 - (c) The Chocolate Factory of Messrs. J. S. Fry & Sons, Ltd., at Somerdale.

MANCHESTER.

Thursday, March 12th, 1936, at 7 p.m., in the Chemistry Lecture Theatre.

The following papers will be read :

- "Studies in the sterol group. Part XXIII. The position of the ethylenic linkage of α -dihydrofucosterol and the identity of fucostanol, stigmastanol, sitostanol, and ostreastanol." By D. H. COFFEY, I. M. HEILBRON, and F. S. SPRING.
- "Molecular rearrangements in polycyclic systems. The Fries reaction on 4-benzoyloxy-diphenyl." By D. H. HEY and E. R. B. JACKSON.
- "The dipole moment of iodine monochloride in solution." By F. FAIRBROTHER.
- "The formation of organo-metalloidal and similar compounds by micro-organisms. Part V. Methylated alkyl sulphides." By F. CHALLENGER.
- "Syntheses in the phenanthrene series." By W. F. SHORT.

NEWCASTLE AND DURHAM.

Friday, March 20th, 1936, at 7.30 p.m. Annual Dinner of the North East Coast Chemical and Allied Professions, at the Royal Station Hotel. Tickets can be obtained from the Local Representative, Dr. R. Raper, Armstrong College, Newcastle-upon-Tyne.

SHEFFIELD.

Friday, March 13th, 1936, at 5.30 p.m. Lecture on "Carbohydrates," by Professor W. N. Haworth, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

FORTHCOMING MEETINGS IN LONDON.

Thursday, March 5th, 1936.

Extraordinary General Meeting at 7.45 p.m. to consider a proposal by the Council for the alteration of the Bye-Laws, notice of which was sent to Fellows resident in the United Kingdom on January 29th, 1936. Ordinary Scientific Meeting at 8 p.m. at which the following papers will be read :

- “ Progressive elimination of halogen in the hydrolysis of halogen-substituted acetates.”
By H. BROOKE and H. M. DAWSON.
- “ Summary of recent work on methylation of compounds of arsenic, selenium, and sulphur by *Penicillium brevicaulis*.” By F. CHALLENGER.
- “ The action of selenium dioxide on sterols and bile acids. Part II. *apo*Cholic acid and dihydroxycholenic acid. The formation of isomeric dihydroxycholadienic acids.”
By R. K. CALLOW.

Thursday, March 19th, 1936, at 8 p.m.

Joint discussion with the Biochemical Society on “ The Chemistry and Biochemistry of the Lipoids.” The following will take part in the discussion : Professor A. C. Chibnall, Dr. S. H. Piper, Dr. J. H. Quastel, Professor H. J. Channon, and Dr. G. R. Cameron.

Thursday April 2nd, 1936, at 8 p.m.

Ordinary Scientific Meeting.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

A MEETING under the auspices of the Chemical Society, and of the Institute of Chemistry and the Society of Chemical Industry (Manchester Sections), was held on Friday, January 10th, 1936, in the Engineers' Club, Manchester, when Professor J. W. Cook gave a lecture on "A Chemical Contribution to the Cancer Enigma."

A special meeting arranged under the auspices of the Chemical Society was held at the North British Station Hotel, Edinburgh, on Thursday, January 23rd, 1936. Members of the local sections of the Society of Chemical Industry and of the Institute of Chemistry were also invited. Dr. A. Lauder, the Local Representative of the Chemical Society, presided, and there was a large attendance of members of the three Societies. Professor E. K. Rideal, F.R.S., delivered an address on "Some Recent Advances in Surface Chemistry," with special reference to solid surfaces, and gave an account of the advances which had been made in recent years in this branch of the subject, stressing the great importance of such studies in attacking the variety of problems which confront the chemist in industry. The lecture was greatly enjoyed by all present and a vote of thanks proposed by Dr. J. A. V. Butler was carried with acclamation.

A meeting under the auspices of the Society was held in the Lecture Theatre of the New Chemistry Building at the University of Leeds on Friday, January 31st, 1936, when Professor W. E. Garner delivered a lecture entitled "The Formation of Nuclei in Solids and their Rate of Growth." Professor R. W. Whytlaw-Gray, F.R.S., presided, and at the close of an excellent discussion proposed a vote of thanks to the lecturer, which was seconded by Mr. J. Hume. Professor Garner's address was specially welcomed as it dealt with a subject closely akin to several lines of investigation now in progress at the University of Leeds.

A meeting under the auspices of the Society, and in conjunction with the University College of North Wales Chemical Society, was held on Friday, February 7th, 1936, in the Chemistry Lecture Theatre of the University College, Bangor, when Professor G. Barger, F.R.S., gave a lecture on "Ergot and Ergotism". Professor J. L. Simonsen, F.R.S., presided.

On Friday, February 7th, Professor E. K. Rideal, F.R.S., of Cambridge University, lectured to a Joint Meeting of the Glasgow Chemical Societies on "Some Recent Developments in Surface Action." Professor G. G. Henderson, F.R.S., occupied the Chair. The lecturer discussed the orientation of films on liquid surfaces, and the method of measuring changes in their electrical potential. He then showed how this method could be used to follow photochemical and enzyme reactions, oxidations, and polymerisation.

A meeting under the auspices of the Chemical Society, and of the Institute of Chemistry and the Society of Chemical Industry (Manchester Sections) was held on Thursday, February 20th, 1936, in the Central Library, Manchester, when Dr. J. F. Wilkinson gave a lecture on "Chemistry and Medicine."

Extraordinary General Meeting, Thursday, March 5th, 1936, at 7.45 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

The notice convening the meeting was read announcing that the alterations in the Bye-Laws as set forth in the following resolution had been proposed by the Council :—

RESOLUTION

That the Bye-Laws of the Society be altered by deleting therefrom the existing Bye-Law No. XIII and inserting in place thereof the following new Bye-Law :

XIII.—Of Committees.

The Council may appoint Committees the members of which shall be Fellows of the Society, and may delegate to such Committees such of its powers as it may think fit. The constitution of each Committee and the appointment of the members thereof and the quorum for the transaction of business shall be determined by the Council, which shall also appoint a Chairman of each Committee. Every Committee shall report to the Council and shall in the exercise of the powers conferred upon or delegated to it conform to such regulations or directions as the Council may by standing orders or otherwise from time to time prescribe or impose. The officers of the Society shall be *ex-officio* members of all Committees. Vacancies occurring on any Committee may be filled by the Council.

Without limiting the generality of the powers contained in the last preceding paragraph the following may be included among the Committees: Finance and General Purposes Committee, Publication Committee, and Research Fund Committee.

The Council may also co-operate with any other body or bodies having objects similar in whole or part to those of the Society in carrying out any scheme or schemes where combined action with any such body or bodies is considered to be desirable, and may appoint a representative or representatives to serve on any Joint Committee which may be constituted of a representative or representatives of the Society and of a representative or representatives of any such other body or bodies in charge of any agreed scheme. Any representative of the Society so appointed to serve on any such Joint Committee shall be a Fellow of the Society.

The Council may delegate to any such Joint Committee any of the powers of the Council requiring to be exercised by such Joint Committee for the effective carrying out of any such scheme, including authority to incur expenditure on behalf of the Society in furtherance of any such scheme to such an extent and subject to such conditions as the Council may determine, provided that any such Joint Committee shall obtain the sanction of the Council prior to any changes of policy or developments which may involve the Society in further or new expenditure beyond that already authorised.

The Bureau of Chemical Abstracts shall, until otherwise determined by the Council, be such a Joint Committee.

The Joint Library Committee constituted pursuant to an Agreement dated July 1st, 1935, and made between the Society, The Institute of Chemistry of Great Britain and Ireland and The Society of Chemical Industry or any modified or substituted Agreement to which the Council may hereafter agree on behalf of the Society shall, during the term of such Agreement or modified or substituted Agreement, be another such Joint Committee.

The following shall, unless already Members of Council, be *ex-officio* members of Council :—

- (a) The Chairman of the Publication Committee.
- (b) The Chairman of the above-mentioned Bureau of Chemical Abstracts, if he be a Fellow of the Society, or if he be not a Fellow of the Society, then one of the Society's representatives serving on the Bureau of Chemical Abstracts and appointed by the Bureau of Chemical Abstracts as its representative.

(c) The Chairman of the above-mentioned Joint Library Committee, if he be a Fellow of the Society, or if he be not a Fellow of the Society, then one of the Society's representatives serving on such Committee and appointed by that Committee as its representative.

The PRESIDENT stated that the object of the proposed alterations to the Bye-Laws is to enable the Council to delegate the management of the Society's Library to a Joint Library Committee as provided in the Agreement (see *Proc.*, Oct., 1935) entered into between The Chemical Society, The Institute of Chemistry of Great Britain and Ireland, and The Society of Chemical Industry in July, 1935.

The motion that these alterations to the Bye-Laws be adopted was then proposed from the Chair and carried unanimously.

Ordinary Scientific Meeting, Thursday, March 5th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
William Frederick Butcher	1889	January 12th, 1936.
Charles Richmond Featherstone	1924	January 23rd, 1936.
John Livingston Rutgers Morgan.....	1900	April 13th, 1935.

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

Vice-Presidents, who have filled the office of President (three vacancies) : *H. E. ARMSTRONG, *SIR WILLIAM J. POPE.

Vice-Presidents, who have not filled the office of President (three vacancies) : *J. DAVIDSON PRATT, *SIR ROBERT ROBERTSON, *R. ROBINSON.

Honorary Secretaries (one vacancy) : *J. W. COOK.

Ordinary Members of Council :—

Town Members (*i.e.* those resident within a radius of 50 miles from Charing Cross) (three vacancies) : *C. K. INGOLD, †R. P. LINSTED, *R. E. SLADE, †JESSIE STEWART.

Country Members (*i.e.* those resident beyond a radius of 50 miles from Charing Cross) (three vacancies) : †H. T. S. BRITTON, †G. R. CLEMO, †F. FAIRBROTHER, †F. B. KIPPING, †E. B. MAXTED, *†T. W. J. TAYLOR, †R. V. WHEELER, †F. J. WILSON.

* Nominated by Council under Bye-Law VI.

† Nominated by Fellows under Bye-Law VI.

The following were formally admitted Fellows of the Chemical Society :—W. A. Cowdrey and A. A. Rawlings.

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

William John Arrol, B.Sc., 25, Dowsett Avenue, Southend-on-Sea.

William Stanley Cheshire Coleman, Felpham Pharmacy, The Broadway, Felpham, Bognor Regis.

William Martin Cox, B.A., B.Sc., Ledsham House, Repton, Derby.

James William Dutton, 32, Cornwall Street, West Hartlepool.

William John Glydon Jones, B.Sc., 32, Bromford Road, Oldbury, Birmingham.

Ronald William McDougald, B.Sc., A.R.C.S., "The Woodlands," Queen's Road, Forest Hill, S.E. 23.

Susil Kumar Mitra, D.Sc., c/o Lloyds Bank, Ltd., 171, Brompton Road, S.W. 3.

William Caird Peek, A.I.C., Browside, Roby, Liverpool.

Maddison Phillipson, 7, West View, Acklam Road, S. Middlesbrough.

Carl F. Prutton, Prof., M.S., Ph.D., Case School of Applied Science, Cleveland, Ohio, U.S.A.

John Harold Putman, 43, St. Paul's Road, Tottenham, N. 17.

Henry Woodward, B.Sc., 224, Gregory Avenue, Selly Oak, Birmingham.

and for the second time in favour of 12 candidates.

Dr. E. W. McClelland and Dr. W. H. J. Vernon were appointed Scrutators to assist in the counting of votes recorded in the election of Ordinary Members of Council (Town and Country).

The following papers were read :—

- “ Progressive elimination of halogen in the hydrolysis of halogen-substituted acetates.”
By H. BROOKE and H. M. DAWSON.
- “ Summary of recent work on methylation of compounds of arsenic, selenium, and sulphur by *Penicillium brevicaulis*.” By F. CHALLENGER.
- “ The action of selenium dioxide on sterols and bile acids. Part II. *apo*Cholic acid and dihydroxycholenic acid. The formation of isomeric dihydroxycholadienic acids.”
By R. K. CALLOW.
-

A meeting under the auspices of the Chemical Society was held on Thursday, March 12th, 1936, in the Chemistry Department of the University of Manchester, when the following papers were read and discussed :—

- “ Studies in the sterol group. Part XXIII. The position of the ethylenic linkage of α -dihydrofucosterol and the identity of fucostanol, stigmastanol, sitostanol, and ostreastanol.” By D. H. COFFEY, I. M. HEILBRON, and F. S. SPRING.
- “ Molecular re-arrangements in polycyclic systems. The Fries reaction on 4-benzoyloxydiphenyl.” By D. H. HEY and E. R. B. JACKSON.
- “ Electrolytic dissociation processes. Part I. The dipole moment of iodine monochloride in solution.” By F. FAIRBROTHER.
- “ The formation of organo-metalloidal and similar compounds by micro-organisms. Part V. Methylated alkyl sulphides.” By F. CHALLENGER and A. A. RAWLINGS.
- “ Syntheses in the phenanthrene series.” By W. F. SHORT.

The meeting was preceded by a meeting of Fellows for the discussion of local policy with the Local Representatives.

A meeting of the Chemical Society, in conjunction with the University of Sheffield Chemical Society, was held in the Chemistry Lecture Theatre of the University, at 5.30 p.m. on Friday, March 13th, 1936, Professor G. M. Bennett being in the Chair. Professor W. N. Haworth, F.R.S., Vice-President of the Society, gave a lecture on “ Carbohydrates ” which was greatly appreciated by the large audience. At the conclusion of the lecture a vote of thanks, proposed by Dr. A. W. Chapman and seconded by Dr. S. Glasstone, was carried with acclamation.

Ordinary Scientific Meeting, Thursday, March 19th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Joseph Bate	1911	21st April, 1935.
William Stevenson	1879	18th February, 1936.

The PRESIDENT announced

1. That the following letter had been received from the Home Office :

*Home Office,
Whitehall.
17th March, 1936.*

SIR,

I have had the honour to lay before The King the Loyal and Dutiful Address of the President, Council and Fellows of the Chemical Society on the occasion of the lamented

death of His late Majesty King George the Fifth and have received The King's Commands to convey to you His Majesty's grateful Thanks for the assurances of sympathy and devotion to which it gives expression.

I am,
Sir,
Your obedient Servant,
JOHN SIMON.

The President of the Chemical Society.

2. That the Council had conveyed the congratulations of the Society to the following Fellows who completed their 50 years of Fellowship on the 4th March, 1936 :

James Henry Allan, Bertram Harvey Hart, Arthur Percy Hoskins, Arthur Pillans Laurie, Oliver Quibell, Francis Napier Sutton, Sydney Williamson, William Thomas Wright, Brougham Young.

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

Michael Henry Miller Arnold, Magdalen College, Oxford.
Hilda Alma Fulford, B.Sc., Chudleigh, Southampton Road, Eastleigh.
Jeremy Hale, B.Sc., The Elms, Harpenden.
William Helmore, Wing Commander, M.Sc., Royal Aircraft Establishment, S. Farnborough.
Reginald Grime Heyes, B.Sc., Ph.D., 14, St. Clement's Road, Wigan.
Frank Ewart Smith, B.Sc., 1, Melville Road, Redland, Bristol.
William George Thomas, B.Sc., Ph.D., A.I.C., 82, Alfred Street, Roath Park, Cardiff.
James Martyn Walter, Ph.D., 51, Malvern Road, Billingham.
John Arthur Valiant Willis, B.Sc., 50, Cecil Avenue, Bournemouth.

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

Léon Flamache, 33, Rue du Prince Albert, Brussels.
A. K. Madhavan Pillai, B.A., M.Sc., The Wilkinson Process Rubber Co., Ltd., Batu Caves, Selangor, F.M.S.

Forms of Recommendation for Fellowship were read for the second time in favour of 12 candidates.

A Joint Discussion with the Biochemical Society on "The Chemistry and Biochemistry of Lipoids" was held and the President was supported on the platform by Mr. H. J. Page, M.B.E., Chairman of the Executive Committee of the Biochemical Society. The following took part :

Professor A. C. Chibnall on "Chemistry and metabolism of plant and insect waxes."
Dr. S. H. Piper on "X-Ray analysis of long chain aliphatic substances."
Dr. J. H. Quastel on "Fatty acid oxidation in the liver."
Professor H. J. Channon on "The liver and the metabolism of fatty acids."
Dr. G. R. Cameron on "Fats and pathology."

The following also joined in the discussion: Professor T. P. Hilditch, Professor J. Kenner, Dr. Ida Smedley Maclean, and Dr. J. C. Smith.

REPORTS ON PROGRESS IN PHYSICS.

Volume II (to December, 1934).

The second of the Physical Society's Reports on Progress in Physics is now ready. The purpose of this report is to endeavour to present to the physicist, who is not necessarily a specialist in any particular branch, a critical and detailed account of recent advances in Physics up to the end of the year 1934. The reports are authoritative and

critical and are contributed by specialists. They represent an endeavour to assist the non-specialist physicist in the difficult task of keeping pace with the growth of our existing knowledge, and it is hoped that they will assist the specialist in any branch by providing him with a convenient conspectus of the most recent work and with a comprehensive bibliography.

A leaflet, giving the price of the volume and list of contents, can be obtained from the Secretary, The Physical Society, 1, Lowther Gardens, Exhibition Road, S.W. 7.

List of papers, or abstracts thereof, received between February 20th and March 19th, 1936. (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.)

- “Monomethyl hexoses. Part II. A revision of the constitutions of the supposed 4-methyl galactose and 4-methyl mannose of Pacsu, and their formulation as 6-methyl galactose and 2-methyl mannose respectively.” By J. MUNRO and E. G. V. PERCIVAL.
- “Studies of the Beckmann change. Part IV. Some effects of substitution on the rate of rearrangement of ketoxime picryl ethers. A suggested mechanism of the transformation.” By A. W. CHAPMAN and F. A. FIDLER.
- “The influence of alkyl groups upon reaction velocities in solution. Part I. The acid-catalysed prototropy of phenyl alkyl ketones.” By D. P. EVANS.
- “The progressive elimination of bromine in the aqueous hydrolysis of sodium bromoacetate.” By H. BROOKE and H. M. DAWSON.
- “The ‘activated-complex’ theory and the influence of solvents on reaction velocity.” By S. GLASSTONE.
- “Chemical constitution and the dissociation constants of monocarboxylic acids. Part V. Further substituted benzoic and phenylacetic acids.” By J. F. J. DIPPY and R. H. LEWIS.
- “Chemical constitution and the dissociation constants of monocarboxylic acids. Part VI. (i) A qualitative discussion of the effects of substituents on the strength of benzoic and phenylacetic acids, and (ii) the correlation of dissociation constants and dipole moment data.” By J. F. J. DIPPY and R. H. LEWIS.
- “Further examples of the use of paramagnetism as a test for free radicals.” By F. L. ALLEN and S. SUGDEN.
- “New method for the conversion of acids into aldehydes.” By J. S. MCFADYEN and T. S. STEVENS.
- “Electrolytic reduction of organic compounds. Part II. Catalytic hydrogenation of sorbic acid at prepared cathodes of nickel and platinum.” By E. ISAACS and C. L. WILSON.
- “A third resinol from Matai (*Podocarpus Spicatus*).” By L. H. BRIGGS and D. A. PEAK.
- “The general mechanism of olefin formation.” By W. TAYLOR.
- “The glucosides of *Strophanthus Emini*.” By I. D. LAMB and S. SMITH.
- “Hydroxy-carbonyl compounds. Part XI. Phosphoryl chloride as a condensing agent.” By (MISS) I. GOODALL and A. ROBERTSON.
- “Glyceryl ethers of resacetophenone.” By D. R. NADKARNI and T. S. WHEELER.
- “The constitution of oroxylin-A, a yellow colouring matter from the root-bark of *Oroxylum indicum* Vent.” By R. C. SHAH, C. R. MEHTA, and T. S. WHEELER.
- “The dipole moments of certain polynitro-compounds.” By H. O. JENKINS.
- “1-Methylbenzthiazole.” By J. FRASER and Miss F. M. HAMER.
- “The slow ionisation of amines in alcohol.” By A. G. OGSTON.
- “ α -Cyperone, a sesquiterpene ketone from the oil of *Cyperus rotundus*.” By A. E. BRADFIELD, B. H. HEGDE, B. S. RAO, J. L. SIMONSEN, and (in part) A. E. GILLAM.
- “The oxidation of the silicon hydrides. Part II.” By H. J. EMELÉUS and K. STEWART.
- “Oxidation of acetaldehyde and benzaldehyde by hydrogen peroxide in presence of selenium oxychloride.” By J. B. FIRTH and H. H. GETHING.

- "Electrolytic dissociation processes. Part I. The dipole moment of iodine monochloride in solution." By F. FAIRBROTHER.
- "Optical activity in relation to tautomeric change. Part VI. Comparison of the rates of racemisation and of bromination of a ketone. A further study under conditions of basic catalysis." By S. K. HSÜ and C. L. WILSON.
- "The hydrogenation of $\Delta^9:10$ -octadecenyl $\Delta^9:10$ -octadecenoate (oleyl oleate)." By T. P. HILDITCH and H. PAUL.
- "Constituents of the bark of *Zanthoxylum Americanum* Mill. Part I. Xanthoxyletin." By (Miss) J. C. BELL, A. ROBERTSON, and T. S. SUBRAMANIAM.
- "Studies in the toluene series. Part V. Sulphinic and sulphonic acids of the mono- and di-chlorotoluenes." By W. A. SILVESTER and W. P. WYNNE.
- "Studies in the toluene series. Part VI. Nitration of the 4-chlorotoluene-2- and -3-sulphonic acids, 3-chlorotoluene-6-sulphonic acid and their sulphonyl chlorides." By W. P. WYNNE.
- "Studies in the toluene series. Part VII. Nitration of the 2-chlorotoluene-4- and -5-sulphonic acids and their sulphonyl chlorides." By (Miss) E. G. TURNER and W. P. WYNNE.
- "The thermal decomposition of sodium and potassium azides." By W. E. GARNER and D. J. B. MARKE.
- "Higher aliphatic compounds. Part VI. The existence of compounds in binary systems from palmitic, margaric, stearic, tricosanoic, and tetracosanoic acids." By J. C. SMITH.

ADDITIONS TO THE LIBRARY.

I. Donations.

- BJERRUM, NIELS. Inorganic chemistry. London 1936. pp. x + 317. ill. 7s. 6d. (*Recd.* 2/3/36.) From the Publishers: Messrs. William Heinemann.
- BRITISH PLASTICS YEAR BOOK 1936. London 1936. pp. 582. ill. (*Reference.*) 15s. net. From the Publishers: The Plastics Press.
- CONGRESO INTERNACIONAL DE QUIMICA PURA Y APLICADA, IX. Madrid, 5-11 Abril 1934. Conferencias, memorias y comunicaciones. Vols. II, III, and IV. Madrid [1935]. pp. 535, 554, 613. ill. (*Reference.*) From the General Secretary.
- HOLDEN, J. T., and VOWLER, JOHN N. The technology of washing. London 1935. pp. viii + 184. ill. (*Recd.* 9/3/36.) From the Publishers: The British Launderers' Research Association.
- MITCHELL, C. AINSWORTH. The scientific detective and the expert witness. 2nd edition. Cambridge 1931. pp. xiv + 242. ill. 3s. 6d. net. (*Recd.* 26/2/36.) From the Author.
- NATIONAL SMOKE ABATEMENT SOCIETY. Journal. Vol. VII, etc. Manchester 1936 +. (*Reference.*) 2s. 6d. per annum. From the Society.
- WILLIS, L. G. [Compiler.] Bibliography of references to the literature on the minor elements and their relation to the science of plant nutrition. New York 1935. pp. 455. ill. [In mimeograph form.] (*Reference.*) From the Chilean Nitrate Educational Bureau.

II. By purchase.

- ANNALS OF SCIENCE: a quarterly review of the history of science since the Renaissance. Vol. I, etc. London 1936 +. (*Reference.*) 20s. per annum.
- BABLIK, HEINZ. Galvanizing. 2nd edition. Translated by MARGARET JUERS-BUDICKY. London 1936. pp. viii + 367. ill. 20s. net. (*Recd.* 20/2/36.)
- BAUER, O., ARNDT, H., and KRAUSE, W. Chromium plating, with special reference to its use in the automobile industry. Translated by E. W. PARKER. With introductory chapter "Electroplating practice and the properties of chromium and nickel coatings." By A. W. HOTHERSALL. London 1935. pp. viii + 266. ill. 25s. net. (*Recd.* 20/2/36.)
- BOCKEMÜLLER, WILHELM. Organische Fluorverbindungen. (Sammlung, N.F. Heft 28.) Stuttgart 1936. pp. 100. (*Reference.*) M. 7.20.
- BODENBENDER, H. G. Zellwolle. Kunstspinnfasern: Vistra, Flox, Cuprama, Spinstro, Zellvag, Aceta, Rhodia-Faser, Fliro, Drawinella, Sniafiocco, Fibro, Dupont, Rayon Staple Fibre, Textra etc. ihre Herstellung, Verarbeitung und Verwendung. Berlin-Steglitz. 1936. pp. xvi + 480. ill. M. 18. (*Recd.* 27/2/36.)
- DAVIES, W. L. The chemistry of milk. London 1936. pp. xii + 522. ill. 25s. net. (*Recd.* 20/2/36.)

FAIRLIE, ANDREW M. Sulfuric acid manufacture. (American Chemical Society Monograph Series.) New York 1936. pp. 669. ill. \$9.75. (*Recd.* 24/2/36.)

GARDNER, HENRY A. Physical and chemical examination of paints, varnishes, lacquers, and colors. 7th edition. Washington 1935. pp. 1464. ill. \$11. (*Recd.* 21/2/36.)

GAY, [L.] Distillation et rectification. Paris 1935. pp. viii + 661. ill. 115 fr. (*Recd.* 27/2/36.)

HARRIS, LESLIE J. Vitamins in theory and practice. Cambridge 1935. pp. xx + 240. ill. 8s. 6d. net. (*Recd.* 21/2/36.)

HEISE, Kurt. Titanweiss. Dresden 1936. pp. viii + 96. ill. M. 7. (*Recd.* 9/3/36.)

HILDEBRAND, JOEL H. Solubility of non-electrolytes. 2nd edition. (American Chemical Society Monograph Series.) New York 1936. pp. 203. ill. \$4.50. (*Recd.* 20/2/36.)

LETTRE, H., and INHOFFEN, H. H. Über Sterine, Gallensäuren und verwandte Naturstoffe, Herzgifte, Hormone, Saponine und Vitamin D. (Sammlung, N.F. Heft 29.) Stuttgart 1936. pp. 320. (*Reference.*) M. 26.20.

NIEUWENBURG, C. J. VAN, and DULFER, G. A short manual of systematic qualitative analysis by means of modern drop reactions. 2nd edition. Amsterdam 1935. pp. 96. Fl. 3.75. (*Recd.* 20/2/36.)

OBBERMER, E. Individual health: a technique for the study of individual constitution and its application to health. Vol. I. Biochemical technique. By E. OBBERMER and R. MILTON. London 1935. pp. xvi + 244. ill. 15s. net. (*Recd.* 21/2/36.)

PREGL, FRITZ. Die quantitative organische Mikroanalyse. 4th edition. By HUBERT ROTH. Berlin 1935. pp. xiv + 328. ill. M 26. (*Recd.* 9/3/36.)

RÜDISÜLE, A. Nachweis, Bestimmung und Trennung der chemischen Elemente. I. Nachtragsband. (Part i.) Bern 1936. pp. lxiv + 1136. ill. M. 60. (*Recd.* 29/2/36.)

SUTHERLAND, G. B. B. M. Infra-red and Raman spectra. London 1935. pp. xii + 112. ill. 3s. net. (*Recd.* 20/2/36.)

III. Pamphlets.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 391—1936. Tung oil, type F. (Revised.) pp. 25. ill.

— — — No. 598—1936. Sampling and examination of bituminous road mixtures. pp. 39. ill.

— — — No. 615—1936. Kohlrausch flasks. pp. 10. ill.

— — — No. 650—1936. Castor oil ("firsts" quality). pp. 23. ill.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 651—1936. Crude maize oil. pp. 19. ill.

— — — No. 652—1936. Crude palm kernel oil. pp. 18. ill.

— — — No. 653—1936. Crude soya bean oil. pp. 20. ill.

— — — No. 654—1936. Perilla oil. pp. 20. ill.

— — — No. 655—1936. Refined cottonseed oil. pp. 19. ill.

— — — No. 656—1936. Sesame oil. pp. 21. ill.

— — — No. 658—1936. Distillation apparatus. pp. 15.

FARMER, ROBERT HARVEY. Further contributions to the knowledge of gas-exsorption from liquids. London 1935. pp. 62. ill.

GENERAL MEDICAL COUNCIL. *British Pharmacopœia Commission*. Reports of Committees. 9. Collected reports of committees on material prepared for an addendum to the British Pharmacopœia, 1932. London 1936. pp. 65.

MARTINEAU, LOUIS. Contribution à l'étude de la catalyse. Lille 1936. pp. xvi + 129. ill.

MINES DEPARTMENT. SAFETY IN MINES RESEARCH BOARD. Paper No. 94. The deterioration of colliery winding ropes in service. By S. M. DIXON, M. A. HOGAN, and S. L. ROBERTON. London 1936. pp. iv + 108. ill.

ORELLA, PLUTARCO R. Contribucion al estudio de la investigacion toxicologica del acido cianhidrico. (Modificación del procedimiento clásico de Chelle.) La Plata 1934. pp. 60. ill.

RUSSELL, SIR JOHN. La transition d'un art à une science: l'étude de la culture agricole. Lisboa 1935. pp. 35. ill.

SMITH, G. FREDERICK. Dehydration studies using anhydrous magnesium perchlorate. Columbus [n.d.]. pp. viii + 59. ill.

— — — Ortho-phenanthroline: a high potential, reversible, oxidimetric indicator, its preparations in various forms and numerous applications in analytical procedures. Columbus [n.d.]. pp. 35. ill.

— — — Perchloric acid. Authentic, scientific and practical considerations relative to its use as an important research and routine analytical chemical reagent with special reference to rapidity, accuracy and economy. 3rd edition. Columbus 1934. pp. 72. ill.

— — — Ceric sulfate. The use of standard ceric sulfate as modern analytical chemistry's most recently developed widely applicable oxidising agent. 3rd edition. Columbus 1935. pp. 64. ill.

SMITH, G. FREDERICK. *Mixed perchloric, sulfuric, and phosphoric acids and their applications in analysis.* Columbus 1935. pp. viii + 70. ill.

— Analytical applications of periodic acid and iodic acid and their salts. 3rd edition. Columbus 1936. pp. 68. ill.

SMITH, WATSON, Jun. *Zur Kenntnis der Ester von Kohlenhydraten.* Zürich 1908. pp. 100.

SOCIETY OF PUBLIC ANALYSTS AND OTHER ANALYTICAL CHEMISTS. *Bibliography of the more important heavy metals occurring in food and biological material. (For the years 1921 to 1933 inclusive.)* London 1934. pp. 30.

UNITED PLANTERS' ASSOCIATION OF SOUTH-

ERN INDIA. *Tea Scientific Department.* Bulletins Nos. 4 (2nd edition), 6, 7, and 8. Madras 1934—35.

UNITED STATES. *Department of Agriculture.* Technical Bulletin No. 484. *The composition and constitution of the colloids of certain of the great groups of soils.* By H. G. BYERS, L. T. ALEXANDER, and R. S. HOLMES. Washington 1935. pp. 38.

— — Technical Bulletin No. 490. *Explosibility of agricultural and other dusts as indicated by maximum pressure and rates of pressure rise.* By P. W. EDWARDS and L. R. LEINBACH. Washington 1935. pp. 24. ill.

VAUBEL, WILHELM. *Das Stickstoffatom.* Giessen 1891. pp. 8. ill.

FORTHCOMING MEETINGS OUTSIDE LONDON.

BRISTOL.

Anniversary Meetings, April 16th and 17th, 1936.

Thursday, April 16th :—

- 3.45 p.m. Reception by the Vice-Chancellor of the University in the Reception Room. Tea will be provided.
- 4.15 p.m. Business portion of the meeting (open to Fellows only) in the Small Lecture Theatre (Chemistry Department).
- 4.45 p.m. Presentation of the Longstaff Medal for 1936 to Professor George Barger and of the Harrison Memorial Prize for 1935 to Dr. Leslie E. Sutton, followed by the Presidential Address entitled "Structural Chemistry Old and New" to be given by the President in the Large Lecture Theatre (Chemistry Department).
- 7.30 for 8 p.m. Reception and Anniversary Dinner in the Great Hall of the University. The Right Honourable Viscount Bledisloe, P.C., G.C.M.G., K.B.E., will be the principal guest of the evening. The price of the tickets for lady or gentleman is 10s. 6d. each (including gratuities). Application for tickets should be accompanied by a remittance for the number of tickets required. Separate tables will be provided as far as possible for members and their friends who desire to sit together. As Easter falls on April 12th and 13th, it will facilitate arrangements if early application for tickets be made. Applications should reach the Assistant Secretary in any case not later than first post on Monday, April 6th.

Free transport between Wills Hall and the University will be provided for those staying at Wills Hall and attending the Annual General Meeting and Anniversary Dinner on April 16th.

Friday, April 17th :—

- 10.15 a.m. Meeting of Local Representatives in the Chemistry Lecture Theatre.
- 11.30 a.m. Hantzsch Memorial Lecture by Professor T. S. Moore in the H. H. Wills Physics Laboratory.
- 1.0 p.m. Luncheon in the Great Hall. The price of the luncheon will be 2s. 6d., including gratuities. Fellows and others wishing to attend the luncheon are requested to inform the Assistant Secretary not later than Monday, April 6th.
- 2.30 p.m. Visits to :—
- (a) The University of Bristol Agricultural Research Station at Long Ashton. (Cost of transport, 1s. 6d.)
 - (b) The Works of the National Smelting Co., Ltd., at Avonmouth. (Cost of transport, 1s. 6d.)
 - (c) The Chocolate Factory of Messrs. J. S. Fry & Sons, Ltd., at Somerdale. (Cost of transport, 1s. 6d.)

In addition to the above, the presence of those attending the Anniversary Meetings will be welcomed at the Chemistry and Physics Laboratories of the University on Friday between 10 and 11.15 a.m. and after luncheon.

Those desiring to take part in any of these visits are requested to communicate with the Assistant Secretary.

Accommodation.

The University of Bristol has kindly placed the Wills Hall of Residence (some 1½ miles distant from the University) at the disposal of those attending the Anniversary Meetings. The price for bath, bed, and breakfast is eight shillings (8s.). This accommodation, however, is not available for ladies.

Accommodation can also be obtained at the following hotels in Bristol; Fellows and others are asked to make their own arrangements and are informed that early application is desirable.

Royal Hotel (College Green). Charge for bath, bedroom, and breakfast : single room, 10s. 6d.; double room, 20s.

Grand Hotel (centre of City). Charge for bath, bedroom, and breakfast : single room, 9s. 6d.; double room, 19s.

Clifton Down Hotel (Clifton, Bristol, 8). Charge for bath, bedroom, and breakfast : single room, 8s. 6d.; double room, 17s.

Bobbys Hotel (Elmdale Road). Charge for bath, bedroom, and breakfast : single room, 8s. 6d.; double room, 17s. (Two minutes from the University.)

Grand Spa Hotel (Clifton, Bristol, 8). Charge for bath, bedroom, and breakfast : single room, 9s. 6d.; double room, 19s.

Railway Facilities.

Fellows and others travelling by rail to attend the Anniversary Meetings of the Society in Bristol will be able to take advantage of the Monthly Tickets at the ordinary single fare and one-third for the double journey (fractions of 3d. taken as 3d., and minimum fares being 3s. 9d. first class, and 2s. 6d. third class). These tickets are available for return on any day within one month. The cheap return fares from London to Bristol are 30s. first class and 20s. third class. Fellows and others should purchase their own tickets, but seats will be reserved free of charge for those who notify the Assistant Secretary of their intention to travel by train, provided that the number for any particular train is not less than eight.

NEWCASTLE AND DURHAM.

Fellows are invited to attend the Thirty-Fourth Bedson Lecture to be held in the Chemistry Lecture Theatre, Armstrong College :—Friday, May 8th, 1936, at 6.30 p.m. Lecture on "The Chemical Properties of Metals," by Professor C. H. Desch, D.Sc., F.R.S.

FORTHCOMING MEETINGS IN LONDON.

Thursday, April 2nd, 1936, at 8 p.m.

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

- “Interaction of carbon monoxide and alcohols. Part II. Synthesis of propionic and *iso*-butyric acids. Part III. Synthesis of methylethylacetic and pivalic acids.” By D. V. N. HARDY.
- “The synthesis of umbellularic acid; a synthetic proof of the presence of the *cyclo*propane bridge in the terpenes of the thujane series.” By H. N. RYDON.
- “Direct production of organic compounds containing artificial radio-elements.” By E. GLUCKAUF and J. W. J. FAY.

Thursday, May 7th, 1936, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 14th, 1936, at 8 p.m.

Lecture entitled “Modern Chemical Nomenclature” by Dr. Clarence Smith in the Meeting Hall of the Institution of Mechanical Engineers, Storey’s Gate, Westminster, S.W. 1.

Thursday, May 21st, 1936, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 28th, 1936, at 5.30 p.m.

Fifth Pedler Lecture entitled “Synthesis in Biochemistry,” by Professor R. Robinson, D.Sc., F.R.S., in the Meeting Hall of the Institution of Mechanical Engineers, Storey’s Gate, Westminster, S.W. 1.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, April 2nd, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Joshua Knowles.....	1879	December 28th, 1935.
Charles Edward Potter	1883	May 29th, 1935.
William Charles Young	1873	October 11th, 1935.

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

Wilfrid James Evans, Ph.D., A.I.C., Penmon, Portmore Park, Weybridge.
Reginald Dean Mason, M.Sc., 56, Blackbrook Lane, Bickley.
John Wilson Warburton, Moorfield, Clayton Road, Leaget Green, Bradford.

and for the second time in favour of 11 candidates.

The following papers were read :

- “Interaction of carbon monoxide and alcohols. Part II. Synthesis of propionic and *isobutyric* acids. Part III. Synthesis of methylethylacetic and pivalic acids.”
By D. V. N. HARDY.
- “The synthesis of umbellularic acid; a synthetic proof of the presence of the *cyclopropane* bridge in the terpenes of the thujane series.” By H. N. RYDON.
- “Direct production of organic compounds containing artificial radio-elements.” By E. GLUCKAUF and J. W. J. FAY.

The Anniversary Dinner of the Society was held in the Great Hall of the University of Bristol on Thursday, 16th April, 1936, at 7.30 for 8 p.m. The President, Professor N. V. SIDGWICK, presided, the number present being 158. The Rt. Hon. Viscount Bledisloe was the principal guest of the evening, and among other guests present were Viscountess Bledisloe, Dr. Stanley H. Badock, Treasurer and Pro-Chancellor of the University of Bristol, and Mrs. Badock, the Lord Mayor and Lady Mayoress of Bristol, the Sheriff of Bristol, Sir Richard Gregory, Bt., and Lady Gregory, Dr. Robert H. Pickard (President, The Institute of Chemistry and Chairman of The Chemical Council), Mr. W. A. S. Calder (President, The Society of Chemical Industry), Dr. G. Roche Lynch (President, Society of Public Analysts), Mr. S. Robson (Director of the National Smelting Co., Ltd.), Mr. T. P. Rogers (Master of the Society of Merchant Venturers), Miss Winifred Shapland (Registrar and Secretary of the University of Bristol), Professor B. T. Barker (Director of the National Fruit and Cider Institute), Professor A. M. Tyndall and Professor Sydney Young.

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

THE CITY OF BRISTOL.

By W. A. S. CALDER, Esq., M.I.Chem.E., F.I.C., President of the Society of Chemical Industry.

Response: The Right Honourable The Lord Mayor of Bristol, Alderman CHARLES T. BUDGETT, J.P.

THE CHEMICAL SOCIETY.

By The Right Honourable Viscount BLEDISLOE, P.C., G.C.M.G., K.B.E.

Response : The President, Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S.

THE UNIVERSITY OF BRISTOL.

By Professor F. G. DONNAN, C.B.E., D.Sc., LL.D., F.R.S.

Response : Dr. STANLEY H. BADOCK, LL.D., J.P., Pro-Chancellor and Treasurer.

THE GUESTS.

By Professor F. FRANCIS, D.Sc., Ph.D.

Responses : Dr. ROBERT H. PICKARD, D.Sc., Ph.D., F.R.S., President of The Institute of Chemistry of Great Britain and Ireland, and Chairman of The Chemical Council, and

Sir RICHARD GREGORY, Bt., D.Sc., LL.D., F.R.S.

The Hantzsch Memorial Lecture was held in the H. H. Wills Physics Lecture Theatre of the University of Bristol on Friday, 17th April, 1936, at 11.30 a.m., Professor N. V. Sidgwick, President, occupying the Chair.

After a brief introduction, the President called on Professor T. S. Moore to deliver the Hantzsch Memorial Lecture. At the conclusion of the lecture, Professor R. Robison proposed a vote of thanks to Professor Moore. This was seconded by Professor W. E. Garner, supported by the President, and carried with acclamation, the lecturer making brief acknowledgment.

Statement to Authors.

The Publication Committee issues the following statement for the information of Authors of papers in the Journal :—

Every paper received by the Society is sent to two referees.

If the reports of both referees are entirely favourable, the paper is brought to the next meeting of the Publication Committee to be passed for publication.

Otherwise, the author is given an opportunity either of amending the paper in accordance with any comments or suggestions put forward by the referees or of expressing his own views on matters raised by them. The Publication Committee then considers whether the author has fairly met the suggestions of the referees or, alternatively, has made out a satisfactory case for not accepting particular suggestions, and decides whether the paper shall be passed for publication, referred back to the author for further amendment, or rejected. In cases of doubt the Committee seeks the advice of a third referee.

It is recognised that the author is entitled to his own views on controversial questions, and the Publication Committee always gives sympathetic consideration to the author's opinions when these are in conflict with those of the referees.

The primary object of the above procedure is to assist the Council in maintaining the high standard of the scientific matter in the Journal with economy in expenditure, but the system is also of benefit to authors since it not infrequently helps them to eliminate error and ambiguity from their papers. To ensure the smooth working of the scheme, as well as to avoid delay in publication, it is very desirable that the comments of referees should be carefully considered by authors.

List of papers, or abstracts thereof, received between March 19th, and April 16th, 1936. (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.)

“ X-Ray crystallographic measurements on phrenosinic (cerebronic) acid and its oxidation product.” By (Miss) D. M. CROWFOOT.

- “Mutually surface-active liquids. Mixtures of sulphuric acid with nitrobenzene and ether.”
By K. C. BAILEY.
- “Polycyclic aromatic hydrocarbons. Part XIV. A new synthesis of 3:4-benzphenanthrene.” By C. L. HEWETT.
- “The energetics of catalysis. Part VI. The kinetics of hydrogenation processes in liquid systems.” By E. B. MAXTED and C. H. MOON.
- “A synthesis of *cis*- and *trans*-*dl*-1-isopropylcyclopropane-1:2-dicarboxylic acids.” By E. O. PHILLIPS, G. R. RAMAGE, and J. L. SIMONSEN.
- “The electrolytic reduction of vasicine.” By K. S. NARANG and J. N. RÂY.
- “The crystalline structure of the sugars. Part III. Ascorbic acid and related compounds.” By E. G. COX and T. H. GOODWIN.
- “The resolution of methyl- α -furylcarbinol.” By D. I. DUVEEN and J. KENYON.
- “The influence of solvents and of other factors on the rotation of optically active compounds. Part XXXIII. The behaviour of β -octyl alcohol and of β -octyl acetate.”
By T. S. PATTERSON and (Miss) G. M. HOLMES.
- “The mesomeric effect of the dimethylamino-group in dimethylaniline, and the nature of its interaction with halogen groups.” By R. J. B. MARSDEN and L. E. SUTTON.
- “The lupin alkaloids. Part IX. The synthesis of 5:5'-dimethyldi-(1:2)-pyrrolidine.”
By G. R. CLEMO and T. P. METCALFE.
- “The synthesis of substituted acridines as possible antimalarials.” By G. R. CLEMO and W. HOOK.
- “The synthesis of α -picolyliisoquinolines as possible antimalarials. Part I.” By G. R. CLEMO, H. MCILWAIN, and W. MCG. MORGAN.
- “Rhythmic turbidity in the precipitation of barium sulphate.” By E. B. R. PRIDEAUX and G. C. E. CARTER.
- “Some binary systems of organic compounds. Thermal analyses and specific refractivities.” By W. R. BURNHAM and W. M. MADGIN.
- “The thermal decomposition of silver oxalate. Part II. Theoretical.” By J. Y. MACDONALD.
- “Studies in the chemistry of amidines. Part I. The synthesis of *s*-benzenyldiphenylamidines from benzotrichloride and primary arylamines, and some new reactions of amidines.” By S. P. JOSHI, A. P. KHANOLKAR, and T. S. WHEELER.
- “Studies in the chemistry of amidines. Part II. The synthesis and tautomerism of substituted benzenyldiphenylamidines of the type $\text{PhC}(\text{:NR}_1)\text{-NHR}_2$.” By A. P. KHANOLKAR, S. P. JOSHI, and T. S. WHEELER.
- “The action of amines upon esters. Part I.” By H. IRVING.
- “The rotatory dispersion and circular dichroism of 2:2-dinitrocamphane in the ultraviolet.” By S. MITCHELL and R. R. GORDON.
- “Ethyl esters of β -arylaminoacrotonic acids.” By S. COFFEY, J. K. THOMSON, and F. J. WILSON.
- “Primary photochemical reactions. Part IX. The photochemical decomposition of *l*-menthone and 3-methylcyclohexanone vapours.” By C. H. BAMFORD and R. G. W. NORRISH.
- “The constituents of natural phenolic resins. Part V. Synthesis of *dl*-matairesinol dimethyl ether and *dl*-cubebinolide.” By R. D. HAWORTH, W. KELLY, and T. RICHARDSON.
- “Studies in the cyclohexane series. Part II. The formation of isomeric cyanoarylamino-methylcyclohexanes in the condensation of the cyanohydrins of the methylcyclohexanones with arylamines.” By M. W. BUKSH, R. D. DESAI, R. F. HUNTER, and M. HUSSAIN.
- “Fused carbon rings. Part X. Some fundamental properties of the 0:3:3-bicyclo-octane ring.” By J. W. BARRETT and R. P. LINSTAD.
- “Fused carbon rings. Part XI. The action of aluminium chloride on decalin.” By R. L. JONES and R. P. LINSTAD.
- “The direct synthesis of 2-halogenobenzanthrones.” By I. M. HEILBRON, R. N. HESLOP, and F. IRVING.

- "Studies in the sterol group. Part XXII. 3-Chloro*allonor*cholic acid and its epimeride." By T. BARR, I. M. HEILBRON, and F. S. SPRING.
- "Studies in the sterol group. Part XXIII. The location of ethenoid linkage of α -dihydrofucosterol and the identity of sitostanol, fucostanol, stigmastanol and ostreastanol." By D. H. COFFEY, I. M. HEILBRON, and F. S. SPRING.
- "Experiments on the synthesis of substances related to the sterols. Part IX." By R. ROBINSON and J. WALKER.
- "Experiments on the synthesis of substances related to the sterols. Part X. Condensation of furfurylidenetetralone with ethyl acetoacetate and analogous studies." By D. A. PEAK, R. ROBINSON, and J. WALKER.
- "Experiments on the synthesis of substances related to the sterols. Part XI. The constitution of the condensation products from acetyl*cyclopentene* or acetyl*cyclohexene* and methoxytetralone." By (MISS) D. M. CROWFOOT, W. S. RAPSON, and R. ROBINSON.
- "Experiments on the synthesis of substances related to the sterols. Part XII. Some hydrochrysene derivatives." By D. A. PEAK and R. ROBINSON.
- "Experiments on the synthesis of substances related to the sterols. Part XIII. Some hydro*cyclopentenophenanthrene* derivatives." J. R. HAWTHORNE and R. ROBINSON.
- "The electrolytic reduction of vasicine." By K. S. NARANG and J. N. RAY.
- "Propionic acid as a solvent." By J. C. SMITH.
- "The interaction of arylsulphonylphenylhydrazines with bromine." By F. BELL.
- "The configuration of heterocyclic compounds. Part IV. The optical resolution of 10-phenylphenoxarsine-2-carboxylic acid." By (MISS) M. S. LESSLIE and E. E. TURNER.
- "Migration reactions in polycyclic systems. Part I. The Fries rearrangement of 4-benzoyloxydiphenyl." By D. H. HEY and E. R. B. JACKSON.
- "The constitution of the purine nucleosides. Part IV. Adenosine and related nucleotides and co-enzymes." By J. M. GULLAND and E. R. HOLIDAY.
- "Crystalline 6-methylglucose: a new synthesis." By D. J. BELL.
- "Some esters of titanium." By J. S. JENNINGS, W. WARDLAW, and W. J. R. WAY.
- "An indicator method of detecting bromine in nitrous-hydrobromic acid mixtures." By G. J. G. MILTON and T. H. READE.
- "Chemiluminescent organic compounds. Part I. Isomeric simple and complex hydrazides of phthalic acid; mode of formation of phthalazine and *isoindole* rings." By H. D. K. DREW and H. H. HATT.
- "The constitution of complex metallic salts. Part IV. The constitution of certain bridged dipalladium derivatives. A novel type of tautomerism." By F. G. MANN and D. PURDIE.
- "The photochemical oxidation of formaldehyde and acetaldehyde." By J. E. CARRUTHERS and R. G. W. NORRISH.
- "The caryophyllenes. Part IV." By G. R. RAMAGE and J. L. SIMONSEN.
- "Resolution of an allene hydrocarbon into optical antipodes by asymmetric catalysis." By P. MAITLAND and W. H. MILLS.
- "Synthesis of some 1-phenylnaphthalenes." By W. N. HOWELL and A. ROBERTSON.
- "Molecular dissymmetry due to symmetrically placed hydrogen and deuterium. Part I. The resolution of pentadeuterophenylbenzylamine." By G. R. CLEMO and A. MCQUILLEN.
- "The condensation of deoxybenzoin with aromatic aldehydes and ketones. Part I. Condensation with salicylaldehyde." By D. W. HILL.
- "The rate of reactions in liquid systems." By T. S. WHEELER.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, MAY 7TH, 1936.

ANDERSON, HUGH DAVID, Oriel College, Oxford. British. Student. I desire to use the Library. Date of birth April 25th, 1915. (*Signed by*) D. Ll. Hammick, N. V. Sidgwick, C. N. Hinshelwood.

ARNOLD, MICHAEL HENRY MILLER, Magdalen College, Oxford. British. Undergraduate. Demy of Magdalen College, Oxford. Student in Final Honours, School of Chemistry, Oxford University. R. P. Bell and M. H. M. Arnold, *J.C.S.*, 1935, 1432. Date of birth Aug. 8th, 1915. (*Signed by*) F. W. Crossley-Holland, F. M. Brewer, S. G. P. Plant.

ARROL, WILLIAM JOHN, 25, Dowsett Avenue, Southend-on-Sea, Essex. British. Research Student. B.Sc. (London). Date of birth July 25th, 1915. (*Signed by*) H. D. K. Drew, W. H. Patterson, F. A. Paneth.

BLENCH, RONALD OLIVER, "Eldon House," South Parade, Whitley Bay, Northumberland. British. Analytical Chemist (Foodstuffs, Oils, Fats, and Waxes). Associate of Institute of Chemistry (A.I.C.). Six years experience in Industrial Chemistry, specialising in above branches for Co-operative Wholesale Society, Ltd. Original work published in *Journ. Soc. Chem. Ind.* Date of birth June 5th, 1912. (*Signed by*) Richard Raper, R. Leslie Collett, E. C. Edgar.

COLEMAN, WILLIAM STANLEY CHESHIRE, Felpham Pharmacy, The Broadway, Felpham, Bognor Regis, Sussex. British. Chemist and Druggist. M.P.S. (Member of the Pharmaceutical Soc. of Gt. Britain). Student, Derby Technical College, Derby (Botany, Physics. Inorganic and Organic Chemistry). Student, Chelsea Polytechnic (Pharmaceutical and Organic Chemistry, Pharmacognosy, etc.). (*Signed by*) C. Morton, Jos. Yates, E. A. Seeley.

COOPER, JOSEPH ARTHUR, "Cranford," Oxford Street, Rotherham. British. Chemist. Five years Parkgate Iron & Steel Co., Ltd.; two years Partington Steel & Iron Co.; twelve and a half years Chemist, Rotherham Corporation Electricity Department. In order to obtain publications so as to keep abreast of latest research, etc., and use of Library. (*Signed by*) James H. Kershaw, Ernest Witham, John A. Jenkins.

COX, WILLIAM MARTIN, Ledsham House, Repton, Derby. British. Schoolmaster. B.A. (1st Class Hons., Oxford); B.Sc. (Oxford) (Supplementary Biochemistry). At present Sixth Form Chemistry Master, Repton School. Reason for desiring admission: to receive the *Journal*. *J.C.S.*, 1933, 118. (*Signed by*) J. H. Wolfenden, E. J. Bowen, C. N. Hinshelwood.

CROSS, NORMAN COLMAN, Henderson Hall, Cochrane Park, Newcastle-upon-Tyne, 6 (17, Osborne Terrace, Leeholme, Bishop Auckland). British. Student in Chemistry, Armstrong College, Newcastle-upon-Tyne, 2. In order to receive the *Journal* of the Society. Date of birth July 16th, 1915. (*Signed by*) R. D. Haworth, G. R. Clemo, Richard Raper.

DAVEY, WILLIAM, 168, Barrow Hill, Chesterfield, Derbyshire. British. Student in Chemistry, University College, Nottingham. I wish to receive the *Journal*, attend the meetings and use the Library. Date of birth June 15th, 1917. (*Signed by*) F. S. Kipping, B. D. Shaw, John C. Roberts, F. C. Laxton, J. B. Firth.

DAVISON, WILLIAM, The Old House, Potters Heath, Welwyn, Herts. British. Managing Director, Technical Products, Ltd. B.Sc. (Hons.), London; F.I.C. 1924-28, in charge, Chemical Department, Shell-Mex, Ltd. 1928-36, Managing Director, Technical Products, Ltd., responsible for the development of by-products from petroleum, including all technical research involved. (*Signed by*) J. Kewley, A. E. Dunstan, Norman E. Wood.

DUTTON, JAMES WILLIAM, 32, Cornwall Street, West Hartlepool, Co. Durham. British. Analyst. Served two and a half years at Cerebos, Ltd., Greatham, doing general analyses. Employed for the past thirteen years by I.C.I. (Fertiliser and Synthetic Products), Ltd., in Research Department, as analyst, specialising particularly in the analysis of fuels. (*Signed by*) M. P. Applebey, J. S. Dunn, B. W. Bradford.

FAY, JAMES WILLIAM JOHN, "Edelweiss," 292, Fulham Palace Road, S.W. 6. English. A.R.C.S., B.Sc. (Chem.) at Royal College of Science, London. Research Student and Student Demonstrator, Physical and Inorganic Chemistry Dept., Royal College of Science, S.W. 7. Date of birth May 25th, 1912. (*Signed by*) James C. Philip, A. A. Eldridge, J. S. Anderson.

FULFORD, HILDA ALMA, "Chudleigh," Southampton Road, Eastleigh, Hants. British. B.Sc., London University (Bedford College). Science Teacher, 1931-36. (*Signed by*) James F. Spencer, Mary S. Lesslie, E. E. Turner, C. G. Trew.

GARWOOD, ROBERT FRANCIS, 41, Munster Gardens, Palmers Green, N. 13. British.

Research Student. B.Sc. (Special), 1st Class Hons. Chemistry, London University, 1935. At present studying for Ph.D. degree at Queen Mary College, London University. Date of birth July 16th, 1914. (*Signed by*) J. R. Partington, H. D. K. Drew, F. Sherwood Taylor.

GIBSON, HARRY BAXTER, "Sunnybank," Oakenshaw Lane, Walton, Wakefield. British. B.Sc. (2nd Class Hons.), Leeds University. Associate of the Institute of Chemistry. Research Student. Date of birth July 6th, 1913. (*Signed by*) Frederick Challenger, W. A. Wightman, F. R. Goss, J. W. Baker, H. Burton, E. Rothstein.

GILLAM, ALBERT EDWARD, 4, Buckingham Grove, Timperley, Cheshire. British. Lecturer in Chemical Spectroscopy, Manchester University. M.Sc. (Liverpool), F.I.C. (*Signed by*) D. H. Hey, F. Fairbrother, I. M. Heilbron.

HALE, JEREMY, The Elms, Harpenden, Herts. British. Research Student. B.Sc. (London). Studied Chemistry at University College, London. Took B.Sc. 1935 and was awarded Neil Arnott Studentship. Now doing research at University College. (*Signed by*) F. G. Donnan, L. F. Gilbert, W. Rogie Angus.

HARROD, DOUGLAS CHARLES, 207, New Kings Road, Parsons Green, S.W. 6. British. Teacher. B.Sc. (London). Ph.C. Lecturer in Pharmaceutics, Chelsea Polytechnic, Student for Ph.D. (*Signed by*) C. Morton, C. Dorée, F. H. Lowe.

HARWOOD, FRANK COURTNEY, "Brendon," Ickenham Road, Ruislip, Middlesex (*for all communications*, The Laboratory, Hill View Gardens, Hendon, N.W. 4). British. Director of Research, B.L.R.A. B.Sc. (London), F.I.C., A.M.I.Chem.E. After taking my degree at University College, London, I did one year's research work in Physical Chemistry under Professor F. G. Donnan, C.B.E., F.R.S. Student Demonstrator. Physical Chemistry, at University College, 1923-24. Two and a half years Industrial research. Four years Works Manager and Research Director to Chemical firm. Four years Technical Staff, Chemical Manufacturers. Now Director of Research to the British Launderers' Research Association. *J.C.S.*, 1923, 123, 2254-58. (*Signed by*) F. G. Donnan, Henry Terrey, R. Winstanley Lunt, L. F. Gilbert.

HAWORTH, ERNEST, 99, Stanhill Lane, Oswaldtwistle, Lancashire. British. Student. B.Sc. (2nd Class Hons. Chemistry), Manchester. Engaged in Research under Professors Maitland, Macdonald, and Heilbron at the University, Manchester. Date of birth October 18th, 1913. (*Signed by*) F. Fairbrother, I. M. Heilbron, D. H. Hey.

HELMORE, WILLIAM, Royal Aircraft Establishment, S. Farnborough, Hants. British. Wing Commander, R.A.F. M.Sc., Cambridge. Publications: Aeronautical Research Committee (H.M. Stationery Office), (1) "Experiments on Flame Extinction in Gaseous Mixtures," R. and M., 1266; (2) "Characteristics and Engine Performance of Gaseous Fuels," R. and M., 1265; (3) "Performance of Kerosene-Oil Gas Mixtures," R. and M., 1484; (4) "Reduction of Fire Risk," and numerous other publications. Awarded Groves Memorial Prize, Aeronautical Research, 1930. (*Signed by*) Alfred W. Nash, A. E. Dunstan, Gilbert Palmer.

HEYES, REGINALD GRIME, 14, St. Clement's Road, Wigan. British. Research Chemist, British Dyestuffs Corporation. B.Sc. (Hons.), Leeds; Ph.D. (Liverpool). Have worked on the fish poison, Toxicarol, for the past two years, under the direction of Professor Robertson, and also for six months on Cancer Research for the Liverpool Medical Research Organisation. *J.C.S.*, 1935, 681. (*Signed by*) R. A. Morton, Wm. Doran, A. Robertson.

HEYES, WALLACE, 45, Kensington Road, Blackpool, Lancs. British. Schoolmaster. B.Sc. (2nd Class Hons. Chemistry), Manchester. Science Master, Wakefield Selective Central School, 1926-29; Science Master, Palatine Selective Central School, Blackpool, 1929 to date. (*Signed by*) Howard A. Costigan, Fred Fairbrother, Colin Campbell.

HORTON, ARTHUR TROBRIDGE, 10, St. Michael's Street, Oxford. British. Research Student. B.A., B.Sc. (Oxon.). E. J. Bowen and A. T. Horton, "The Photoreactions of Liquid and Dissolved Ketones, Part II," *J.C.S.*, 1934, 1505. (*Signed by*) E. J. Bowen, J. H. Wolfenden, C. N. Hinshelwood.

JONES, WILLIAM JOHN GLYDON, 32, Bromford Road, Oldbury, Birmingham. British. B.Sc. (2nd Class Hons., 1st Division, Chemistry), Birmingham University. Student at Birmingham University for three years, 1932-35. Research Student 1935 to date. Date of birth Sept. 7th, 1915. (*Signed by*) Wm. Wardlaw, S. R. Carter, E. L. Hirst.

JOYNSON, GEORGE LEONARD RANGLES, Graves, 21, Ashbourne Grove, Whitefield, Manchester. English. Senior Physics Master, Stand Grammar School, Whitefield, Manchester, since 1918. B.Sc., Liverpool University, 1907-11. Board of Education Advanced Certificates in Practical and Theoretical Chemistry (1st Class), Widnes Municipal Secondary School, 1897-1907. Senior Physics Master, Cheltenham Grammar School, 1917-18. Senior Science Master, Coalbrookdale County High School for Boys, 1911-17. Lecturer in Science, Coalbrookdale

School of Science and Art, 1913-17. Radcliffe Technical College, 1919-33. (*Signed by* Aneurin Williams, E. B. Naylor, A. Cooksey).

LANDSBERG, LISBETH (née STAUB), Sea Foam, Middle Colaba, Bombay, India. German. Until August Research Student at University College, London. Doctor-Ingenieur (Chemistry), Technische Hochschule, Breslau, Germany. For four and a quarter years Assistant (demonstrating) at Technische Hochschule, Breslau. Christmas 1933 to August 1935, Research Student at the Sir William Ramsay Laboratories. Publications in *Zeitschrift f. anorg. u. Allgem. Chem.* (*Signed by*) F. G. Donnan, Oswald J. Walker, Henry Terrey.

LEWELLYN, FREDERICK JOHN, 4, Valentine Road, King's Heath, Birmingham 14. British. B.Sc. (1st Class Hons.), Birmingham. Student at Birmingham University, 1932-35. Research Student, 1935 to date. Date of birth April 29th, 1915. (*Signed by*) Wm. Wardlaw, S. R. Carter, E. G. Cox.

MCDUGALD, RONALD WILLIAM, "The Woodlands," Queen's Road, Forest Hill, S.E. 23. British. Chemist. B.Sc. (London University); A.R.C.Sc. Assistant Analytical Chemist in Government Departments and Industry. Experimental and Analytical Chemist in Industry. (*Signed by*) James C. Philip, Jocelyn Thorpe, H. F. Harwood.

MCILWAIN, HENRY, 28, Pendower Way, Newcastle-upon-Tyne 5. British. B.Sc. (1st Class Hons. Chemistry), Durham. 1928-30, Assistant Analyst. 1930-34, Degree Student in Pure Science at Armstrong College, Newcastle. 1934 to date, Research Student at Armstrong College. "A New Phenazine Synthesis. The Phenazhydrines. Part I," *J.C.S.*, 1934, 1991; "Syntheses and Molecular Complexes in the Phenazine Series. Part II," *J.C.S.*, 1935, 738. Date of birth Dec. 20th, 1912. (*Signed by*) Richard Raper, G. R. Clemo, H. L. Riley, R. D. Haworth.

MCLEAN, HECTOR MURRAY, Development Department, General Electric Company, Witton, Birmingham. British. Chief Chemist. Associate of the Institute of Chemistry (A.I.C.), Heriot Watt College, Edinburgh. Demonstrator in Chemistry at Heriot Watt College, Edinburgh. Assistant to Consulting Chemist, London. Ingham and Morrison, *J.C.S.*, 1933, 281, 1200 (preliminary work). (*Signed by*) Otto Oberlander, R. H. Hopkins, James Sandilands.

MARRIOTT, GEOFFREY JONES, 33, Kelvin Road, Ipswich. British. B.A. (Oxford). Student in Chemistry at Oxford University since 1930. Research experience from 1933. "Hydroxy and Chloro-derivatives of 2-Methylanthraquinone," *Marriott and Robinson, J.C.S.*, 1934, 1631. Date of birth Aug. 25th, 1911. (*Signed by*) R. Robinson, D. Ll. Hammick, James Walker.

MITRA, SUSIL KUMAR, c/o Lloyds Bank, Ltd., 171, Brompton Road, S.W. 3. Indian. Student. D.Sc. (Calcutta). "Thioketonic Esters, Parts I, II, III, and IV," *J.I.C.S.*, VIII, 471; X, 71, 75, 491; "Thioaldehydes and Thioketones," *ibid.*, IX, 633; "Synthesis of Serine," *ibid.*, VII, 799; "Synthesis of Lengthened Sulphur Chain Compounds," *ibid.*, VI, 865. (*Signed by*) Samuel Smiles, A. J. Allmand, E. W. McClelland.

MOSS, ALBERT RONALD, University College Hall, Queen's Walk, Ealing, W. 5, and 40, Walthew Avenue, Holyhead, N. Wales. British. Biochemical Research. B.Sc., University of London. For the past two and a half years Student in the Chemistry Department of University College, graduated last summer. Now a Demonstrator in the Biochemistry Department of the same college. Date of birth Dec. 29th, 1911. (*Signed by*) W. Rogie Angus, R. H. Leach, Henry Terrey.

NILSSEN, OLE BAILLI ASBJÖRN, Oslo (Address: Devonshire Hall, Cumberland Road, Leeds 6). Norwegian. Research Student, Textile Dept., University, Leeds. Magister scientiarum, Oslo. *J. Chem. Physics*, 1935, vol. 3, No. 1, p. 15; *Tidskr. f. Kj. og Bergv.*, No. 10, 1935. (*Signed by*) Emma Stott, R. Spence, M. S. Burr.

PEEK, WILLIAM CAIRD, Browside, Roby, Liverpool. British. Analytical Chemist. Associate of the Institute of Chemistry (Royal Technical College, Glasgow). Late Chemist to Messrs. R. Young & Co., Ltd., Glasgow. Chemist to the British Insulated Cables, Ltd., Prescot. Consulting Chemist. (*Signed by*) I. Vance Hopper, A. B. Crawford, M. M. J. Sutherland, F. J. Wilson, W. M. Cumming.

PHILLIPSON, MADDISON, 1, West View, Acklam Road South, Middlesbrough. British. Analyst. 1916-21, Analyst, Bolckow, Vaughan & Co., Ltd., South Bank. 1922-36, Analyst, Research Dept., Imperial Chemical Industries (F. & S. P., Ltd.), Billingham-on-Tees. General experience and later specialising in the analysis of gases. (*Signed by*) M. P. Applebey, J. S. Dunn, B. W. Bradford.

PORTCHMOUTH, ARTHUR PHILLIPS, 32, Clifton Avenue, Wembley Hill, Middlesex. British. Laboratory Assistant. 1931-34, engaged in Research Work at Monck Street Laboratory of

Gas, Light & Coke Co. 1934-36, Assistant in Works Laboratory of same Company at Kensal Green. Part-time Student at Birkbeck College. Date of birth Nov. 17th, 1914. (*Signed by*) S. Sugden, D. J. G. Ives, S. H. Harper.

PRATT, NORMAN HUNT, "Elmhurst," High Road, South Woodford, E. 18. English. Student at Queen Mary College. B.Sc. (1st Class Hons.), Queen Mary College, London. Took B.Sc. after two years at college and am now spending third year on Research. Date of birth, Aug. 31st, 1914. (*Signed by*) J. R. Partington, H. D. K. Drew, F. Sherwood Taylor.

PRUTTON, CARL F. Case School of Applied Science, Cleveland, Ohio, U.S.A. American. Professor of Chemical Engineering. B.S. (Case), M.S. (Case), Ph.D. (Western Reserve University). Teacher of Chemistry and Chemical Engineering, 1920 to date, at Case School of Applied Science. Head of Department of Chemical Engineering. Twelve patents (U.S.) on Chemical Processes. Consultant to Chemical and Petroleum Industries. Four papers in *J. Amer. Chem. Soc.* (*Signed by*) W. R. Veazey, Olin F. Tower, Gilbert O. Ward.

PUTMAN, JOHN HAROLD, 43, St. Paul's Road, Tottenham, N. 17. English. Chemist, Anglo-American Oil Co., Ltd. Anxious to receive the *Journal* of the Society and to attend Lectures. Date of birth April 5th, 1915. (*Signed by*) Chas. Simons, B. Saunders, P. A. Winsor, G. O. Morse.

SETTINGINGTON, JOHN TEMPLE, Gladstone House, 62, Rodney Street, Liverpool 1. British. Chemist with Evans Sons, Lescher & Webb, Ltd., Liverpool. Member of the Pharmaceutical Society of Great Britain (obtained Liverpool). Student at the Blackpool Technical College and the Liverpool School of Pharmacy. Two years National Certificate. Passed the examination with County Hons. in Chemistry. Two years Liverpool, including Pharmaceutical Chemistry, Pure Inorganic and Pure Organic Chemistry. Date of birth July 4th, 1914. (*Signed by*) Howard A. Costigan, H. Humphrey Jones, N. A. Wood.

SMITH, FRANK EWART, 1, Melville Road, Redland, Bristol. British. Research Student. B.Sc., Bristol. Date of birth Jan. 23rd, 1913. (*Signed by*) M. W. Travers, T. Malkin, M. Taylor, E. B. Maxted, M. Nierenstein, F. Francis, W. E. Garner.

THOMAS, WILLIAM GEORGE, 82, Alfred Street, Roath Park, Cardiff. British. Assistant, Chemical Defence Research Department (the War Dept.). B.Sc. (Wales), Ph.D. (Wales), B.Sc. (Special External) (London), A.I.C. Investigation of the Compressibility of Aqueous Solutions: "The Compressibility of Aqueous Solutions, Part II" (Thomas and Perman), *Proc. Roy. Soc.*, 1934, A, 146, 640, 858. Chemist, Chemical Defence Research Department, "Equilibrium between Acetone and Salts" (Joint Authors), *J.C.S.*, 1930, 1927. (*Signed by*) W. Cule Davies, H. Ll. Bassett, W. J. Jones.

WALTER, JAMES MARTYN, 51, Malvern Road, Billingham, Co. Durham. British. Research Chemist. B.Sc., Ph.D., University College, London. "The Existence of Intermetallic Compounds in the Vapour State," *Proc. Roy. Soc.*, 1928, A, 119, 257. "Band Spectra Associated with Zinc, Cadmium, and Mercury," *ibid.*, 1929, A, 122, 201 (both papers in conjunction with S. Barratt, B.A.). Five years as Research Chemist with Messrs. Protectoglass, Ltd., late of Slough, Bucks. Now with Messrs. I.C.I. Fertiliser and Synthetic Products, Ltd., Billingham, Co. Durham. (*Signed by*) M. P. Applebey, B. W. Bradford, H. Medwyn Roberts.

WARD, ALAN GORDON, 17, Kimberley Road, Cambridge. British. Research Student, Cambridge University. B.A., Cambridge. Paper on "The Structure of Strontium and Barium Peroxides," Bernal, Djaltova, Kasarnowsky, Reichstein, and Ward (*Zeitschrift für Kristallographie*, 1935, 92, 344). Senior Scholar, Trinity College, Cambridge. Date of birth April 18th, 1914. (*Signed by*) Eric K. Rideal, A. H. Wansbrough-Jones, J. K. Roberts.

WHITWORTH, CLIFFORD, 6, Charnwood Road, Loughborough, Leicestershire. British. Lecturer in Chemistry and Physics. B.Sc., M.Sc., Ph.D. (Manchester), A.I.C. Published papers in *J.C.S.*, 1932 and 1933; *Proc. Roy. Soc.*, etc. (*Signed by*) Colin Campbell, J. B. M. Herbert, G. Malcolm Dyson.

WICKENS, PHILIP GEORGE, 19, Bower Mount Road, Maidstone, Kent. British. Student of Chemistry at University College, Southampton. Date of birth Oct. 22nd, 1913. (*Signed by*) D. R. Boyd, G. H. Jeffery, Alexander Lawson.

WILLIS, JOHN ARTHUR VALIANT, 50, Cecil Avenue, Bournemouth. British. Research Student. B.Sc., Bristol. Date of birth Nov. 9th, 1912. (*Signed by*) M. W. Travers, T. Malkin, M. Taylor, E. B. Maxted, M. Nierenstein, F. Francis, W. E. Garner.

WOODWARD, HENRY, 224, Gregory Avenue, Selly Oak, Birmingham. British. B.Sc. (1st Class Hons. Chemistry), Birmingham University. 1932-35, Undergraduate, Birmingham University. 1935 to date, Research Student, Department Chemistry, Birmingham University. Date of birth March 15th, 1914. (*Signed by*) W. N. Haworth, E. L. Hirst, Wm. Wardlaw.

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

FLAMACHE, LÉON, 33, Rue du Prince Albert, Bruxelles. Belge. Ingénieur Messrs. Solvay et Cie. Ingenieur des Constructions Civiles de l'université de Gand. Directeur des laboratoires de recherche de Solvay et Cie. (*Signed by*) S. Sugden, N. V. Sidgwick.

KULKARNI, DWARKANATH BHARGAV, Hyderabad, Deccan, India., c/o Medical and Public Health Department, Nizam's Government, India. Indian. Medical Officer of Health, Nizam's Government, Hyderabad, Deccan, India. M.B.B.S. (Bombay), M.R.C.S. (Eng.), L.R.C.P. (London), D.P.H. (London). I am keenly interested in Water Analysis, and it is just possible I may have to undertake analysis of foodstuffs in my state. Also interested in Analytical Chemistry. (*Signed by*) V. A. Patwardhan.

MASSEY, REGINALD ERNEST, "Wellswood," Park View Road, Pinner Hill, Middlesex, and Khartoum, North Sudan. British. Sudan Government Botanist. Ph.C. (Hons. in Chemistry), South Kensington, London. Government Botanist since 1912. Trained Pharmaceutical Society, King's College, London, Kew, Imperial College of Science, London, Imperial Mycological Institute. Numerous Government publications, conference papers, etc. (*Signed by*) Herbert Greene, B. W. Whitfeild.

MILLER, PLEASANT THOMAS, Agricultural Hall, University of Wyoming, Laramie, Wyoming. American. Dean-Liberal Arts, Professor of Chemistry. B.A., M.A., University of Texas. Professor of Physical Science, Southwest Texas Teachers College, 1906-18. Professor of Chemistry and Head of Department, University of Wyoming, 1918 to date. Directed four Master's Theses on Organic Halogenations in last five years, University of Wyoming. (*Signed by*) G. Wakeham.

PILLAI, A. K. MADHAVAN, Appium House, Quilon, Travancore, South India (c/o The Wilkinson Process Rubber Co., Ltd., Batu Caves, Selangor, F.M.S.). Indian. Senior Science Master, Loyola Institution, K. Lumpur, F.M.S. B.A. (Madras University), M.Sc. (Lucknow University). One year's teaching experience in Science. Eight months' training in Modern Methods of Wood Preservation and Timber Testing. I wish to be in touch with all modern advancement in Chemistry. (*Signed by*) B. J. Eaton, K. S. Pillay.

SANNIÉ, CHARLES, 12, rue Lecuirot, Paris 14^e. Français. Professeur agrégé à la Faculté de Médecine. Docteur en Médecine. Chef du Service de Chimie à l'Institut du Cancer. (*Signed by*) J. W. Cook.

ADDITIONS TO THE LIBRARY.

I. Donations.

CROWTHER, J. G. Soviet science. London 1936. pp. x + 342. ill. 12s. 6d. net. (*Recd.* 31/3/36.)

From the Publishers: Messrs. Kegan Paul, Trench, Trubner & Co.

HARDY, SIR WILLIAM BATE. Collected scientific papers. Published under the auspices of the Colloid Committee of the Faraday Society. Cambridge 1936. pp. xii + 922. ill. 63s. net. (*Recd.* 26/3/36.)

From the Publishers: Cambridge University Press.

MATHIEU, MARCEL. Réactions topochimiques: généralités. Paris 1936. pp. 57. 12 fr. (*Recd.* 24/3/36.)

— La nitration de la cellulose: réaction topochimique. Paris 1936. pp. 65. 12 fr. (*Recd.* 24/3/36.)

— La gélatinisation des nitrocelluloses: réaction topochimique. Paris 1936. pp. 73 12 fr. (*Recd.* 24/3/36.)

PHYSICAL SOCIETY. Reports on progress in physics. Vol. II. London 1936. pp. iv + 371. ill. (*Reference.*) 21s. net.

From the Society.

TABLES ANNUELLES DE CONSTANTES ET DONNÉES NUMÉRIQUES. Vol. X. Year 1930. Part II. Paris 1935. pp. xvi, 634 to 1242. (*Reference.*) From the Comité International.

II. By purchase.

HAND- UND JAHRBUCH DER CHEMISCHEN PHYSIK. Vol. IX. Parts 2 and 3. Anregung der Spektren. By W. HANLE. Molekülspektren von Lösungen und Flüssigkeiten. By G. SCHEIBE and W. FRÖMEL. Leipzig 1936. pp. 184 + 16. ill. M. 18. (*Recd.* 31/3/36.)

HAVEN, GEORGE B. Industrial fabrics. New York 1934. pp. xii + 538. ill. \$2. (*Recd.* 30/3/36.)

HERTY, C. H., Jr. [and others]. The physical chemistry of steel making. Pittsburgh 1934. pp. [xviii + 344]. ill. \$3. (*Recd.* 19/3/36.)

POUCHER, WILLIAM A. Perfumes, cosmetics, and soaps, with special reference to synthetics. 4th edition. Vol. I. London 1936. pp. x + 439. ill. 25s. net. (*Recd.* 6/4/36.)

III. Pamphlets.

BERG, PIETER VAN DEN. Nitratie van benzylaniline en derivaten. Leiden 1936. pp. viii + 127.

BLANK, EUGENE W. Diamond finds in the United States. (From *Rocks and Minerals*, 1934-35, 9-10.) ill.

BOARD OF EDUCATION. *Science Museum, South Kensington*. Very low temperatures, their attainment and uses . . . as illustrated in a special exhibition. By T. C. CRAWHILL. London 1936. pp. 31. ill.

MCKENZIE, ALEX. Asymmetric synthesis. (From *Ergebnisse der Enzymforschung*, 1936, 5.)

POTTER, M. C. Bio-electric potentials. Cambridge 1933. pp. 43.

TATE & LYLE, LTD. Sugar, from the grower to the consumer. London 1936. pp. 31. ill.

MEETINGS OUTSIDE LONDON.*NEWCASTLE AND DURHAM.*

Fellows are invited to attend the Thirty-Fourth Bedson Lecture to be held in the Chemistry Lecture Theatre, Armstrong College :

Friday, May 8th, 1936, at 6.30 p.m. Lecture on " The Chemical Properties of Metals,"
by Professor C. H. Desch, D.Sc., F.R.S.

FORTHCOMING MEETINGS IN LONDON,

Thursday, May 7th, 1936, at 8 p.m.

Ordinary Scientific Meeting. The following papers will be read :

- “ Rhythmic turbidity in the precipitation of barium sulphate.” By E. B. R. PRIDEAUX and G. E. C. CARTER.
- “ The thermal decomposition of silver oxalate.” By J. Y. MACDONALD.
- “ The constituents of natural phenolic resins. Parts I to V.” By R. D. HAWORTH, with W. KELLY, T. RICHARDSON, and G. SHELDRIK.

Thursday, May 14th, 1936, at 8 p.m.

Lecture entitled “ Modern Chemical Nomenclature,” by Dr. Clarence Smith in the Meeting Hall of the Institution of Mechanical Engineers, Storey’s Gate, Westminster, S.W. 1.

Thursday, May 21st, 1936, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, May 28th, 1936, at 5.30 p.m.

Fifth Pedler Lecture entitled “ Synthesis in Biochemistry,” by Professor R. Robinson, D.Sc., F.R.S., in the Meeting Hall of the Institution of Mechanical Engineers, Storey’s Gate, Westminster, S.W. 1.

Thursday, June 4th, 1936, at 8 p.m.

Ordinary Scientific Meeting.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY

Ordinary Scientific Meeting, Thursday, May 7th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	<i>Elected.</i>	<i>Died.</i>
Charles Schlienger	1907	April 12th.
Frank Scudder	1883	February 6th.
Philip Lewington Whitehouse	1901	April 8th.

It was announced :

1. That the Council had appointed Professor R. Robison as Ordinary Member of Council (Town Member) until the next Annual General Meeting to fill the vacancy caused by the election of Professor J. W. Cook to the office of Secretary.

2. That the following Committees for 1936—1937 had been appointed by the Council :

Finance and General Purposes Committees.

E. F. Armstrong, W. A. S. Calder, F. H. Carr, F. P. Dunn, C. S. Gibson, C. K. Ingold, G. T. Morgan, Sir William J. Pope, the Officers, and the Chairman of the Publication Committee. The President as Chairman, Treasurer as Vice-Chairman, and the Assistant Secretary as Secretary.

Publication Committee.

H. E. Armstrong, F. P. Dunn, G. I. Finch, J. J. Fox, S. Glasstone, D. Ll. Hammick, C. R. Harington, T. P. Hilditch, C. N. Hinshelwood, E. L. Hirst, C. K. Ingold, J. Kendall, J. Kenner, H. King, G. A. R. Kon, R. P. Linstead, T. M. Lowry, T. S. Moore (Chairman), R. G. W. Norrish, E. K. Rideal, R. Robinson, T. W. J. Taylor, J. F. Thorpe, E. E. Turner, W. Wardlaw, H. B. Watson, J. H. Wolfenden, and the Officers, with the Editor as Secretary.

Research Fund Committee.

F. E. Francis, W. N. Haworth, W. H. Mills, T. S. Moore, J. C. Philip, R. E. Slade, S. Smiles, J. F. Thorpe, R. Whytlaw-Gray, and the Officers. The President as Chairman and the Assistant Secretary as Secretary.

3. That the following Fellows had been appointed by the Council to represent the Society on the Joint Library Committee :

H. Bassett, O. L. Brady, J. W. Cook, C. H. Desch, M. B. Donald, A. C. G. Egerton, H. J. Emeléus, G. I. Finch, C. R. Harington, T. A. Henry, E. W. McClelland, W. H. Mills, E. E. Turner, and J. C. Withers.

4. That the Council had conveyed the congratulations of the Society to Professor A. R. Ling and Mr. Frank Moul who had completed 50 years of Fellowship on the 15th April, 1936.

5. That the Council had conveyed its thanks for the following gifts :

- (a) Institute of Brewing : *Journal* and *Abstracts* from 1880 to 1915, *Proceedings* 1885–1914, and *Collective Indexes*, Volumes II and III, all bound in half-calf.
- (b) Miss T. M. Holmes : *Journal* and *Abstracts* from 1928 to 1932.
- (c) Dr. Richard Seligman : copy of Mond Memorial Medal in nickel.

Mr. B. A. Rose was formally admitted a Fellow of the Chemical Society.

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

Kenric James Baldick, 69, The Boulevard, Strathfield, N.S.W.
 Richard Francis Phipers, Ph.D., 15, Hermon Hill, Wanstead, E. 11.
 John Horsford Seager, M.Sc., Shannon, Sylvan Avenue, Hornchurch.
 Frank Reginald Skermer, Oakdene, Park Drive, Samlesbury, Blackburn.
 Amin Mohsin Tyabji, Ph.D., 11, Chester Court, Monks Drive, W. 3.

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

Keshab Deva Bhargava, Upper India Couper Paper Mills Co., Ltd., Lucknow, U.P., India.
 Newcomb Kinney Chaney, Ph.D., M.S., B.A., United Gas Improvement Co., Philadelphia, U.S.A.
 Francois Michael Dupont, Wahl-Henius Institute, 2374, Lincoln Avenue, Chicago, U.S.A.

Forms of Recommendation for Fellowship were read for the second time in favour of 3 candidates, and for the third time in favour of 56 candidates.

Dr. J. S. Anderson and Dr. R. N. Cunningham were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows :

Hugh David Anderson.	Lisbeth Landsberg.
Michael Henry Miller Arnold.	Frederick John Llewellyn, B.Sc.
William John Arrol, B.Sc.	Ronald William McDougald, B.Sc., A.R.C.S.
Ronald Oliver Blench, A.I.C.	Henry McIlwain, B.Sc.
William Stanley Cheshire Coleman.	Hector Murray McLean, A.I.C.
Joseph Arthur Cooper.	Geoffrey Jones Marriott, B.A.
William Martin Cox, B.A., B.Sc.	Reginald Ernest Massey, Ph.C.
Norman Colman Cross.	Pleasant Thomas Miller, Prof., M.A.
William Davey.	Susil Kumar Mitra, D.Sc.
William Davison, B.Sc., F.I.C.	Albert Ronald Moss, B.Sc.
James William Dutton.	Ole Bailli Asbjörn Nilssen.
James William John Fay, B.Sc., A.R.C.S.	William Caird Peek, A.I.C.
Léon Flamache.	Maddison Phillipson.
Hilda Alma Fulford, B.Sc.	Appium Krishna Madhava Pillai, B.A., M.Sc.
Robert Francis Garwood, B.Sc.	Arthur Phillips Portchmouth.
Harry Baxter Gibson, B.Sc., A.I.C.	Norman Hunt Pratt, B.Sc.
Albert Edward Gillam, M.Sc., F.I.C.	Carl F. Prutton, M.S., Ph.D.
Jeremy Hale, B.Sc.	John Harold Putman.
Douglas Charles Harrod, B.Sc., Ph.C.	John Temple Settington.
Frank Courtney Harwood, B.Sc., F.I.C.	Charles Sannié.
A.M.I.Chem.E.	Frank Ewart Smith, B.Sc.
Ernest Haworth, B.Sc.	William George Thomas, B.Sc., Ph.D.
William Helmore, M.Sc.	James Martyn Walter, Ph.D.
Reginald Grime Heyes, B.Sc., Ph.D.	Alan Gordon Ward, B.A.
Wallace Heyes, B.Sc.	Clifford Whitworth, M.Sc., Ph.D.
Arthur Trobridge Horton, B.A., B.Sc.	Philip George Wickens.
William John Glydon Jones, B.Sc.	John Arthur Valiant Willis, B.Sc.
George Leonard Randles Joynson, B.Sc.	Henry Woodward, B.Sc.
Dwarkanath Bhargav Kulkarni, M.R.C.S., L.R.C.P., D.P.H.	

The following papers were read :

- “ Rhythmic turbidity in the precipitation of barium sulphate.” By E. B. R. PRIDEAUX and G. E. C. CARTER.
- “ The thermal decomposition of silver oxalate.” By J. Y. MACDONALD.
- “ The constituents of natural phenolic resins.” Parts I—V. By R. D. HAWORTH with W. KELLY, T. RICHARDSON, and G. SHELDRIK.
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Extra Meeting held at the Institution of Mechanical Engineers, Storey's Gate, S.W. 1, on Thursday, May 14th, 1936, at 8 p.m.

The President, Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., was in the Chair.

The PRESIDENT welcomed the members of the Institute of Chemistry who were present, and stated that the suggestion for a lecture dealing with chemical nomenclature had emanated from the Institute. He then called on Dr. Clarence Smith to deliver his lecture entitled : " Modern Chemical Nomenclature."

At the conclusion of the lecture, a vote of thanks to Dr. Clarence Smith was proposed by Dr. R. H. Pickard, seconded by Professor G. T. Morgan, and carried with acclamation.

Ordinary Scientific Meeting, Thursday, May 21st, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society through death on May 11th, of Mr. Alfred Foster Cholerton, who was elected a Fellow of the Society in 1897.

It was announced :

1. That the thanks of the Council had been conveyed to the Committees and to the following for services rendered in connection with the Anniversary Meetings in Bristol :

Dr. S. H. Badock (Treasurer of the University and Chairman of Committees), Prof. F. Francis, Prof. W. E. Garner, Mr. Arthur Marsden (Hon. Treasurer), Dr. E. B. Maxted (Hon. Secretary), Miss Winifred Shapland (Registrar and Secretary of the University of Bristol), and Prof. M. W. Travers.

and also to the Director of the Agricultural Research Station at Long Ashton, Messrs. J. S. Fry & Sons. Ltd., and the National Smelting Co., Ltd.

2. That the congratulations of the Council had been conveyed to Mr. William S. Simpson who completed 50 years of Fellowship on May 20th, 1936.

3. That the following had been appointed Local Representatives :

North Wales.

Dr. A. E. Bradfield in place of Professor F. G. Soper who has resigned owing to his appointment to the Chair of Chemistry at the University of Otago.

Edinburgh.

Dr. J. A. V. Butler in place of Dr. A. Lauder who has resigned owing to his retirement from the Edinburgh and East of Scotland College of Agriculture.

Messrs. R. F. Garwood and N. H. Pratt were formally admitted Fellows of the Society.

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

Percy Barber, 66, Norwood Drive, North Harrow, Middlesex.
Thomas Reginald Palmer, Coburn, Rothley Plain, Leicestershire.
John William Pooley, B.Sc., A.I.C., The Wing, Lindsey House, Lloyd's Place, Blackheath, S.E. 3.
William Edward Tetlow, B.Sc., 3, Murray Place, St. Andrews.

and for the second time in favour of 8 candidates.

The following papers were read :

" The constitution of complex metallic salts. Part IV. The constitution of certain bridged di-palladium derivatives. A novel type of tautomerism." By F. G. MANN and D. PURDIE.

- “Molecular dissymmetry due to symmetrically placed hydrogen and deuterium. Part I. The resolution of pentadeuterophenylbenzylamine.” By G. R. CLEMO and A. McQUILLEN.
- “A reaction of certain diazosulphonates derived from β -naphthol-1-sulphonic acid. Part XV. Derivatives of 2'-nitro-4'-methylbenzene-2-naphthol-1-diazosulphonate and synthesis of 2-(2'-nitro-4'-methylphenylamino)isoindolinone-3-acetic acid.” By F. M. ROWE, A. S. HAIGH, and A. T. PETERS.
- “Dipole moments and the fixation of aromatic double links: bromo-hydrindenes and bromo-tetralines.” By N. V. SIDGWICK and H. D. SPRINGALL.

BRITISH STANDARDS INSTITUTION.

A draft specification for density bottles has been received from the British Standard Institution for technical comment and criticism. The following abstract is published for the information of Fellows, and a copy of the complete specification has been placed in the Library.

The specification is divided into three parts:

Part I comprises the specification for density bottles, and deals with range of sizes, definition of capacity, material and construction, tolerances, inscriptions, and arrangements for testing.

Part II deals with the determination of density by means of British Standard Density Bottles and gives simple tables for facilitating computations.

Part III relates to the use of density bottles in conjunction with the measurement of liquid in bulk.

BOARD OF TRADE.

Exemption from Key Industry Duty.

Representation has been made to the Board of Trade regarding the exemption of Kryofin (methoxy acet-paraphenetidene) and of zirconium oxide from the duty imposed by the Safeguarding of Industries Act, 1921. Communications should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London, S.W. 1, before June 7, 1936.

Representation has also been made regarding exemption of the following:

Gas analysis apparatus combined with a bridge potentiometer, adapted for the estimation and continuous record of nitric oxide in gases, wherein the nitric oxide is absorbed in a suitable liquid, the depth of colour generated therein being measured photo-electrically. Communications regarding this should be addressed to the above before June 20th, 1936.

List of papers, or abstracts thereof, received between April 16th and May 21st, 1936. (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.)

- “An improved apparatus for the microhydrogenation of organic compounds.” By H. JACKSON and R. N. JONES.
- “Contributions to the chemistry of lanosterol. Part I.” By C. DORÉE and V. A. PETROW.
- “Some aspects of the modern theory of corrosion. Part II. The distribution of corrosion.” By J. E. O. MAYNE.
- “A reaction adaptable to the volumetric estimation of silver chloride.” By G. A. D. HASLEWOOD.
- “The dipole moments of quinone, beryllium acetylacetonate, basic beryllium acetate, and *o*-nitrophenol.” By H. O. JENKINS.
- “Electrolytic reduction of organic compounds. Part III. β -Vinylacrylic acid.” By E. ISAACS and C. L. WILSON.

- “ The viscosity of butyric acid–water mixtures.” By C. R. BURY and J. GRINDLEY.
- “ α - and β -Hydroxylaudanosines. Part I. Their preparation from papaverinol.” By F. E. KING, P. L'ECUYER, and F. L. PYMAN.
- “ Acid salts of monobasic organic acids. Part II.” By J. D. M. ROSS and T. J. MORRISON.
- “ α - and β -Camphylic acids.” By J. R. LEWIS and J. L. SIMONSEN.
- “ The stereochemistry of quadri-covalent atoms : copper and silver.” By E. G. COX, W. WARDLAW, and K. C. WEBSTER.
- “ The detection of reaction chains by small amounts of nitric oxide. The thermal decomposition of acetaldehyde and of propaldehyde.” By L. A. K. STAVELEY and C. N. HINSHELWOOD.
- “ The influence of hydrogen on unimolecular reactions involving short chains.” By C. N. HINSHELWOOD and L. A. K. STAVELEY.
- “ Reaction of semicarbazones with alcohols.” By E. W. MCCLELLAND and C. E. SALKELD.
- “ A reaction of certain diazosulphonates derived from β -naphthol-1-sulphonic acid. Part XV. Derivatives of 2'-nitro-4'-methylbenzene-2-naphthol-1-diazosulphonate and synthesis of 2-(2'-nitro-4'-methylphenylamino)isoindolinone-3-acetic acid.” By F. M. ROWE, A. S. HAIGH, and A. T. PETERS.
- “ Studies in electrolytic oxidation. Part VII. The electrolysis of acetates in non-aqueous solutions.” By S. GLASSTONE and A. HICKLING.
- “ The acylation of *NN*-ethylphenylurea.” By E. N. ABRAHART.
- “ Alkaloids of senecio. Part II. Senecionine and squalidine.” By G. BARGER and J. J. BLACKIE.
- “ Studies in ring formation. Part I. Including new syntheses of diphenylene oxide, diphenylene dioxide, diphenylene sulphide, and diphenylene disulphide (thianthren).” By N. M. CULLINANE and C. G. DAVIES.
- “ The constituents of natural phenolic resins. Part VI. Synthesis of some compounds related to cubebinolide (hinokinin).” By R. D. HAWORTH and W. KELLY.
- “ The interaction of tetraphenyglycol and pyridinium chloride.” By A. SCHÖNBERG and R. MICHAELIS.
- “ The colouring matters of *Drosera Whittakeri*. Part IV. The reduction potentials of some naphthaquinones.” By J. W. H. LUGG, A. K. MACBETH, and F. L. WINZOR.
- “ The hydrolysis of arylsulphuric acids. Part III.” By G. N. BURKHARDT, C. HORREX, and (MISS) D. I. JENKINS.
- “ Hydrolysis of arylsulphuric acids. Part IV. (a) Conjugation between the benzene nucleus and unsaturated side chains; (b) Steric effects and the influence of alkyl groups.” By G. N. BURKHARDT, C. HORREX, and (MISS) D. I. JENKINS.
- “ A kinetic study of the hydrolysis and alcoholysis of phenyl acetate.” By W. A. WATERS.
- “ The reaction kinetics of the acid hydrolysis of phenolic ethers.” By R. P. GHASWALLA and F. G. DONNAN.
- “ The mechanism of additions to double bonds. Part IV. Kinetics of bimolecular associations in solution and in the gaseous state.” By A. WASSERMANN.
- “ The rapid detection of silver halide in presence of silver cyanide.” By R. E. D. CLARK.
- “ The formation and constitution of sulphur nitride and so-called hexasulphamide.” By M. H. M. ARNOLD, J. A. C. HUGILL, and J. M. HUTSON.
- “ Organic molecular compounds. Part II.” By G. M. BENNETT and R. L. WAIN.
- “ Organic molecular compounds. Part III. Compounds of phenols with some synthetic cyclic oxides.” By G. M. BENNETT and R. L. WAIN.
- “ Structural problems in the indole group. 5- and 7-Nitrotetrahydrocarbazoles.” By S. G. P. PLANT.
- “ A potentiometric investigation of electrolytic dissociation. Part IV. The anion affinity of copper, zinc, cadmium, silver, and hydrogen ions.” By (MISS) E. FERREL, J. M. RIDGION, and H. L. RILEY.
- “ The lupin alkaloids. Part X. The synthesis of *dl*-oxysparteine.” By G. R. CLEMO, W. MCG. MORGAN, and R. RAPER.

- "Studies of phosphates. Part IV. Pyrophosphates of some bivalent metals and their double salts and solid solutions with sodium pyrophosphate." By H. BASSETT, W. L. BEDWELL, and J. B. HUTCHINSON.
- "Reactions of sodium niobate with organic acids." By J. G. AULD and J. A. MAIR.
- "A study of the sodium niobates." By J. G. AULD and J. A. MAIR.
- "Atomic heats of formation and bond energies." By F. G. SOPER.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, JUNE 4th, 1936.

BALDICK, KENRIC JAMES, 69, The Boulevard, Strathfield, New South Wales, Australia. British. Fourth Year Chemistry Honours Student, Sydney University. I am desirous of keeping in touch with recent advances in chemistry, and am anxious to have the benefit of the Society's publications. (*Signed by*) J. C. Earl, C. E. Fawsitt, T. Iredale, J. E. Mills.

EVANS, WILFRID JAMES, "Penmon," Portmore Park, Weybridge, Surrey. British. Research Chemist. B.Sc. (Lond.), Ph.D. (Lond.), A.I.C. Research Assistant to Professor Smiles, 1934—1936. *J.C.S.*, 1935, 181, 1263. (*Signed by*) Samuel Smiles, A. J. Allmand, D. W. G. Style.

MASON, REGINALD DEAN, 56, Blackbrook Lane, Bickley, Kent. British. Chief Chemist. B.Sc. (Lond.), M.Sc. (Lond.). Head Demonstrator Latymer Upper School, Hammersmith, 1919—1923, Assistant Analyst and Research Chemist, J. Lyons & Co., Ltd., Cadby Hall, 1924—1934. Chief Chemist to W. J. Barton, Ltd., Dagenham, Jan. 1st, 1935. (*Signed by*) S. Sugden, G. W. Ferguson, H. N. Rydon.

PIPERS, RICHARD FRANCIS, 15, Hermon Hill, Wanstead, E. 11. English. Industrial Research Chemist. B.Sc. (1st Class Hons. Liverpool), Ph.D. (Liverpool). Demonstrator in Chemistry in University of Manchester. Part author of Heilbrons "Dictionary of Organic Compounds" and contributor to Thorpe's "Dictionary of Applied Chemistry." Research on Chemistry of Algæ (*Biochem. J.*, 1935, 29, 1369, 1376, 1382; *Nature*, 1934, 133, 419; 1935, 136, 989). "Chemistry of Algæ." *J.C.S.*, 1934, 1572. "Chemistry of Ergosterol," *ibid.*, 1576. (*Signed by*) R. S. Cahn, I. M. Heilbron, F. S. Spring, G. N. Burkhardt, D. H. Hey.

SEAGER, JOHN HORSFORD, Shannon, Sylvan Avenue, Hornchurch, Essex. British. M.Sc. (Lond.). Chief Chemist, Messrs. Yardley & Co., Ltd., E. 15. (*Signed by*) Ernest J. Parry, George W. Ferguson, Thos. H. Durran.

SKERMER, FRANK REGINALD, Oakdene, Park Drive, Samlesbury, Nr. Blackburn. English. Chemical Student at St. Peter's Hall, Oxford. Studying Chemistry, and wish to receive the *J.C.S.* Date of birth November 14th, 1915. (*Signed by*) G. D. Parkes, E. Hope, S. G. P. Plant.

WARBURTON, JOHN WILSON, Moorfield, Clayton Rd., Lidget Green, Bradford, Yorks. British. Partner in Firm of Dunville & Warburton, Textile Consultants & Analysts. Research Medallist of The Worshipful Company of Woolmen, London. Late Research Student of Bradford Tech. Coll. 1st Class Hons. of City and Guilds Inst. In charge of chemical laboratories in Dunville & Warburton. (*Signed by*) C. G. Lyons, R. Cuthill, L. Seal.

TYABJI, AMIN MOHSIN, 11, Chester Court, Monks Drive, W. 3. British. Chemist, engaged in original investigations in the Chemistry Department, Guy's Hospital Medical School. Ph.D. Zürich (Switzerland). 8 years of research work in Zürich, conjointly with C. Naegeli. Several papers in *Helv. Chim. Acta.* (*Signed by*) Charles S. Gibson, W. Morris Colles, B. Levin, F. H. Brain.

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

BHARGAVA, KESHAB DEVA, c/o The Upper India Couper Paper Mills Co., Ltd., Lucknow, U.P. (India). Indian. Chemist and Officer-in-Charge Paper Section. Have had training in the final B.Sc. classes of the Robertson College, Jubbulpore-Allahabad University. Analytical, Mining and Research Chemist, Dutt's Chem. Lab., 1918—1920, Analytical and Manufacturing Chemist with Mr. Fisher, Cement Expert, April—November 1920, Chemist and O/C Pulp and Paper Sections, L. P. Mills, 1921 onwards till date. I seek admission to the Society for the reason that all along I have been interested in Chemistry, and am at present employed in the Paper Mills and therefore wish to keep in touch with the advance of Chemistry. (*Signed by*) William Raitt.

CHANEY, NEWCOMB KINNEY, Swarthmore (Youlgrave Farm), Pennsylvania, U.S.A. American. Director of Research, United Gas Improvement Co., 1401, Arch Steet, Philadelphia, Pa. B.S., Carlton College, 1904; M.S. 1905.; B.A. (Chemistry, Oxon, 1910 Balliol College); Ph.D., University of Pennsylvania, 1912 (Harrison Fellow in Chemistry). (*Signed by*) Harold Hartley.

DUPONT, FRANCOIS MICHAEL, 1504, Central Avenue, Wilmette, Illinois. French; naturalised American citizen. President, Wahl-Henius Institute. Graduate College of Technology, Vienna, Austria. (*Signed by*) O. Roewade.

ADDITIONS TO THE LIBRARY.

I. Donations.

ARMITAGE, F. P. A history of chemistry. London 1906. pp. xx + 266. (*Recd.* 2/5/36.)

From Mr. A. L. Bacharach.

VOGEL, A. I. Elementary practical chemistry. London 1936. pp. 220. ill. 3s. (*Recd.* 23/4/36.)

From the Publishers: Messrs. Blackie & Son.

II. By purchase.

AMERICAN MEDICAL ASSOCIATION. *Council on Pharmacy and Chemistry*. Glandular physiology and therapy: a symposium. Chicago 1935. pp. viii + 528. ill. \$2.50. (*Recd.* 13/5/36.)

DAVISON, ALBERT W., and KLOOSTER, HENRY S. VAN. Laboratory manual of physical chemistry. 2nd edition, 2nd printing, corrected. New York 1935. pp. xii + 238. ill. \$2.50. (*Recd.* 11/5/36.)

FIESER, L. F. The chemistry of natural products related to phenanthrene. New York 1936. pp. xii + 358. \$6.50. (*Recd.* 11/5/36.)

HEITLER, W. The quantum theory of radiation. Oxford 1936. pp. xii + 252. ill. 17s. 6d. net. (*Recd.* 7/5/36.)

HICKINBOTTOM, WILFRED JOHN. Reactions of organic compounds. London 1936. pp. x + 449. ill. 16s. net. (*Recd.* 7/5/36.)

HILL, DOUGLAS W., and HOWITT, FREDERICK O. Insulin: its production, purification, and physiological action. London 1936. pp. xii + 219. ill. 12s. 6d. net. (*Recd.* 7/5/36.)

LEHALLEUR, JEAN PEPIN. *Traité des poudres, explosifs et artifices*. Paris 1935. pp. 499. ill. 90 fr. (*Recd.* 14/5/36.)

NEUBERGER, M. C. Die Allotropie der chemischen Elemente und die Ergebnisse der Röntgenographie. (Sammlung, N.F. Heft 30.) Stuttgart 1936. pp. 106. ill. (*Reference.*) M. 9.30.

III. Pamphlets.

Presented by Dr. H. G. de Laszlo.

BOMMER, MAX. Eine neue, vollständige Synthese von Tropin und racemischem Cocain. Zürich 1918. pp. 62.

DICKSON, ERNEST. Über die ultraviolette Fluoreszenz des Benzols und einiger seiner Derivate. Leipzig 1911. pp. 37. ill.

FRUM, ALEXANDER. Zur lichtelektrischen Leitung und Phosphoreszenz von NaCl-Kristallen. Göttingen 1925. pp. 26. ill.

GRÄFE, WILLY. Über ultraviolette Fluoreszenz. Weida i. Thür. 1911. pp. 55. ill.

HEBERLEIN, GEORG. Studien über die Veresterungsvorgänge an Baumwolle. Zurich 1930. pp. 53.

KALFF, JAN. De refractometrie der chloorbenzolen. Zalt-Bommel 1924. pp. x + 70. ill.

KEIL, JOHANNES. Ueber den Einfluss der Temperatur auf die Abgabe des von den Platin-Metallen aufgenommenen Wasserstoffs unter vermindertem Druck. Dresden 1933. pp. iv + 30. ill.

MASCART, M. E. Recherches sur le spectre solaire ultra-violet et sur la détermination des longueurs d'onde. Paris 1864. pp. iv + 75. ill.

PASSAVANT, LINA. Ueber das Resorcin der Tetralin-Reihe. Berlin 1927. pp. 47.

PICCARD, JEAN FÉLIX. Rapport entre la constitution et la couleur des matières organiques. Lausanne 1915. pp. 23.

RIEDEL, FRITZ. Absorptionsmessungen von ungesättigten Kohlenstoffverbindungen und Jodiden im äussersten Quarz-Ultraviolett. Zirndorf 1928. pp. viii + 48.

SCHNEIDER, HENNY. Photolyse von Halogenalkylen. Birsfelden 1924. pp. 28. ill.

SUTER, EMIL. Über den Einfluss von Substituenten auf die Kohlenstoffdoppelbindung. Leipzig 1920. pp. 120.

UGARTE Y GREAVES, SANTIAGO DE. Beziehungen zwischen Fluoreszenz und chemischer Konstitution. Borna-Leipzig 1913. pp. vi + 45. ill.

WETTSTEIN, ALBERT. Zur Konstitution des Sparteins. Drei synthetische Pentadecane. Zurich 1930. pp. 52.

FORTHCOMING MEETING IN LONDON.

Thursday, June 4th, 1936, at 8 p.m.

Ordinary Scientific Meeting, at which a ballot for the election of Fellows will be held.
The following papers will be read :

- “ Dipole moments and the fixation of aromatic double links : bromo-hydrindenes and bromo-tetralines.” By N. V. SIDGWICK and H. D. SPRINGALL.
- “ The constitution of oroxylin-A, a yellow colouring matter from the root-bark of ‘*Oroxylum indicum Vent.*’ ” By R. C. SHAH, C. R. MEHTA, and T. S. WHEELER.
- “ The part played by free radicals in unimolecular reactions.” By C. N. HINSHELWOOD and L. A. K. STAVELEY.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Extra Meeting held in the Lecture Hall of the Institution of Mechanical Engineers, on Thursday, May 28th, 1936, at 5.30 p.m.

Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, was in the Chair.

The PRESIDENT referred to the foundation of the Pedler Lectureship, and then called on Professor R. Robinson to deliver the Fifth Pedler Lecture entitled "Synthesis in Biochemistry." At the conclusion of the lecture, a Vote of Thanks to the Lecturer, proposed by Professor G. Barger, seconded by Professor W. N. Haworth, and supported by Professor H. E. Armstrong was carried with acclamation. This was acknowledged by Professor Robinson.

Ordinary Scientific Meeting, Thursday, June 4th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
William Holdsworth Hurlley	1902	June 2nd, 1936.
Alfred Battye Knaggs	1888	April 11th, 1936.
Harry Livsey	1909	March 14th, 1936.
Alfred Edgar Macintyre	1890	March 13th, 1936.

A Form of Recommendation for Fellowship in favour of Chikataro Kawasaki, Pharmaceutical Institute, Medical College, Hongo-ku, Tokyo, Japan, was read for the first time.

Forms of Recommendation for Fellowship were read for the second time in favour of 4 candidates, and for the third time in favour of 11 candidates.

Dr. H. R. Ing and Mr. E. W. Wignall were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows.

Kenric James Baldick.	Richard Francis Phipers, B.Sc., Ph.D.
Keshab Deva Bhargava.	John Horsford Seager, M.Sc.
Newcomb Kinney Chaney, M.S., B.A., Ph.D.	Frank Reginald Skermer.
Francois Michael Dupont.	Amin Mohsin Tyabji, Ph.D.
Wilfrid James Evans, B.Sc., Ph.D., A.I.C.	John Wilson Warburton.
Reginald Dean Mason, M.Sc.	

The following papers were read :

"Dipole moments and the fixation of aromatic double links: Bromohydrindenes and bromotetralins." By N. V. SIDGWICK and H. D. SPRINGALL.

"The constitution of oroxylin-A, a yellow colouring matter from the root-bark of "*Oroxylum indicum*, Vent." By R. C. SHAH, C. R. MEHTA, and T. S. WHEELER.

"The part played by free radicals in unimolecular reactions." By C. N. HINSHELWOOD and L. A. K. STAVELEY.

ANNOUNCEMENTS.

1. The President has conveyed the hearty congratulations of the Society to Professor Gilbert Thomas Morgan and to Professor Cedric Stanton Hicks, whose names were in the List of Birthday Honours as receiving the honour of Knighthood, and to Mr. P. G. Lloyd, who received the M.B.E.

2. The Council has received with much regret the resignation of Professor J. Masson Gulland from the office of Honorary Secretary. At its meeting on June 18th, the following resolution was passed unanimously :

“ The Council records its high appreciation of the valuable services rendered to the Society by Professor J. Masson Gulland during his term of office as Honorary Secretary from March 1933, to July, 1936, and wishes him every success in his appointment to the Chair of Chemistry at University College, Nottingham.”

3. Dr. Cecil W. Davies has been appointed Honorary Secretary until the next Annual General Meeting.

4. The Council has received with much regret the resignation of Professor W. H. Lewis from the office of Local Representative for Exeter, and has appointed Professor H. T. S. Britton to this office.

5. The congratulations of the Society have been conveyed to the following Fellows who have completed 60 years of Fellowship :

Mr. Charles A. Buckmaster, elected 1st June, 1876.

Mr. Charles G. Matthews, elected 15th June, 1876.

6. The list of Fellows will be reprinted in 1936, and will be issued to Fellows at the charge of One Shilling. 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, by the 31st July, 1936.

THE LIBRARY.

The Library will be closed for stocktaking from Monday, August 3rd, until Saturday, August 15th (inclusive). During the following four weeks (August 17th to September 12th) the Library will close daily at 5 p.m.

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 Tuesday, December 1st, 1936. 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.

BRITISH STANDARDS INSTITUTION.

Draft standard specifications have been received from the British Standards Institution for Ostwald-Folin Pipettes and for Bomb Calorimeter Thermometers for technical comment and criticism. Copies of the specifications may be seen in the Library of the Chemical Society.

VAN 'T HOFF FUND FOR THE ENDOWMENT OF RESEARCH IN PURE AND APPLIED CHEMISTRY.

A communication has 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 1937 is about 1200 Dutch florins (approximately £162).

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, 1936, by registered post to: "Het Bestuur der Koninklijke Akademie van Wetenschappen, bestemd voor de Commissie van het 'van 't Hoff-fonds,' Trippenhuys, Kloveniersburgwal, Amsterdam, C." 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.

List of papers, or abstracts thereof, received between May 21st and June 18th, 1936. (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 chemistry of insects. Part II. Examination of the woolly aphid and of the white pine chermes." By B. K. BLOUNT.
- "Studies on the Michael reaction. Part II. The condensation of ethyl α -bromo*iso*-butyrate with some *n*-alkylmalonic esters. A note on the structure of the lupin alkaloids." By H. N. RYDON.
- "An asymmetric synthesis and its mechanism." By J. KENYON and S. M. PARTRIDGE.
- "New derivatives of *p*-arsanilic acid. Part VII. *p*-Arsonoazelanilic and *p*-arsono*o*-bacanilic acids and related compounds." By G. T. MORGAN and E. WALTON.
- "Structure of benzene. Part I. The problem and experimental method." By W. R. ANGUS, C. R. BAILEY, C. K. INGOLD, and C. L. WILSON.
- "Structure of benzene. Part II. Direct introduction of deuterium into benzene and the physical properties of hexadeuterobenzene." By C. K. INGOLD, C. G. RAISON, and C. L. WILSON. "Appendix: Discussion of the Vapour pressure of hexadeuterobenzene." By C. R. BAILEY and B. TOPLEY.
- "Structure of benzene. Part III. Raman spectra of liquid benzene and liquid hexadeuterobenzene." By W. R. ANGUS, C. K. INGOLD, and A. H. LECKIE.
- "Structure of benzene. Part IV. Infra-red absorption spectra of benzene and hexadeuterobenzene both as vapour and as liquid." By C. R. BAILEY, J. B. HALE, C. K. INGOLD, and J. W. THOMPSON.
- "Structure of benzene. Part V. Fluorescence spectra of benzene and hexadeuterobenzene vapour." By C. K. INGOLD and C. L. WILSON.
- "Structure of benzene. Part VI. Resonance emission spectrum of benzene and hexadeuterobenzene." By C. K. INGOLD and C. L. WILSON.
- "Structure of benzene. Part VII. Discussion of coincidental frequencies in the infra-red and Raman spectra of benzene and hexadeuterobenzene." By W. R. ANGUS, C. R. BAILEY, J. B. HALE, C. K. INGOLD, A. H. LECKIE, C. G. RAISON, J. W. THOMPSON, and C. L. WILSON.
- "Structure of benzene. Part VIII. Assignment of vibration frequencies of benzene and hexadeuterobenzene." By W. R. ANGUS, C. R. BAILEY, J. B. HALE, C. K. INGOLD, A. H. LECKIE, C. G. RAISON, J. W. THOMPSON, and C. L. WILSON.
- "Studies in the sterol group. Part XXIV. The constitution of calciferol." By I. M. HEILBRON, K. M. SAMANT, and F. S. SPRING.
- "Studies in the sterol group. Part XXV. An investigation of some reactions of the isomeric ethers of cholesterol." By J. H. BEYNON, I. M. HEILBRON, and F. S. SPRING.
- "Synthesis in the sesquiterpene series. Part III. A synthesis of 1:10-dimethyl-7-*iso*-propyldecal-2-one." By A. E. BRADFIELD, E. R. JONES, and J. L. SIMONSEN.
- "The possibility of dynamic isomerism in certain heterocyclic compounds." By E. W. MACCLELLAND and C. E. SALKELD.

- "A new method of oximation." By K. C. GULATI and J. N. RÂY.
- "The alkaloids of ergot. Part VI. Ergometrinine." By S. SMITH and G. M. TIMMIS.
- "The relative directive powers of groups of the forms RO and RR'N in aromatic substitution. Part X. The nitration of 4-*tert.*-butoxyanisole and 4-*isopropoxy*anisole." By L. J. GOLDSWORTHY.
- "The constituents of natural phenolic resins. Part VII. Arctigenin." By R. D. HAWORTH and W. KELLY.
- "Studies in dielectric polarisation. Part XVII. The dipole moments of some aromatic acid halides." By G. T. O. MARTIN and J. R. PARTINGTON.
- "Studies in dielectric polarisation. Part XVIII. The dipole moments of the chlorides of some dicarboxylic acids." By G. T. O. MARTIN and J. R. PARTINGTON.
- "Studies in dielectric polarisation. Part XIX. The dipole moments of some aromatic sulphochlorides." By G. T. O. MARTIN and J. R. PARTINGTON.
- "The reaction between amines and unsaturated compounds containing halogen attached to one of the ethylenic carbon atoms. Part I. The reaction between ethyl α -chlorocrotonate and dimethylamine." By J. C. ROBERTS.
- "Complex compounds of the olefins with metallic salts. Part II. Homologues of Zeise's salt." By J. S. ANDERSON.
- "The parachors of some metal carbonyl compounds." By J. S. ANDERSON.
- "Studies in dielectric polarisation. Part XX. The dependence of polarisation and apparent moment upon solvent and temperature : (A) nitriles." By E. G. COWLEY and J. R. PARTINGTON.
- "The action of phosphorus pentachloride on derivatives of diphenylamine." By R. R. GOODALL and W. O. KERMACK.
- "The different reaction-velocities of enantiomers with a common optically active reagent. Part I. Some new reactions of *d*- and *l*-camphor-10-sulphonyl chlorides." By A. S. GALLOWAY and J. READ.
- "Inductive effects in the diphenyl series." By (MRS.) C. G. LE FÈVRE and R. J. W. LE FÈVRE.
- "Arc spectrographic determination of indium in minerals and the association of indium with tin and silver." By F. M. BREWER and (MISS) E. BAKER.
- "The extraction of indium from cylindrite, from chalcopyrite and from metallic tin." By F. M. BREWER and (MISS) E. BAKER.
- "Isotope exchange between hydrogen bromide and bromine." By B. TOPLEY and J. WEISS.
- "5-Chloro- and 5-bromo-1-methylbenzthiazole and cyanine dyes prepared from them." By B. BEILENSON and (MISS) F. M. HAMER.
- "The halogenation of phenolic ethers and anilides. Part VII. A new method of determining the proportions of *ortho*- and *para*-isomerides in a mixture." By B. JONES.
- "Sapogenins. Part I. The sapogenins of sarsaparilla root." By F. A. ASKEW, S. N. FARMER, and G. A. R. KON.
- "Studies on hydrogen cyanide. Part VIII. The conductivity of electrolytes in anhydrous hydrogen cyanide. Some uni-univalent salts at 18°." By J. E. COATES and E. G. TAYLOR.
- "The preparation of certain 2:3-naphthalene derivatives." By H. H. HODGSON and R. L. ELLIOTT.
- "The mechanism of the *n*-halogenacylanilide rearrangements." By R. P. BELL.
- "The absorption spectrum of cobalt chloride in presence of magnesium chloride in aqueous solution." By O. R. HOWELL and A. JACKSON.
- "Aliphatic substitution and the Walden inversion. Part II." By E. D. HUGHES, F. JULIUSBURGER, A. D. SCOTT, B. TOPLEY, and J. WEISS.
-

ADDITIONS TO THE LIBRARY.

I. *Donations.*

IMPERIAL INSTITUTE. *Mineral Resources Department*. Reports on the mineral resources of the British Empire and foreign countries. Platinum and allied metals. 2nd edition. London 1936. pp. 137. (*Reference.*) 3s. net.

From the Director.

LADENBURG, A. Lectures on the history of the development of chemistry since the time of Lavoisier. Translated from the 2nd German edition by LEONARD DOBBIN. Edinburgh 1900. pp. xvi + 373. (*Reference.*)

From the Translator.

UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA. *Tea Scientific Department*. Bulletin No. 9. Tea manufacture in South India. By K. B. W. JONES. Madras [1936]. pp. viii + 176 + xv. ill. (*Reference.*)

From the Chief Scientific Officer.

II. *By purchase.*

FISCHER, EMIL J. Abfallstoffe der anorganisch-chemischen Industrie und ihre Verwertung. Dresden 1936. pp. x + 156. ill. M. 10. (*Recd.* 21/5/36.)

KCRZIL, FRANZ. Kieseluhr. Ihre Gewinnung, Veredlung und Anwendung. (Sammlung, N.F. Heft 32.) Stuttgart 1936. pp. 197. ill. (*Reference.*) M. 15.60.

MCCOMBS, LOIS F., and SCHRERO, MORRIS. Bibliography of non-metallic inclusions in iron and steel. Pittsburgh 1935. pp. xvi + 308. (*Reference.*) \$4.

NOBLE, ROYCE J. Latex in industry. New York 1936. pp. 384. ill. \$7. (*Recd.* 13/5/36.)

OST, H. Lehrbuch der chemischen Technologie. 19th edition. Edited by BERTHOLD RASSOW. Leipzig 1936. pp. xii + 941. ill. M. 19.80. (*Recd.* 19/5/36.)

PATZSCH, HERBERT. Nahrungsmittelkontrolle nach amtlichen Methoden. Leipzig 1935. pp. iv + 144. M. 4.80. (*Recd.* 19/5/36.)

PETERS, GERHARD. Chemie und Toxikologie der Schädlingsbekämpfung. (Sammlung, N.F. Heft 31.) Stuttgart 1936. pp. 120. ill. (*Reference.*) M. 9.20.

PLIMMER, R. H. A., and PLIMMER, VIOLET G. Food, health, vitamins. 7th edition. London 1936. pp. x + 178. ill. 3s. 6d. net. (*Recd.* 11/5/36.)

SCHÖNFELD, H. [Editor.] Chemie und Technologie der Fette und Fettprodukte. 2nd edition of "Technologie der Fette und Öle" by G. HEFTER. Vol. I. Wien 1936. pp. xviii + 917. ill. Subs. price M. 97. (*Recd.* 21/5/36.)

SPONER, H. Molekülspektren und ihre Anwendung auf chemische Probleme. 2 vols. Berlin 1935-36. pp. xi + 154, xii + 506. ill. M. 55.40. (*Recd.* 21/5/36.)

UNITED STATES PHARMACOPEIAL CONVENTION. The pharmacopœia of the United States of America. 11th decennial revision. (U.S.P. XI.) Official from June 1, 1936. Easton, Pa. 1935. pp. lxxx + 676. (*Reference.*) \$5.

III. *Pamphlets.*

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 662—1936. Carbon disulphide. pp. 13. ill.

— — — No. 663—1936. Ethyl lactate. pp. 15. ill.

CANADA, DOMINION OF. *National Research Council*. 18th annual report, 1934-35. Ottawa 1935. pp. 158.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Building Research*. Technical Paper No. 19. The carbonation of unhydrated Portland cement. By D. G. R. BONNELL. London 1936. pp. viii + 59. ill.

— — — *Chemistry Research*. Special Report No. 2. The biochemical activities of the acetic acid bacteria. By K. R. BUTLIN. London 1936. pp. iv + 47.

— — — Special Report No. 3. A review of the physiology and biochemistry of the sulphur bacteria. By H. J. BUNKER. London 1936. pp. iv + 48. ill.

— — — *Forest Products Research*. Record No. 9. (Wood Preservation Series No. 2.) Methods of applying wood preservatives. Part i. By J. BRYAN. London 1936. pp. 17. ill.

DEUTSCHE CHEMISCHE GESELLSCHAFT. Kurze Anleitung zur Orientierung in Beilsteins Handbuch der organischen Chemie. Edited by FRIEDRICH RICHTER and KONRAD ILBERG. Berlin 1936. pp. 23.

DROP, JACOBUS. Explosieve gasreacties bij verminderden druk. Leiden 1936. pp. x + 149. ill.

DRUEY, JEAN. Synthèse de nouvelles bases à fonction éther-oxyde phénolique en rapport avec leur activité sur le système nerveux sympathique. Paris 1936. pp. 77. ill.

GODBOLE, N. N., and MEHTA, R. N. Candle manufacture, with special reference to tropical climates. Benares 1935. pp. iv + 29. ill.

IMPERIAL SMELTING CORPORATION. The finishing of zinc alloy diecastings and rolled zinc. London 1935. pp. 12.

INDIAN LAC CESS COMMITTEE. *London Shellac Research Bureau*. Technical Paper

No. 7. Fundamental physical properties of lac. Part III. By L. C. VERMAN. London 1936. pp. 21. ill.

INDIAN LAC CESS COMMITTEE. *London Shellac Research Bureau*. Technical Paper No. 8. Darkening of lac solutions and the effect of oxalic acid thereon. By L. C. VERMAN and R. BHATTACHARYA. London 1936. pp. 22. ill.

INDIAN LAC RESEARCH INSTITUTE. A shellac patent index. By R. W. ALDIS. Nankum 1935. pp. iv + 115.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications. Series A. No. 34. Some recent investigations on the corrosion of tin. By D. J. MACNAUGHTAN and E. S. HEDGES. London 1936. pp. 13.

——— No. 41. The preparation of substituted benzene-*o*-dithiols for use as

specific reagents for tin. By R. E. D. CLARK. London 1936. pp. 7.

MINES DEPARTMENT. *Safety in Mines Research Board*. Papers Nos. 95 and 96. The inflammation of coal dusts. By T. N. MASON and R. V. WHEELER. London 1936. pp. 16, 10.

OTTER, HENDRIK PIETER DEN. Derivaten der oxydatieproducten van glycerine. Leiden 1936. pp. viii + 178.

PENFOLD, A. R., and MORRISON, F. R. Australian tea trees of economic value. Part II. (*Sydney Technological Museum Bulletin*, No. 14.) Sydney 1936. pp. 18. ill.

RAMEAU, J. T. L. B. Symmetrische secundaire diaminen afgeleid van aethyleendiamine. Leiden 1936. pp. xvi + 139.

ROBERT, JOHANNA LOUISE. Chloor- en aethoxy-dinitrophenyl(methyl)hydrazinen en derivaten. Leiden 1936. pp. viii + 187.

PAGES MISSING FROM 59-70

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Extra Meeting, Thursday, October 29th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

After briefly introducing the Lecturer, Professor A. P. Laurie, M.A., D.Sc., the PRESIDENT called on him to deliver his lecture, entitled "Mediæval Pigments and Mediums used in Painting."

At the conclusion of the lecture, a vote of thanks to the Lecturer was proposed by Professor H. J. Plenderleith and seconded by Professor C. K. Ingold. This was carried with acclamation and acknowledged by Professor Laurie.

A meeting of the Society was held jointly with the University College of Swansea Chemical Society on Friday, October 30th, 1936, at 6 p.m. in the Chemistry Lecture Theatre, University College, Swansea. The Chair was taken by Mr. P. G. MORRIS. Professor I. M. Hellbron, D.S.O., F.R.S., delivered a lecture on "Lipochrome Pigments in Plants and Animals," which was fully illustrated by an experimental demonstration by Mr. B. Lythgoe. The Lecture was well attended by Fellows and visitors. A discussion followed, in which the following took part : Dr. L. E. Hinkel, Dr. J. F. J. Dippy, Dr. W. S. Nathan, Mr. G. O. Richards, Dr. J. H. Quastel, and Dr. John Pryde. A vote of thanks to the Lecturer, proposed by Professor T. Campbell James, seconded by Mr. W. D. E. Thomas, and supported by Dr. John Pryde, was carried with acclamation.

Ordinary Scientific Meeting, Thursday, November 5th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., 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.
Thomas Martin Lowry	1898	November 2nd.
Herbert Bloome Mole	1893	October 29th.
Arthur Holt Tuer	1892	

Mr. A. T. Horton was formally admitted a Fellow of the Society.

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

George Norman Carruthers, B.A., B.Sc., Granby House, Whitehaven, Cumberland.
Cyril Humphrey Cripps, The Lawn, Roade, Northampton.
James Henry Cruickshank, Ph.D., 255, Iffley Road, Oxford.
Alfred Robert Cumming, 41, Mount Road, Alkrington, Middleton, Lancs.
William Oliver Cutler, B.Sc., Glenlivet, Station Road, Albrighton, Wolverhampton.
Edward Michael Evans, B.Sc., A.R.C.S., Kinsdale, Sea View Road, Ramsgate.
James Edgar Fearey, B.Sc., 161, Stokesley Crescent, Billingham, Co. Durham.
William Lawrence Glen, B.Sc., Alverton, Gourock.
Frank William Hobden, B.Sc., 107, Mercers Road, London, N. 19.
Gladys Mary Holmes, B.Sc., 587, Clarkston Road, Muirend, Glasgow.
Stanley Alfred Horace Hunn, 34, Hepworth Road, Streatham, S.W. 16.
Hans Leo Lehmann, Dr. Phil., 20, St. George's Road, Golders Green, N.W. 11.

Lucas George Leong, P.O. Box 946, Hong Kong.
 John Richard Lewis, B.Sc., 54, Cambria Street, Holyhead.
 Cyril Long, B.A., Stanmore, The Middles, Craghead, Co. Durham.
 Cecil Robert Mavin, M.Sc., Ph.D., 20, Haversham Road, Higher Crumpsall, Manchester.
 Fritz Micheel, Prof., Dr.Phil., Westfälischen Wilhelms-Universität, Johannisstrasse 7, Münster
 i.W.
 Frank Morton, M.Sc.Tech., A.I.C., Trinidad Leaseholds, Ltd., Pointe-à-Pierre, Trinidad.
 James Edward Murphy, B.Sc., 31, Salisbury Avenue, Barking.
 George Ashley Newell, Dormers, Shalford Road, Guildford.
 Denys Alexander Herbert Parsons, B.Sc., 17, Percy Street, London, W. 1.
 Thomas Richardson, B.Sc., Ivy Cottage, Sunniside, Newcastle-on-Tyne.
 Daphne Ailsa Stephan, B.Sc., 12, Grange Gardens, Grange Road, Cambridge.
 John N. Street, M.S., Ph.D., 605, Sunset View Drive, Akron, Ohio.
 Max Sulzbacher, Ph.D., 43, Belsize Avenue, Hampstead, N.W. 3.
 George Thomas Turton, 12, Burns Avenue, Southall.
 Leslie Frederick Wiggins, B.Sc., 52, Watlen Road, Leamington Spa.
 George Lewis Wild, B.Sc., Walden, Uphill Road, Mill Hill, N.W. 7.
 Barry Arthur Mauger Windsor, B.Sc., 3, Alma Square, St. John's Wood, N.W. 8.
 Margaret Helen Chalmers Wiseman, B.Sc., 35, Adamson Road, London, N.W. 3.
 Aubrey Maurice Woolman, A.R.C.S., Imperial College Hostel, Prince Consort Road, South
 Kensington, S.W. 7.
 Cheng-Kai Wu, B.Sc., 65, Kimberley Road, Cambridge.

and for the second time in favour of 38 candidates.

The following papers were read :

- “ The photoreactions of acetone in solution.” By E. J. BOWEN.
 “ Studies in chemisorption on charcoal. Parts VI and VII.” By A. KING and C. G.
 LAWSON.
 “ Recent applications of surface film measurements to the elucidation of the structures
 of organic molecules.” By F. A. ASKEW.

Ordinary Scientific Meeting, Thursday, November 19th, 1936, at 8 p.m., Professor
 N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., President, in the Chair.

In welcoming the visitors, the PRESIDENT referred to the presence of Dr. G. W. Wheland,
 of Pasadena, California.

The PRESIDENT referred to the loss sustained by the Society, through death, on
 November 2nd, of Marius Maxwell who was elected a Fellow in 1913.

It was announced :—

1. That Dr. H. J. T. Ellingham had been appointed a member of the British National
 Committee for Chemistry in place of Professor J. M. Gulland.

2. That the Council had conveyed the congratulations of the Society to Dr. F. T. Shutt,
 who completed 50 years of Fellowship on November 18th, 1936.

3. That the Council had decided after consultation with the Bureau of Chemical
 Abstracts that as from the beginning of 1937 *British Chemical Abstracts* “ A ” (*Pure
 Chemistry*) shall be issued in three sections as follows :

- A I Physical and Inorganic Chemistry,
- A II Organic Chemistry,
- A III Biochemistry.

Each section will have separate pagination and will be issued in separate covers.

Fellows will have the privilege of receiving all three sections should they desire to do so,
 but the Council hopes that those Fellows who do not want all three sections will be good
 enough to inform the Assistant Secretary which of these they wish to receive and thus
 assist the Council to effect economy in printing and postage.

Fellows may obtain extra copies at £1 per section, or at £2 for the complete set, the
 price of an extra copy of the Index being 5s.

The Council has also decided to issue in future the *Abstracts "A" printed on one side of the page* (gummed or ungummed) in three separate sections. The prices for these three sections for 1937 will be 15s. per section, or £1 10s. for the complete set.

Fellows may also obtain Abstracts printed on one side of the page *in lieu of* Abstracts printed on both sides at a charge of 2s. 6d. per section, or at 5s. for the three sections.

Further particulars will be sent to Fellows.

The following were formally admitted Fellows of the Society: E. P. Goodings and L. C. Bateman.

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

Edward Penley Abraham, B.A., 5, South Parade, Oxford.
 Joseph Allen, B.A., 87, Eldon Street, Preston.
 Michael David Lester Mitchell Alton, B.Sc., 22, Holmbush Road, Putney Hill, S.W. 15.
 Andrew Bowman, B.A., Queen's College, Oxford.
 Cedric John Brown, B.Sc., 11, The Mount, Caversham.
 Bryan Robert Cookson, B.Sc., Brook Hill, Crowhurst.
 James Norman Davidson, B.Sc., 59, Morningside Park, Edinburgh.
 Gordon Henry Elliott, B.Sc., A.R.C.S., 22, Downs Avenue, Dartford.
 Donald Faulkner, St. John's College, Cambridge.
 Eric Granville Blair Giles, A.R.C.S., 29, Burlington Road, Chiswick, W. 4.
 Frank Witcomb Harris, Trinity College, Cambridge.
 George Cashmore Israel, M.Sc., 21, Wellington Street, Invercargill, New Zealand.
 Margaret Manderson Jamison, B.Sc., 35, Hotham Road, Putney, S.W. 15.
 George Alan Jeffrey, B.Sc., 62, Balsall Heath Road, Edgbaston, Birmingham.
 Bernard Ashford Kilby, 104, Norman Avenue, Nuneaton.
 Leonard Esmond King, B.Sc., New College, Oxford.
 Alfred Gavin Maddock, 11, Bayham Road, Bedford Park, W. 4.
 Harold Kingsley Packer, 8, Bourne End Road, Northwood.
 Alexis Laird Parker, B.Sc., Caerleon, Kilmacollm.
 George Potticary Pollard, M.A., Crofton, Hollybank Road, West Byfleet.
 Kenneth Strang Sharples, Lauriston, Woodford Road, Bramhall, Cheshire.
 William Henry Smith, Romany, Holly Road, Uttoxeter.
 Leonard Frederick Story, B.Sc., Ailesworth, Peterborough.
 Gordon Brims Black McIvor Sutherland, M.A., B.Sc., Ph.D., 180, Huntingdon Road, Cambridge.
 and for the second time in favour of 32 candidates.

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

Lucas George Leong, P.O. Box 946, Hong Kong.
 William Douglas McFarlane, M.A., B.Sc., Ph.D., Prof., Macdonald College, St. Anne de Bellevue, Quebec.
 Fritz Micheel, Prof., Dr.Phil., Chemische Institut, Westfälischen Wilhelms-Universität, Johannistrasse 7, Munster i.W.
 John N. Street, M.S., Ph.D., 605, Sunset View Drive, Akron, Ohio.
 Max Sulzbacher, Ph.D., 43, Belsize Avenue, Hampstead, N.W. 3.

A Discussion on "Mesomerism in Organic Chemistry" was opened by Professor C. K. Ingold, and continued by Dr. L. E. Sutton, Dr. G. W. Wheland, Dr. J. W. Baker, The President, Professor R. Robinson, Dr. E. D. Hughes, Dr. A. R. J. P. Ubbelohde, Dr. R. J. W. Le Fèvre, Dr. J. T. Hewitt, and Dr. L. P. Walls.

THE LIBRARY.

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

ANNUAL REPORTS FOR 1936, VOL. XXXIII.

Applications for the Annual Reports for 1936, at the reduced price of 5s. 6d. should reach the Assistant Secretary by January 15th, 1937.

LIST OF FELLOWS, 1936.

The List of Fellows, corrected to the end of September, 1936, is now ready. Copies, price One Shilling each, are obtainable by Fellows from the Assistant Secretary.

**FIFTH INTERNATIONAL TECHNICAL AND CHEMICAL CONGRESS OF
AGRICULTURAL INDUSTRIES.**

The Fifth International Technical and Chemical Congress of Agricultural Industries will be held at Scheveningen (Holland), on July 12th to 17th, 1937. A preliminary programme containing a list of the various Committees and of the general subjects which will be discussed, together with particulars of the receptions and excursions, is now ready. Further information may be obtained from the Honorary Secretary, Dr. Ir. J. P. Dudok van Heel, "Die Rietkraag," Naarden, Holland.

List of papers, or abstracts thereof, received between October 15th and November 19th, 1936. (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 tautomerism of quinoneoxime-*p*-nitrosophenol systems." By H. H. HODGSON.
- "The nitration of various naphthylphthalimides and the facile preparation of 8-nitro-1-naphthylamine." By H. H. HODGSON and J. H. CROOK.
- "Studies in the sterol-œstrone group. Part I. A synthesis of 3'-keto-3:4-dihydro-1:2-cyclopentenophenanthrene." By J. C. BARDHAN.
- "Terpene compounds. Part III. A synthesis of isofenchocamphononic acid." By J. C. BARDHAN and N. C. GANGULY.
- "A rearrangement of *o*-aminodiphenyl ethers. Part V." By K. C. ROBERTS and J. A. RHYS.
- "A reaction of certain diazosulphonates derived from β -naphthol-1-sulphonic acid. Part XVII. Conversion of nitro-3-aryl- and nitro-3-aryl-4-methyl-phthalaz-1-ones into corresponding 4-ones by migration of the nitroaryl group, and related reactions." By F. M. ROWE, D. A. W. ADAMS, A. T. PETERS, and (in part) A. E. GILLAM.
- "The structure of some derivatives of fluorene and fluorenone." By E. D. HUGHES, (MRS.) C. G. LE FÈVRE, and R. J. W. LE FÈVRE.
- "Polymolecular adsorbed films. Part II. The general theory of the condensation of vapours on finely divided solids." By R. S. BRADLEY.
- "Reactions of *o*-hydroxybenzylidenediacetophenones. Part VII. Flavylum salts from dihydrochalkones." By A. D. HARFORD and D. W. HILL.
- "Autoxidation phenomena and valency tautomerism in the indone series." By A. SCHÖNBERG and R. MICHAELIS.
- "The acid fluorides of the alkali metals. Part I. The acid fluorides of rubidium." By E. B. R. PRIDEAUX and K. R. WEBB.
- "The dissociation constants of organic acids. Part XVI. The thermodynamic primary dissociation constants of some alkylmalonic acids." By G. H. JEFFERY and A. I. VOGEL.
- "Synthetic experiments in the naphthalene and phenanthrene series." By B. K. MENON.
- "Rearrangement of the alkyilanilines. Part VII. The behaviour of alkyilanilines with tertiary alkyl groups." By W. J. HICKINBOTTOM.
- "Derivatives of 4-cyclohexyldiphenyl. Part II." By F. R. BASFORD.
- "The kinetics of bromine addition." By P. W. ROBERTSON, N. T. CLARE, K. J. McNAUGHT, and G. W. PAUL.
- "Experiments on the synthesis of rotenone and its derivatives. Part X. 6:7-Dimethoxy-chroman-4-one." By H. F. BIRCH, A. ROBERTSON, and T. S. SUBRAMANIAN.
- "Researches on phellandrenes. Part IV. A comparison of the catalytic dehydrogenation of *l*- α -phellandrene and *l*-piperitone." By J. DEWAR and J. READ.

- “ The replacement of the hydroxyl group of ethyl (+) lactate by halogens and the molecular dissymmetry of derivatives of ethyl lactate which contains the sulphur group.” By W. GERRARD, J. KENYON, and H. PHILLIPS.
- “ The action of alkaline reagents on some α -arylamino-ketones and their oximes.” By J. C. EARL and S. J. HAZLEWOOD.
- “ The caryophyllenes. Part V. The structure of homocaryophyllenic acid.” By G. R. RAMAGE and J. L. SIMONSEN.
- “ The azo-group as a chelating group. Part II. The structure of the diazoamino-compounds.” By L. HUNTER.
- “ Studies in dielectric polarisation. Part XXI. The effect of solvent and temperature upon the polarisation and apparent moments of bromides.” By E. G. COWLEY and J. R. PARTINGTON.
- “ Usnic acid. Part IV. The synthesis of 4 : 6-dimethoxy-3 : 5-dimethylcoumarone-2-acetic acid.” By H. F. BIRCH, D. G. FLYNN, and A. ROBERTSON.
- “ The polymerisation of cyanogen in solution.” By F. C. GUTHRIE and J. T. NANCE.
- “ The reaction between potassium ferricyanide and potassium cyanide.” By F. C. GUTHRIE and J. T. NANCE.
- “ Combination of fatty acids with nitrogen bases. Part II. Piperidine and lower fatty acids : conductivities and viscosities of liquid anhydrous salts.” By E. B. R. PRIDEAUX and R. N. COLEMAN.
- “ The halogenation of phenolic ethers and anilides. Part VIII. Alkoxy-, dialkoxy-benzophenones and dialkoxydiphenylsulphones.” By B. JONES.
- “ The dipole moments of vapours. Part III. Homologous series.” By L. G. GROVES and S. SUGDEN.
- “ The chemistry of certain *Aspergillus* colouring matters. Part I.” By H. RAISTRICK, R. ROBINSON, and A. R. TODD.
- “ The iodination of 3-hydroxy- and of nitrated 3-hydroxy-benzaldehydes, and the nitration of certain iodo-3-hydroxybenzaldehydes.” By H. H. HODGSON and E. W. SMITH.
- “ Heats of activation in the mutarotation of glucose. Part I. Catalysis in sodium hydroxide solutions.” By G. F. SMITH.
- “ Some 2 : 2'-derivatives of diphenyl.” By (Miss) D. E. COOK and E. E. TURNER.
- “ Decomposition reactions of the aromatic diazo-compounds. Part I. Evidence for non-ionic reaction.” By W. A. WATERS.
- “ The thermal coefficient of the thermal decomposition of silver oxalate.” By J. Y. MACDONALD.
- “ The constitution of brazilein.” By V. M. MIČOVIČ and R. ROBINSON.
- “ A synthesis of tangeritin.” By L. J. GOLDSWORTHY and R. ROBINSON.
- “ The racemisation of some *d*-*o*-(2-dimethylaminophenyl)phenyltrimethylammonium salts.” By (Miss) D. E. COOK and E. E. TURNER.
- “ The identity of dacrene and sciadopitene with phyllocladene.” By L. H. BRIGGS.

FORMS OF RECOMMENDATION FOR FELLOWSHIP. THE BALLOT WILL BE HELD AT THE ORDINARY SCIENTIFIC MEETING ON THURSDAY, DECEMBER 3rd, 1936.

BARBER, PERCY, 66, Norwood Drive, North Harrow, Middlesex. British. Chemist. Two years Assistant Chemist, Beighton Coke Ovens, Sheffield; ten years Chief Chemist, Hoyland Silkstone Coal & Coke, Co., Barnsley; ten years Chief Chemist, The Askern Coal & Iron Co., Ltd., Doncaster. Present appointment Chief Chemist, Wm. Boby & Co., Ltd., 62, Brook Street, London. Desirous of admission to keep in touch with Chemical progress. (*Signed by*) J. A. Goodson, L. O. Newton, W. A. S. Calder.

BAUGHAN, EDWARD CHRISTOPHER, Balliol College, Oxford. British. B.A., qualified for B.Sc. (Oxford). Demonstrator in Balliol and Trinity Colleges Laboratory since October, 1935. I wish to receive the periodicals and use the library. *J.C.S.* (with R. P. Bell and M. W. Vaughan-Jackson), 1934, p. 1969. (*Signed by*) J. H. Wolfenden, Ronald P. Bell, C. N. Hinshelwood.

BENHAM, GRAHAM HARVEY, 88, The Ridgeway, Golders Green, N.W. 11. British. Research Biochemist. London, B.Sc. (2nd Class Hons.), 1935. University College (Chemistry and Physiology). Research Assistant to Sir Stewart Duke-Elder. Hon. Demonstrator in Phys. and Biochem., University College. *Biochem. J.*, 1936, XXX, pp. 773—775; *Br. J. Ophth.*, Sept. 1936, pp. 520—527. Date of birth March 8th, 1912. (*Signed by*) F. G. Donnan, Henry Terrey, L. F. Gilbert.

BIRCH, ARTHUR JOHN, 36, Ebley Street, Waverley. Sydney, N.S.W., Australia. Australian. Honours Degree student in Chemistry. As an Honours Student in Chemistry I wish to keep in touch with developments in that Science by the medium of the Society's publications. Date of birth August 3rd, 1915. (*Signed by*) J. C. Earl, J. E. Mills, C. E. Fawsitt.

BOLAM, FRANCIS METCALF, 41, Richmond Road, Wepre Drive, Connah's Quay, North Wales. British. Chemistry Master, Deeside Central School, Shotton. B.Sc. (Hons.) Chemistry. Science Master, Flixton Senior Boys' School, Flixton, near Manchester. Chemistry Master, Deeside Central School, Shotton, near Chester. Associate of the Institute of Chemistry. "Synthesis of Alkylphenanthrenes. Part III, 1 : 2 : 7-, 1 : 3 : 7-, and 1 : 6 : 7-Trimethylphenanthrenes," by R. D. Haworth and (in part), F. M. Bolam, *J.C.S.*, 1932, p. 2248. Date of birth, Oct. 30th, 1911. (*Signed by*) Richard Raper, R. D. Haworth, G. R. Clemo.

BROWN, ALAN GRAHAME, Orchardside, Box End, Kempston, Bedford. British. Pharmacist. Member of the Pharmaceutical Society of Great Britain (obtained from College of Pharm. Soc., University of London). Date of birth Oct. 23rd, 1913. (*Signed by*) Stanley N. Farmer, A. H. Cook, Leslie W. J. Newman.

BRUCE, JOSEPH, 31, Geneva Road East, Darlington, Co. Durham. British. Chemistry Research Student. B.Sc. (Hons. Chemistry), Leeds University. Carrying out research with Prof. F. Challenger at The University of Leeds. Date of birth Feb. 2nd, 1914. (*Signed by*) Frederick Challenger, C. W. Shoppee, H. Burton, E. Rothstein, J. W. Baker.

CAMBITZI, ANTHONY, 211, Cromwell Road, S.W. 5. British. Oenologist. Student of Chemistry, Univ. Coll. London (1933—1936). (*Signed by*) L. F. Gilbert, Henry Terrey, J. N. E. Day.

CARRUTHERS, GEORGE NORMAN, Granby House, Whitehaven, Cumberland. British. Student. B.A., B.Sc. (Oxford). Research Student in Organic Chemistry. Date of birth April 3rd, 1915. (*Signed by*) D. Ll. Hammick, J. C. Smith, W. Baker.

CHATTAWAY, FRANCIS WILLIAM, "The Briars," 11, Ranelagh Road, Southall, Middlesex. British. Student. B.Sc. London. Date of birth Nov. 22nd, 1915. (*Signed by*) J. R. Partington, H. D. K. Drew, F. H. Pearman.

CHUDGAR, MANILAL SUKHLAL, Works Manager, The Pioneer Magnesia Works, Ltd., Kharaghoda (B.B. & C.I. Ry.), India. Indian. Works Manager and Chemist. B.A. (Hons.), Bombay. Twenty years' experience as manufacturing chemist; at the Pioneer Magnesia Works, Ltd., Kharaghoda. Sometime Assistant Chemist, Board of Minerals, Government of India. (*Signed by*) M. S. Shah, K. G. Naik, C. C. Shah.

CRIPPS, CYRIL HUMPHREY, The Lawn, Roade, Northampton. British. Student. Higher School Certificate. Inter B.Sc. (London). Natural Science Tripos, Pt. 1, Class II, Reading Chemistry for Pt. II. Date of birth Oct. 2nd, 1915. (*Signed by*) W. G. Palmer, F. B. Kipping, R. G. W. Norrish.

CRUICKSHANK, JAMES HENRY, 255, Iffley Road, Oxford. British. Research Student. B.Sc. (Aberdeen), Ph.D. (Aberdeen). 1933—1935, Research student at Aberdeen University in Chemistry. Publications (with Dr. F. W. Gray): *Nature*, 135, 152; 135, 268. *Trans. Faraday Soc.*, 31, 1491. *J. Sci. Inst.*, 13, 13. 1935—1936 and 1936—1937, Carnegie Research Fellow at Oxford University. Date of birth Jan. 28th, 1913. (*Signed by*) James Walker, D. Ll. Hammick, R. Robinson.

CUMMING, ALFRED ROBERT, 41, Mount Road, Accrington, Middleton, Manchester. British. Joint Managing Director, Messrs. Cumming Parsons, Ltd., Lilley St. Works, Collyhurst, Manchester 9. Received training in Chemistry in evening class. Royal Technical College, Glasgow. Have been engaged as a Manufacturing Chemist for the past 18 years. Am anxious to keep abreast of developments in the chemistry of essential oils. (*Signed by*) A. B. Crawford, I. Vance Hopper, John A. Cranston.

CUTLER, WILLIAM OLIVER, "Glenlivet," Station Road, Albrighton, Wolverhampton. British. Research Chemist, University of Birmingham. B.Sc. (1st Class Hons.), University of Birmingham. Date of birth April 25th, 1914. (*Signed by*) Stanley Peat, M. Stacey, Wm. Wardlaw.

DAVIES, LEONARD, 29, Caldý Road, Pendleton, Salford, 6. British. Electro-Chemist.

Student, Chemistry Dept. Royal Technical College, Salford. Research Electro-Chemist, Metropolitan Vickers Elect. Co., Ltd., Trafford Park, Manchester. Works Manager, The Chromatic Plating Co., Ltd., Wembley, Middlesex. Electro-Chemist. The London Aluminium Co., Ltd., Witton, Birmingham. Joint author of the following paper: "Protective Value of Some Electro-Deposited Coatings," Davies and Wright, *Journal Inst. Metals.*, 1930, **43**, 247—258. (*Signed by*) Ernest Clark, B. Prentice, F. Fairbrother.

DENNY, JOHN ORMONDE KEITH, Bridestone Estate, Launceston Forward Mail, Tasmania. British. Distiller of Essential Oils. Student at University College, London, reaching pass standard in B.Sc. Final Examination in Chemistry. Employed in Distillation of Essential Oils (Lavender) in Tasmania. Wish to receive papers of Society while abroad. (*Signed by*) R. J. W. Le Fèvre, Henry Terrey, F. G. Donnan.

EVANS, EDWARD MICHAEL, "Kinsale," Sea View Road, Cliffs End, nr. Ramsgate, Kent. British. Research Student. A.R.C.S., B.Sc. (Lond.) (1st Class Hons.), Royal College of Science, London. (*Signed by*) G. A. R. Kon, H. N. Rydon, H. V. A. Briscoe.

FAIRCLOUGH, RICHARD ALAN, 334, Banbury Road, Oxford. British. Chemistry Student. B.A. (Oxon.). I wish to become a fellow in order to receive the *Journal*. Date of birth, March 5th, 1915. (*Signed by*) D. Ll. Hammick, G. D. Parkes, S. G. P. Plant.

FEAREY, JAMES EDGAR, 161, Stokesley Crescent, Billingham, Co. Durham. British. Assistant Research Chemist. B.Sc. (Special), London Univ. (2nd Class Hons.), Hull University College. Two years research on catalysis at I.C.I. (F. & S.P., Ltd.), Billingham. (*Signed by*) M. P. Applebey, A. W. Taylor, B. W. Bradford, H. M. Roberts.

FRANKI, ROBERT JAMES ANNING, 891, New South Head Road, Rose Bay, Sydney, Australia. Australian. Fourth year Honours Student of Sydney University. As an Honours Student in Organic Chemistry and a potential commercial or Research Chemist, I desire to keep in touch with the latest advances in the Science, through the Society's publications. (*Signed by*) J. C. Earl, C. E. Fawsitt, Thomas Iredale, J. E. Mills.

GEACH, GEORGE ALWYN, 262 Abbeyfield Road, Sheffield 4. British. Student. B.Sc. Honours, Sheffield University (Class 2, division 1). To receive the *Journal*. Date of birth July 27th, 1913. (*Signed by*) G. M. Bennett, Arthur W. Chapman, Brynmor Jones.

GLEN, WILLIAM LAWRENCE, "Alverton," Gourrock, Scotland. British. Research Student. B.Sc. (Glasgow). Research assistant and demonstrator in Chemistry in Royal Technical College, Glasgow since 1934. "The Preparation and Therapeutic Properties of Certain Acridine Derivatives," by W. L. Glen, M. M. J. Sutherland, and F. J. Wilson, *J.C.S.*, in press. (*Signed by*) F. J. Wilson, W. M. Cumming, M. M. J. Sutherland.

GLOYNE, HERBERT WHINCUP, 17, Henshaw Street, Stretford Manchester. British. Works Chemist (Oswald M'Cardell & Co., Ltd., Stretford, Manchester). Special B.Sc. (London). Assistant Works Chemist, Textile Industry, 11 years, Senior Laboratory Assistant, Rubber Industry, 1 year, Degree Student, Bradford Technical College, 2 years, Works Chemist, Chemical Industry, 3 years. (*Signed by*) R. O. M'Cardell, C. G. Lyons, R. Cuthill.

GORDON, ROY ROBERT, 129, Cheviot Gardens, Hendon Way, N.W. 2. British. Ramsay Memorial Research Fellow. M.A., B.Sc. (Glasgow). Four years research experience at Glasgow University on "The Measurement of Rotatory Dispersion and Circular Dichroism in the Ultra-violet," also work on the Photochemistry of Pseudo-Nitrols (thesis presented for Ph.D.). Qualified school teacher under the Education Authority of Scotland. Mitchell and Gordon, *J.C.S.*, June 1936, 853—856. (*Signed by*) F. G. Donnan, Henry Terrey, O. J. Walker.

HARRADENCE, RITA HARRIET, 27, Henley Road, Homebush West, Sydney, N.S.W., Australia. Australian. Honour's Degree Student in Chemistry. I wish to keep in touch with the latest researches in Chemistry through the medium of the Society's publications. Date of birth Sept. 16th, 1915. (*Signed by*) J. C. Earl, C. E. Fawsitt, J. E. Mills, Thomas Iredale.

HELLSTRÖM, EGON NILS ERIK, Org. Laboratoriet, Kungl. Tekniska Högskolan, Valhallavägen, Stockholm (Sweden). (*At present and until the middle of December*: Chem. Dept. of the University College of North Wales, Bangor.) Swedish. Privatdozent, first Assistant at the org. lab. K. Tekniska Högskolan, Stockholm. Filosofie Doktor (Lund, Sweden). "Das Reaktionsvermögen der Mercaptidogruppe," I, II, and III: *Zschr. physik. Chem.*, Abt. A, 1931, **157**, 242, 1932, **163**, 33, and 1934, **169**, 416. "Halogenättiksyror och tioglykolsyra," *Diss. Lund*, 1935. "Bromometrisk bestämning av sulfidsyror"; *Svensk kemisk Tidskr.*, 1933, **45**, 157. "Kinetik der Sulfoniumverbindungen"; *Zschr. physik. Chem.*, Abt. A., to appear in print shortly. "Methylthioglykolsäure und Quecksilberchlorid (with B. Holmberg)"; *Ark. f. Kem., Miner. o. Geol. (Sv. Vet. Akad.)*, Bd. 12A, No. 2. "Ueber Alkyl-thioglykolsäureanilide," etc. (with T. Lauritzson): *Ber. deutsch. chem. Ges.*, 1936, **69**, 1999. "Ueber tert.-

Butylthioglykolsäure, etc." (with T. Lauritzson), *Ber. deutsch. chem. Ges.*, 1936, **69**, 2003. (Signed by) J. L. Simonsen, W. Rogie Angus, G. R. Ramage.

HEMS, BENJAMIN ARTHUR, 2, Bulloch Avenue, Giffnock, Glasgow, Scotland. British. Research Student in Chemistry. B.Sc. (1st Class Hons. in Chem.), Glasgow. Ph.D. Research Student and Assistant at Edinburgh University. (Signed by) Alex R. Todd, George Barger, C. P. Stewart.

HOBDEN, FRANK WILLIAM, 107, Mercers Road, N. 19. English. Research Student. B.Sc. (London). To receive *Abstracts* and attend meetings. Date of birth Oct. 26th, 1915. (Signed by) C. L. Wilson, C. K. Ingold, T. I. Williams.

HOLMES, GLADYS MARY, 587, Clarkston Road, Muirend, Glasgow, S. 4. British. Technical Assistant (I.C.I., Ltd.) B.Sc., 1st Class Hons., Chemistry (Glasgow University). Part Author: *J.C.S.*, 1935, 904 and 1936, 1007. Date of birth Aug. 21st, 1913. (Signed by) E. H. Rodd, P. Chorley, R. Brightman.

HOOPER, EDWIN BAKER, 2, Victoria Park Road, W., Cardiff. British. Chemist and Druggist. M.P.S. Member of the Pharmaceutical Society of Great Britain. Wish to acquire library for further studies. (Signed by) J. H. Rogers, E. W. S. Press, W. Cule Davies.

HORTON, JOHN LAURENCE, 103, Colworth Road, Leytonstone, E. 11. British. Analytical Chemist. Intermediate B.Sc. (London). Assistant with Messrs. John Heron & Son, Minorities, London. To keep in touch with latest progress by receiving *Journal* and attending lectures, and to use library. (Signed by) S. C. Goddard, R. G. Atkinson, Harold Heron.

HUNN, STANLEY ALFRED HORACE, 34, Hepworth Road, Streatham, S.W. 16. British. Chemist. I desire to receive the publications, attend meetings and use the Library. Four years as Assistant to Dr. S. P. Schotz. Four years as an Installation Chemist with Shell-Mex and B.P., Ltd. One year as Chemist in Shell-Marketing Co.'s Central Laboratories. Now assistant to Chief Chemist with Eagle Oil and Shipping Co., Ltd. (Signed by) E. C. Pickering, T. Heap, J. Kenyon.

JACKSON, FREDERICK JOHN PARLAND, 77, Prince of Wales Mansions, S.W. 11. British. Army Officer. B.Sc. (Lond.), A.R.C.S. One year research in Brown-Firth Steel Works Research Laboratory. (Signed by) A. A. Eldridge, Eric S. Narracott, E. S. Paice.

KAWASAKI, CHIKATARO, Pharmaceutical Institute, Medical College, Tokyo Imperial University, Hongo-ku, Tokyo, Japan. Japanese. Research-Assistant at Pharm. Institute, Tokyo, Imp. University. (Yakugaku-si) Graduate of Pharm. Institute, Tokyo, Imp. University. (Signed by) H. Kondo, E. Ochiai, S. Sugasawa.

KELLY, DENIS BERTRAM, 47, Cliff Road, Leigh-on-Sea, Essex. British. Postgraduate Research Student. London, B.Sc. (1st Class). Date of birth Sept. 20th, 1915. (Signed by) J. R. Partington, H. D. K. Drew, F. H. Pearman.

LAVINGTON, ELISABETH MARY WYKEHAM, Askett, Aylesbury, Bucks. British. Demonstrator and Assistant Lecturer in Chemistry at Royal Holloway College. B.A., B.Sc., Oxford. T. W. J. Taylor and E. M. W. Lavington, *J.C.S.*, 1934, 980. (Signed by) T. W. J. Taylor, W. Baker, M. M. T. Plant.

LEBEN, LESLIE, Emmanuel College, Cambridge. British. Research Student, Cambridge. B.A., Cambridge. 1st Class Hons. degree in Chemistry, Cambridge University. Date of birth March 22nd, 1915. (Signed by) H. W. Keenan, F. P. Bowden, T. M. Lowry.

LEHMANN, HANS LEO, 20, St. George's Road, Golders Green, N.W. 11. German. Analytical and Consulting Chemist. Dr. phil. nat. Heidelberg. W. Kuhn and H. L. Lehmann, "Einfluss von innermolekularen Schwingungen auf das optisch aktive Verhalten optischer Absorptionsbanden," *Zeitschr. f. phys. Chem. (B)*, 1932, **18**, 32. "Einheitliche und überlagerte absorptionsbanden und ihr verhalten bei der optischen aktivität," *Zeitschr. f. Elektrochemie*, 1931, **37**, 549. G. Bredig, H. L. Lehmann, W. Kuhn, "Über die Lichtabsorption des Hydroperoxyols in alkalischer Lösung," *Zeitschr. f. anorg. Chem.*, 1934, **218**, 16. E. Rabinowitch and H. L. Lehmann, "Kinetics of Recombination of Bromine Atoms," *Trans. Faraday Soc.*, 1935, **31**, 689. (Signed by) H. Freundlich, F. G. Donnan, C. F. Goodeve.

LEWIS, JOHN RICHARD, 54, Cambria Street, Holyhead. British. B.Sc. (1st Class Hons.), University College of North Wales. Research Student at University College of North Wales. *J.C.S.*, 1936, 734. Date of birth May 15th, 1913. (Signed by) G. R. Ramage, J. L. Simonsen, A. E. Bradfield.

LONG, CYRIL, "Stanmore," The Middles, Craghead, Co. Durham. British. Student. B.A. (Oxford) (Honours Chemistry). Research Student in Organic Chemistry. Date of birth March 23rd, 1915. (Signed by) D. Ll. Hammick, W. Baker, G. D. Parkes.

MAVIN, CECIL ROBERT, 20, Haversham Road, Higher Crumpsall, Manchester, 8. British.

Chemist. B.Sc., M.Sc., Ph.D. (all at Durham University). Research Student in Organic Chemistry at Armstrong College in the University of Durham for three years. Research and Plant Chemist for three years with Messrs. I.C.I. (Dyestuffs Group), Ltd. *J.C.S.*, 1931, 1363; 1932, 1485, 1784, 2720; 1933, 1012; 1934, 454, 1423. (*Signed by*) R. D. Haworth, G. R. Clemo, R. Raper, M. Barrowcliff.

MELROSE, THOMAS AYNSLEY, 6, Camp Terrace West, North Shields, Northumberland. British. Works Chemist. B.Sc. (2nd Class Hons. Durham). I wish to take advantage of the privileges offered by the Society and to receive the *Journal*. Date of birth April 25th, 1916. (*Signed by*) Richard Raper, Grace C. Leitch, G. R. Clemo.

MORTON, FRANK, c/o Trinidad Leaseholds, Ltd., Pointe-à-Pierre, Trinidad, B.W.I. British. Research Chemist. M.Sc.Tech. (Manchester), 1931, A.I.C. Desires to receive the privileges of Fellowship. (*Signed by*) J. Kenner, W. F. Short, T. K. Walker, O. Rhys Howell, John K. Wood, G. Baddeley, D. Ward.

MUKHERJEE, LALIT KUMAR, Top Floor, 86, 43rd Street, Rangoon (Burma). Indian. Science Dept. in Charge, Randeria School. B.Sc. and M.Sc. Previous of the Allahabad University, and B.Ed. of the Rangoon University (had chemistry for his Subject in the M.Sc. Prev. Exam.) Worked in collaboration with Mr. Goldsworthy of the Rangoon University as a part time research and chemical scholar. Candidate wants to join to be associated with the developments of Chemical Science necessary for his work as Science Dept. in Charge. (*Signed by*) N. R. Dhar, Jagraj Behari Lal, K. P. Chatterjee, M. Niyogi.

MURPHY, JAMES EDWARD, 31, Salisbury Avenue, Barking, Essex. Natural-born British subject. Secondary School Science Master. B.Sc. (London). I wish to receive the Society's *Journal* and *Annual Reports*, and to have use of the Library, so as to keep my knowledge of the subject up to date. Date of birth Sept. 3rd, 1914. (*Signed by*) F. Sherwood Taylor, W. J. Hurran, H. D. K. Drew.

NEWELL, GEORGE ASHLEY, Dormers, Shalford Road, Guildford. British subject. Student at University College, London. Desire to receive the publications, attend the meetings, and use the library. Date of birth March 25th, 1915. (*Signed by*) C. K. Ingold, O. L. Brady, F. G. Donnan.

PALMER, THOMAS REGINALD, "Coburn," Rothley Plain, Leicestershire. British. Petroleum Chemist and Technical Engineer. Desire to attend the meetings, receive the publications, and use the library. (*Signed by*) Harold Moore, F. H. Garner, A. E. Dunstan.

PARSONS, DENYS ALEXANDER HERBERT, 17, Percy Street, W. 1. British. Research Student. B.Sc., University College, London. Date of birth March 12th, 1914. (*Signed by*) R. P. Linstead, Paul A. Barrett, G. A. R. Kon.

PEAK, DOUGLAS ARCHIBALD, 34, Beechcroft Road, Oxford. British. Student. M.Sc., New Zealand. "Microdetermination of Vapour Density" (R. A. Robinson and Peak), *J. Phys. Chem.*, **38**, 941. "Aluminium Alkyl Oxides and their Parachors," *idem, ibid.*, **39**, 1125. "Constitution of Matairesinol" (Briggs, Peak, and Woolloxall), *Proc. Roy. Soc., N.S.W.*, 1935, **69**, 61. "Experiments on Synthesis of Substances Related to Sterols, Part X," *J.C.S.*, 1936, 752; Part XII, *ibid.*, 1936, 759. Date of birth Jan. 4th, 1912. (*Signed by*) D. Ll. Hammick, R. Robinson, James Walker.

POOLEY, JOHN WILLIAM, The Wing, Lindsey House, Lloyd's Place, Blackheath, S.E. 3. British. Chemist, Government Laboratory. B.Sc. (London), A.I.C. Previous posts: Chemist, Ministry of Munitions, Chemist, Royal Naval Air Service, Works Chemist (Oil and Petroleum Products). (*Signed by*) J. J. Fox, A. More, A. G. Francis.

PRICE, JAMES ROBERT, Magdalen College, Oxford. British. Research Student. Master of Science, Adelaide University, S. Australia. Demonstrator, in Chemistry, University of Adelaide, 1934—1935. Overseas Studentship from Commissioners for Exhibition of 1851, 1935—1936. *J.C.S.*, 1934, 1147, 1637; 1935, 151, 325, 1563; 1936, 111. Date of birth March 25th, 1912. (*Signed by*) D. Ll. Hammick, R. Robinson, James Walker.

PROVEN, ALEXANDER, 28, Millbank, S.W. 1. British. Technical Assistant. B.Sc., Ph.D. (Liverpool), B.Com. (London). Experience in various departments of Imperial Chemical Industries, Ltd. (*Signed by*) R. E. Slade, J. Kenyon, M. P. Balfe.

READ, ALFRED EDWARD, 124, Fillebrook Road, Leytonstone, E. 11. British. Assistant Chemist (Research). To keep in touch with recent advances made in Chemistry through reading the *J.C.S.* and so as to have full use of the Library. Date of birth May 3rd, 1914. (*Signed by*) S. C. Goddard, Eric Higgins, W. R. Ormandy.

RICHARDSON, THOMAS, Ivy Cottage, Sunnyside, Newcastle-on-Tyne. British. Student (Research in Org. Chem.). B.Sc. (Durham University) at Armstrong College. Publications in

the *Journal* with R. D. Haworth. See below. Research student in Armstrong College past two years—working on Natural Phenolic Resins. Now under Prof. R. Robinson of Oxford on Proteins. "Guaiacum Resin," *J.C.S.*, 1935, 120. "Natural Phenolic Resins," Pt. I., *J.C.S.*, 1935, 633; Pt. III, 1935, 1576; Pt. IV, 1936, 348; Pt. V, 1936, 725. Date of birth April 3rd, 1913. (*Signed by*) D. Ll. Hammick, G. R. Clemo, R. D. Haworth.

ROBSON, ALAN CHARLTON, 36 Millfield Terrace, Hexham, Northumberland. British. Research Student. B.Sc., Hons. (2nd Class), Armstrong College, Univ. of Durham. Wish to receive Society's Publications, to attend meetings, and to use Library. Date of birth Dec. 18th, 1915. (*Signed by*) Richard Raper, R. D. Haworth, G. R. Clemo.

SIEGERT, ROBERT WALLACE, 39, Alexandra Street, Port of Spain, Trinidad, B.W.I. British. Chemist. B.Sc. (London), A.R.C.S. (*Signed by*) James C. Philip, H. V. A. Briscoe, H. J. Emeléus.

SPARRE, TRYGVE, c/o Leicester Lovell & Co., 14/20, Nile Street, N. 1. Norwegian. Technical Chemist and Chemical Engineer. Dr.-Ing. (N.T.H.), Dipl. engineer, High Institute of Technology of Norway, Trondheim. Works manager and chemist to the above-named Company. (*Signed by*) H. E. Cox, Bernard Dyer, George Taylor.

STEPHAN, DAPHNE AILSA, c/o Miss Ley, 12, Grange Gardens, Grange Road, Cambridge. Australian. Student. B.Sc., Sydney. 1935—1936, research work (photochemistry) under Dr. Iredale at the University of Sydney. 1936, research work under Dr. Norrish (Cambridge). Date of birth May 28th, 1915. (*Signed by*) R. G. W. Norrish, F. P. Bowden, R. A. Morton.

TAYLOR, WILLIAM KENNETH, 26, Gosforth Road, Southport, Lancashire. English. Assistant Biochemist. B.Sc. (Special Chemistry), London, A.I.C. Full-time Student at Wigan and District Mining and Technical College. Assistant Biochemist, Birmingham General Hospital. Clinical Assistant Manchester Royal Infirmary (as from 10/8/36). Date of birth May 14th, 1912. (*Signed by*) Garfield Thomas, R. H. Vallance, J. Cooper Duff.

TETLOW, WILLIAM EDWARD, 3, Murray Place, St. Andrews, Fife. British. Research Chemistry Student. B.Sc. [Hon. Chem. 1st Class], St. Andrews University. One year's research under the direction of Dr. G. Robertson. One year as Demonstrator to the Special Class Practical Chemistry in the University of St. Andrews. (*Signed by*) John Read, Geo. J. Robertson, John Dewar, James Y. Macdonald.

TURTON, GEORGE THOMAS, 12, Burns Avenue, Southall, Middlesex. British. Chemical Engineer. Being by profession a Combustion and Chemical Engineer, I desire to join the Society to attend lectures with a view to keeping abreast of modern developments, and to have use of the Library. (*Signed by*) W. J. M. Cook, F. Stanley Baxter, J. H. Lindfield.

WARNE, KENNETH CECIL, "Woodville," Acklam Road South, Middlesbrough. British. Research Chemist. Ph.D. (Frankfurt a. Main). Nine years research experience in the laboratories of Messrs. Imperial Chemical Industries, Ltd., at Billingham. Now engaged by the same Company as Technical Assistant. (*Signed by*) M. P. Applebey, A. W. Taylor, T. Hagyard.

WAY, WILLIAM JOHN RAYMOND, 130, Northfield Road, King's Norton, Birmingham. British. Research Chemist. B.Sc., Hons. Chemistry, Birmingham. Date of birth Sept. 21st, 1913. (*Signed by*) Wm. Wardlaw, F. W. Pinkard, W. J. Hickinbottom.

WIGGINS, LESLIE FREDERICK, 52, Wathen Road, Leamington Spa, Warwickshire. British. Research Chemist, University of Birmingham. B.Sc. 1st Class Hons. (Birmingham). Date of birth Feb. 22nd, 1915. (*Signed by*) Stanley Peat, M. Stacey, Wm. Wardlaw.

WILD, GEORGE LEWIS, "Walden," Uphill Road, Mill Hill, N.W. 7. British. Chemist. B.Sc. (London). "A Study of the Decomposition of Acetyl Peroxide" (Thesis for Ph.D., 1936, University of London), "Uses of Alginic Acid in Industry" (with Messrs. Cefoil, Ltd.), Walker & Wild, *J.C.S.*, 1935, 207. Date of birth May 12th, 1913. (*Signed by*) N. K. Adam, Oswald J. Walker, Henry Terrey.

WINDSOR, BARRY ARTHUR MAUGER, 3, Alma Square, St. John's Wood, N.W. 8. British. Assistant Works Manager, Chemical Works. B.Sc. (London). Investigation in the photochemical and thermal decomposition of chlorine heptoxide. Paper to be published on the Ultra-Violet Absorption Spectra of Chlorine Heptoxide. (*Signed by*) F. D. Richardson, Henry Terrey, C. F. Goodeve.

WISEMAN, MARGARET HELEN CHALMERS, Bedford College House, 35, Adamson Road, N.W. 3. British. Demonstrator in Inorganic and Physical Chemistry. Bedford College for Women (University of London). B.Sc. (Hons.), Glasgow. Two years postgraduate research on the heteropoly compounds of tungsten and titanium and tungsten and iron. (*Signed by*) James F. Spencer, Corona G. Trew, Winifred R. A. Hollens, Eustace E. Turner, Mary S. Lesslie.

WOOLMAN, AUBREY MAURICE, Imperial College Hostel, Prince Consort Road, South Kensing-

ton, S.W. 7. British. Organic Chemistry Research Student. A.R.C.S. B.Sc. (Chemistry), Course (2 years) at Royal College of Science, S. Kensington. Date of birth Nov. 8th, 1916. (*Signed by*) Stanley N. Farmer, Chas. Simons, G. A. R. Kon.

WU, CHENG-KAI, 65, Kimberley Road, Cambridge. Chinese. B.Sc. (University of Nanking, Nanking, China). Research student in the Physical Chemistry Laboratory, University of Cambridge. (*Signed by*) R. G. W. Norrish, F. B. Kipping, E. J. Buckler.

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

LEONG, LUCAS GEORGE. Post Office Box 946, Hong Kong, China. British. Pharmacist, c/o Messrs. The Queen's Dispensary, 22, Des Voeux Road, Central, Hong Kong, China. Pharmacist. My object of election to be a Fellow of the Chemical Society is to keep abreast of researches in Chemistry as well as to enjoy the facility of receiving records of new additions of Chemical Science. Date of birth Feb. 15th, 1914. (*Signed by*) G. T. Byrne, Lawrence Leong.

MICHEEL, FRITZ, Organische Abt. des Chemischen Institut der Universität, Johannistr. 7, Münster i. W., (Deutschland). Deutsches Reich. Abteilungsvorsteher am Chemischen Institut d. Universität, Münster i. W. Professor, Dr.-phil. Habil. 48 Publikationen aus den Gebieten der Kohlenhydrate, Vitamin C, Schlangengifte u.a. (*Signed by*) Adolf Windaus, N. V. Sidgwick.

STREET, JOHN N., 605 Sunset View Dr., Akron, Ohio, U.S.A. Canadian born—citizen of U.S.A. Director of Chemical Research, Firestone Tire & Rubber Co. B.S., Syracuse University (New York), 1921, M.S. Syracuse University, 1923, Ph.D. University of Wisconsin (Madison, Wis.), 1926. (*Signed by*) Norman A. Shepard, M. L. Crossley, N. V. Sidgwick.

SULLIVAN, JOHN D. Battelle Memorial Institute, 505, King Ave., Columbus, Ohio, U.S.A. American (U.S.A.). Chemist. B.S. University of Washington, M.S. University of Washington. Numerous papers and articles relating to the Processing of ores; hydrometallurgy; metallurgical chemistry; thermodynamics applied to metallurgy; refractories, etc. 1931 to date, Chief Chemist, Battelle Memorial Institute. (*Signed by*) N. V. Sidgwick.

SULZBACHER, MAX, 43, Belsize Avenue, N.W. 3. German. Research chemist. Ph.D. (Berlin). 3 years assistant, 4 years teacher and lecturer at Chemical Institute of the University, Berlin. "Über die chem. Konstitution der Aldehyd- und Keton-Bisulfite," *Ber. Deutsch. Chem. Ges.*, 1926, **59**, 2341; 1928, **61**, 1616; "Über die spontane Polymerisation von Cyanessigsäurechlorid, eine einfache Synthese des Alkaloids Ricinin," *ibid.*, 1932, **65**, 432. (*Signed by*) Harold Davis, C. Weizmann, N. V. Sidgwick.

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From the Editor.

HODGMAN, CHARLES D. [Editor-in-Chief.] Handbook of chemistry and physics: a ready-reference book of chemical and physical data. 21st edition. Cleveland, Ohio 1936. pp. xviii + 2023. (*Reference.*) \$6. From the Publishers: Chemical Rubber Publishing Co.

KONGRESA SLOVENSkih APOTEKARA, III. Beograd-Zagreb-Split, 1934. *Alamanah*. Zagreb 1935. pp. 377 + xxii. ill. (*Reference.*) From Dr. S. Miholić.

MEES, C. E. KENNETH. Photography. London 1936. pp. xii + 214. ill. 7s. 6d. net. (*Recd.* 29/10/36.) From the Author.

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TISCHTSCHENKO, VETSCHESLAV EUGENIEVITSCH. Collection of selected works . . . on the occasion of the jubilee of 50 years of his scientific activity. Leningrad 1934. pp. xxiv + 269. ill. [*In Russian.*]

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BREDERICK, HELLMUT, [and SEITZ, FRANZ.] Vitamine und Hormone und ihre technische

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BRÜCKNER, HERMANN. Die Biochemie des Tabaks und der Tabakverarbeitung mit besonderer Berücksichtigung der chemischen Qualitätsbestimmung. Berlin 1936. pp. xii + 446. ill. M. 19.80. (*Recd.* 2/11/36.)

ENZYMLOGIA. Vol. I, etc. Den Haag 1936 +. (*Reference.*) Fl. 15 per vol.

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HAND- UND JAHRBUCH DER CHEMISCHEN PHYSIK. Vol. VIII. Part 2. Lichtzerstreuung. By H. A. STUART and H.-G. TRIESCHMANN. Leipzig 1936. pp. x + 192 + 20. ill. (*Recd.* 11/11/36.)

—Vol. IX. Part 5. Kernspektren. By K. PHILIPP. Leipzig [1936]. pp. xii, 185 to 283, 22. ill. (*Recd.* 11/11/36.) M. 11.20.

HANSEN, M. Der Aufbau der Zweistofflegierungen. Eine kritische Zusammenfassung. Berlin 1936. pp. xvi + 1100. ill. M. 87. (*Recd.* 2/11/36.)

LAAR, J. J. VAN. Die Thermodynamik einheitlicher Stoffe und binärer Gemische, mit Anwendungen auf verschiedene physikalisch-chemische Probleme. Groningen 1935. pp. 379. ill. Fl. 13.50. (*Recd.* 28/10/36.)

LANGE, BRUNO. Die Photoelemente und ihre Anwendung. 2 parts. Leipzig 1936. pp. vi + 132, viii + 94. ill. M. 9.50. M. 6.75. (*Recd.* 28/10/36.)

PLOTNIKOW, J. Allgemeine Photochemie. 2nd edition. Berlin 1936. pp. viii + 909. ill. M. 28.50. (*Recd.* 2/11/36.)

SCHWARTZ, ERNST VON. Handbuch der Feuer- und Explosionsgefahr. 4th edition. Edited by H. SILOMON and E. BRANDES. München 1936. pp. xxiv + 686. ill. M. 25. (*Recd.* 10/11/36.)

SCHWARZ, ROBERT. Petroleum Vademecum. International petroleum tables. 11th edition. 2 vols. Berlin 1936. pp. xvi + 330, viii + 490. ill. M. 24. (*Recd.* 2/11/36.)

III. *Pamphlets.*

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Building Research*. Bulletin No. 5. The properties of breeze and clinker aggregates and methods of testing their soundness. By F. M. LEA. Revised edition. London 1936. pp. iv + 18. ill.

—*Forest Products Research*. The principal rots of English oak. By K. ST. G. CARTWRIGHT and W. P. K. FINLAY. London 1936. pp. vi + 38 + 13 plates.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *Forest Products Research*. Record No. 11 (Timber Series No. 3). The properties of home-grown oak. London 1936. pp. iv + 14. ill.

INDIAN LAC CESS COMMITTEE. *London Shellac Research Bureau*. Technical Paper No. 9. Plasticising lac films. Part I. By L. C. VERMAN and R. BHATTACHARYA. London 1936. pp. 29. ill.

——— Technical Paper No. 10. Fundamental physical properties of lac. Part IV. By L. C. VERMAN. London 1936. pp. 16. ill.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Protection against toxic gases in industry. By J. DAVIDSON PRATT. London 1936. pp. 24 + ii.

NEAVE, E. W. J. Joseph Black's lectures on the elements of chemistry. (From *Isis*, 1936, 25.)

PARTINGTON, J. R. La découverte du bronze. (From *Scientia*, 1936, 60.)

SCHOUTEN, ABRAHAM ELISA. Nitratie en halogeneering van N.N'-diphenyl-aethyleendiamine en derivaten. Leiden 1936. pp. xiv + 117.

FORTHCOMING MEETINGS OUTSIDE LONDON.

BIRMINGHAM.

Monday, December 7th, 1936, at 5 p.m. Lecture on "Infra-Red Spectra and Chemical Constitution," by Dr. J. J. Fox, O.B.E., F.I.C., in the Chemistry Lecture Theatre of the University, Edgbaston.

EDINBURGH.

Tuesday, December 8th, 1936, at 7.30 p.m. Lecture on "Recent Researches on Hormones," by Professor G. Barger, M.A., LL.D., F.R.S., in the Medical Chemistry Department of the University, Teviot Place.

GLASGOW.

Friday, December 4th, 1936, at 7 p.m. Ramsay Chemical Dinner at the Central Station Hotel, Professor G. G. Henderson, D.Sc., LL.D., F.R.S., in the Chair.

LEEDS.

Thursday, January 28th, 1937, at 7 p.m. Lecture on "Silicates," by Professor W. L. Bragg, O.B.E., D.Sc., F.R.S., in the Lecture Theatre of the new Chemistry Building of the University.

LIVERPOOL.

Friday, January 29th, 1937, at 6 p.m. Lecture on "Sesquiterpene Ketones, their Structure and Synthesis," by Professor J. L. Simonsen, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

MANCHESTER.

Friday, January 8th, 1937, at 7 p.m. Joint meeting with the Manchester Section of the Society of Chemical Industry and the Society of Dyers and Colourists. Lecture on "Reaction of Diazosulphonates derived from β -Naphthol-1-sulphonic Acid," by Professor F. M. Rowe, D.Sc., F.I.C., at the Constitutional Club, St. Ann's Street, Manchester.

NORTH WALES.

Thursday, January 21st, 1937, at 5.30 p.m. Joint meeting with University College of Bangor Chemical Society. Lecture on "Quantitative Study of some Gas Reactions," by Professor M. W. Travers, D.Sc., F.R.S., in the Chemistry Lecture Theatre of University College, Bangor.

NOTTINGHAM.

Friday, December 18th, 1936, at 7.30 p.m. Joint meeting with the Nottingham Section of the Society of Chemical Industry. Lecture on "Electrochemical Combustion of Fuel," by Dr. H. J. T. Ellingham, at the University College, Shakespeare Street.

SHEFFIELD.

Friday, December 4th, 1936, at 5.30 p.m. Lecture on "Molecular Structure of Strychnine," by Professor R. Robinson, D.Sc., LL.D., F.R.S., in the Chemistry Lecture Theatre of the University.

SOUTH WALES.

Friday, January 29th, 1937, at 6 p.m. Joint meeting with the University College of Swansea Chemical Society. Lecture on "Recent Progress in Inorganic Chemistry," by Dr. W. Wardlaw, F.I.C., in the Department of Chemistry of the University College.

FORTHCOMING MEETINGS IN LONDON.

Thursday, December 3rd, 1936, at 8 p.m.

Ordinary Scientific Meeting.

The following papers will be read :

- “ A review of recent work on highly unsaturated acids.” By E. H. FARMER.
 “ Retention of asymmetry and inversion of configuration during anionotropic change. The conversion of (–) α -phenyl- γ -methylallyl alcohol into (+) γ -phenyl- α -methylallyl alcohol.” By J. KENYON, S. M. PARTRIDGE, and H. PHILLIPS.
 “ The azo-group as a chelating group. Part II. The structure of the diazoamino-compounds.” By L. HUNTER.

Thursday, December 10th, 1936, at 5.30 p.m.

Sixth Liversidge Lecture, entitled “ Study of Transmutation in the Chemical Laboratory,” by Professor F. Paneth, Ph.D., in the Meeting Hall of the Institution of Mechanical Engineers, Storey’s Gate, Westminster, S.W.1.

Thursday, December 17th, 1936, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, January 21st, 1937, at 8 p.m.

Ordinary Scientific Meeting.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, December 3rd, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., 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.
John May Herbert Munro	1876	November 6th, 1936.
Patrick Thomas O'Sullivan	1887	June 15th, 1932.

It was announced that the Council had appointed

- (a) Dr. J. M. Robertson to serve on the Publication Committee in the place of the late Professor T. M. Lowry.
- (b) The following to serve on the Library Exchange Committee : Professor A. C. G. Egerton, Dr. H. J. Emeléus, Dr. T. A. Henry, and Dr. E. E. Turner, together with Dr. O. L. Brady (*ex-officio*), as the representative of the Joint Library Committee on the Council) and the Officers, with the Librarian as Secretary.
- (c) The following to represent the Society on the Bureau of Chemical Abstracts : Mr. F. P. Dunn, Mr. A. J. Greenaway, Dr. J. T. Hewitt, and Dr. H. J. T. Ellingham, together with Mr. Emile Mond (Treasurer) *ex-officio*.

Mr. John Parkin was formally admitted a Fellow of the Chemical Society.

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

Ali Ahmad, M.Sc., 11, Stanwick Road, West Kensington, W. 14.
 John Arnold, 8, Cromwell Avenue, Bromley.
 Arthur Pickup Best, B.Sc., Courtfield, Park Lane, Great Harwood, Blackburn.
 Joseph Michael Connolly, Ph.D., A.I.C., 64, Swithland Avenue, Abbey Park Road, Leicester.
 Denys Irvine Coomber, B.Sc., Lloyds Bank House, Usk, Monmouthshire.
 Evan David Leonard Davies, Sandhurst, Chillerton Road, S.W. 17.
 John Edmund Driver, M.Sc., Ph.D., 16, Gregory Street, Nottingham.
 Louis Plack Hammett, Prof., A.B., Ph.D., 39, Claremont Avenue, New York.
 Edwin Austin Hutton, 133, Wilmer Road, Heaton, Bradford.
 Earl Judson King, M.A., Ph.D., British Postgraduate Medical School, Ducane Road, Hammer-smith, W. 12.
 Jack Lawrence, B.Sc., 78, Conway Road, Plumstead, S.E. 18.
 Basil Joseph MacVultry, B.Sc., 67, All Saint's Road, Sutton.
 Arthur Stanley Nickelson, B.Sc., A.I.C., Chesney, Chislehurst Road, Petts Wood, Kent.
 Bertram Samuel Page, M.A., 13, Belle Vue Avenue, Gosforth, Newcastle-on-Tyne.
 George Alwyn Parry, M.Sc., 36A, Wyndham Road, Salisbury.
 Henry Coverdale Raine, c/o L. H. P. Co., Hadland Street, S.E. 16.
 George Alston Rowe, B.Sc., A.R.C.S., 7, Hartburn Avenue, Stockton-on-Tees.
 Paul Russell, B.Sc., The Red House, Egham, Surrey.
 Leonard Saunders, Elmhurst, High Road, E. 18.
 Robert Vincent Seddon, Ph.D., 280, Warrington Road, Glazebury, Manchester.
 William Allan Southorn, 29, Colin Close, Colindale, N.W. 9.
 Harry Prentice Stout, B.A., St. John's College, Cambridge.
 David Tabor, B.Sc., A.R.C.S., 80, Lancaster Road, W. 11.
 Nazeer Ahmed Taher, M.Sc., 81, Finsbury Park Road, N. 4.
 Ronald Philip Towndrow, B.Sc., 168, Winchester Road, Highams Park, E. 4.
 Arthur Leonard Walpole, A.R.C.S., 136, Lexham Gardens, W. 8.
 Kenneth Richard Webb, B.Sc., 5A, Southey Street, Nottingham.
 James Chippindale Welch, B.Sc., Rockcliffe, Daisy Lea Lane, Huddersfield.

for the second time in favour of 25 candidates and for the third time in favour of 75 candidates.

Dr. J. G. F. Druce and Dr. F. C. B. Marshall were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows :

Percy Barber.	Leslie Leben, B.A.
Edward Christopher Baughan, B.A.	Hans Leo Lehmann, Dr. phil. nat.
Graham Harvey Benham, B.Sc.	Lucas George Leong.
Arthur John Birch.	John Richard Lewis, B.Sc.
Francis Metcalf Bolam, B.Sc.	Cyril Long, B.A.
Alan Grahame Brown, M.P.S.	Cecil Robert Mavin, M.Sc., Ph.D.
Joseph Bruce, B.Sc.	Thomas Aynsley Melrose, B.Sc.
Anthony Cambitzi.	Fritz Micheel, Prof., Dr. phil.
George Norman Carruthers, B.A., B.Sc.	Frank Morton, M.Sc.Tech., A.I.C.
Francis William Chattaway, B.Sc.	Lalit Kumar Mukherjee, M.Sc.
Manilal Sukhlal Chudgar, B.A.	James Edward Murphy, B.Sc.
Cyril Humphrey Cripps.	George Ashley Newell.
James Henry Cruickshank, B.Sc., Ph.D.	Thomas Reginald Palmer.
Alfred Robert Cumming.	Denys Alexander Herbert Parsons, B.Sc.
William Oliver Cutler, B.Sc.	Douglas Archibald Peak, M.Sc.
Leonard Davies.	John William Pooley, B.Sc., A.I.C.
John Ormonde Keith Denny.	James Robert Price, M.Sc.
Edward Michael Evans, B.Sc., A.R.C.S.	Alexander Proven, B.Sc., Ph.D., B.Com.
Richard Alan Fairclough, B.A.	Alfred Edward Read.
James Edgar Fearey, B.Sc.	Thomas Richardson, B.Sc.
Robert James Anning Franki.	Alan Charlton Robson, B.Sc.
George Alwyn Geach, B.Sc.	Robert Wallace Siegert, B.Sc., A.R.C.S.
William Lawrence Glen, B.Sc.	Trygve Sparre, Dr. Ing.
Herbert Whincup Gloyne, B.Sc.	Daphne Ailsa Stephan, B.Sc.
Roy Robert Gordon, M.A., B.Sc.	John Northcott Street, M.S.
Rita Harriet Harradence.	John D. Sullivan, M.S.
Egon Nils Erik Hellström.	Max Sulzbacher, Ph.D.
Benjamin Arthur Hems, B.Sc.	William Kenneth Taylor, B.Sc., A.I.C.
Frank William Hobden, B.Sc.	William Edward Tetlow, B.Sc.
Gladys Mary Holmes, B.Sc.	George Thomas Turton.
Edwin Baker Hooper, M.P.S.	Kenneth Cecil Warne, Ph.D.
John Laurence Horton.	William John Raymond Way, B.Sc.
Stanley Alfred Horace Hunn.	Leslie Frederick Wiggins, B.Sc.
Frederick John Parland Jackson, B.Sc., A.R.C.S.	George Lewis Wild, B.Sc.
Chikataro Kawasaki.	Barry Arthur Mauger Windsor, B.Sc.
Denis Bertram Kelly, B.Sc.	Margaret Helen Chalmers Wiseman, B.Sc.
Elisabeth Mary Wykeham Lavington, B.A., B.Sc.	Aubrey Maurice Woolman, A.R.C.S.
	Cheng-Kai Wu, B.Sc.

The following papers were read :

- “ A review of recent work on highly unsaturated acids.” By E. H. FARMER.
- “ Retention of asymmetry and inversion of configuration during anionotropic change. The conversion of (–) α -phenyl- γ -methylallyl alcohol into (+) γ -phenyl- α -methylallyl alcohol.” By J. KENYON, S. M. PARTRIDGE, and H. PHILLIPS.
- “ The azo-group as a chelating group. Part II. The structure of the diazoamino-compounds.” By L. HUNTER.

Extra Meeting held in the Lecture Hall of the Institution of Mechanical Engineers on Thursday, December 10th, 1936, at 5.30 p.m.

Professor N. V. SIDGWICK, C.B.E., M.A., D.Sc., F.R.S., was in the Chair.

The PRESIDENT referred to the foundation of the Liversidge Lectureship, and after briefly introducing Professor F. A. Paneth, called on him to deliver the Sixth Liversidge Lecture, entitled “ Study of Transmutation in the Chemical Laboratory.”

At the conclusion of the lecture, a vote of thanks to the Lecturer, proposed by Dr. F. W.

Aston, seconded by Professor T. S. Moore, was carried with acclamation, and acknowledged by Professor Paneth.

Ordinary Scientific Meeting, Thursday, December 17th, 1936, at 8 p.m., Professor N. V. SIDGWICK, C.B.E., 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.
William Barry Harrington	1881	November 26th.
Sir Herbert Jackson	1884	December 10th.
Henry Reginald Hirst	1933	December 10th.

The PRESIDENT announced :

1. That he had conveyed the congratulations of the Society to Mr. Walter Charles Davis, who completed 60 years of Fellowship on December 7th, 1936, and to the following who have completed 50 years of Fellowship :

	Elected.
James Aloysius Audley	December 2nd, 1886.
Herbert Edward Kirby	do.
Leslie Pyke	do.
Arthur Turner (Aylesbury)	do.
Horace Edward Brothers	December 16th, 1886.
Francis James Henderson Coutts	do.
Stephen James Pentecost	do.

2. That Imperial Chemical Industries, Ltd., had sent a contribution of £500 to the Publications Fund.

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

Thomas Backhouse, B.Sc., 15, Valencia Road, Liverpool.
 Franz Bergel, Dr.phil.nat., Lister Institute of Preventive Medicine, Chelsea Bridge Road, S.W. 1.
 Robert Oswald Hall, Ph.D., Messrs. C. W. Martin & Sons, Ltd., Alaska Factory, 61, Grange Road, S.E. 1.
 Frank Hartley, B.Sc., 73, Jeffreys Road, Clapham, S.W. 4.
 Winifred Hollis, 35, Glenbank Close, Off Rice Lane, Liverpool.
 William Edgar Nelson, B.Sc., 8, Scone Gardens, Edinburgh.
 David Edgar Price, B.Sc., Brondesbury College, 143, Willesden Lane, N.W. 6.
 Walter Henry Clive Simmonds, 30, St. John's Road, Putney, S.W. 15.
 Harry Stromberg, M.Sc.Tech., 62, Trevor Road, Flixton, Manchester.
 James Stewart Tapp, M.A., Ph.D., Hensall, Ontario, Canada.
 Catherine Hannah Tinker, B.Sc., 19, Hill Road, Carshalton, Surrey.
 Richard Aubrey Wallace, 86, The Mall, Swindon.

also of the following whose application has been accepted by the Council under Bye-Law I (2) :

Arthur Stoll, Prof., Fabrikstrasse 60, Basle, Switzerland.

and for the second time in favour of 28 candidates.

The following papers were read :

- “The kinetics of bromine addition.” By P. W. ROBERTSON, N. T. CLARE, K. J. McNAUGHT, and G. W. PAUL.
- “Decomposition reactions of the aromatic diazo-compounds. Part I. Evidence for non-ionic reaction.” By W. A. WATERS.
- “The structure of the carboxyl group. A quantitative investigation of oxalic acid hydrate by Fourier synthesis from the X-ray crystal data.” By J. M. ROBERTSON and (MISS) I. WOODWARD.

REVISION OF "NOTICES TO AUTHORS OF PAPERS."

The attention of Fellows is drawn to the alteration of paragraphs 2 and 3 of "Notices to authors of papers," appearing on page ii of the Journal.

The Council has decided that in special circumstances a paper may be considered for publication in the Journal even though none of the authors is a Fellow of the Society. In each individual case the sanction of the Council will be necessary.

The Publication Committee has decided that in future only papers submitted in type-script will be considered for publication.

CORONATION PROCESSION, MAY 12TH, 1937.

(Preliminary Notice.)

A limited number of seats to view the procession will be erected in front of Burlington House for the use of Fellows of the Societies occupying the building.

The number available to the Chemical Society will be about 190 and will be allotted by ballot among Fellows making application for them. Successful applicants will be entitled to two tickets each, but no Fellow will be allotted more than two tickets, even though he be a Fellow of more than one Society in Burlington House and has been successful in more than one ballot. The tickets will be issued on the following conditions :

1. The tickets must not be re-sold; they must be returned to the Society if not required.

2. In the event of a postponement of the Coronation, or an alteration in the route of the procession, or a strike preventing the erection or completion of the stand, only such part of the purchase price of tickets will be returnable as is available after all expenses incurred in connexion with the seating and decorations have been met.

The ballot for seats will be held on Monday, 15th February, 1937. Fellows are requested to apply before that date, and to state in their application whether they desire two seats or one seat only. The envelope should be marked "Application for Seats," and should be addressed to the Assistant Secretary, The Chemical Society, Burlington House, Piccadilly, London, W. 1.

It is anticipated that the price of tickets will not exceed two guineas each with refreshments, but fuller and more exact details will be announced later.

ANNUAL REPORTS FOR 1936, VOL. XXXIII.

Applications for the Annual Reports for 1936, at the reduced price of 5s. 6d. should reach the Assistant Secretary by January 15th, 1937.

LIST OF FELLOWS. 1936.

The List of Fellows, corrected to the end of September, 1936, is now ready. Copies, price One Shilling each, are obtainable by Fellows from the Assistant Secretary.

BRITISH STANDARDS INSTITUTION.

The following draft British Standard Specifications have been received from the British Standards Institution and have been placed in the Library :

- (a) Method for the testing of chemical stoneware.
- (b) Entrainment distillation apparatus.

MEETINGS OUTSIDE LONDON.

A meeting of the Society was held jointly with the Manchester Section of the Society of Chemical Industry on Friday, October 2nd, 1936, at the Constitutional Club, Manchester, when Dr. D. V. N. Hardy delivered a lecture entitled "The Synthesis of Aliphatic Acids under Pressure." He described investigations, carried out at the Chemical Research Laboratory, Teddington, concerning the production of carboxylic acids from alcohols and carbon monoxide at 200 atmospheres pressure and 200–350° C., using phosphoric acid as catalyst with and without the addition of copper phosphate. The nature of the reactions and their dependence on conditions were discussed, and the results of analogous experiments starting from ethylenic hydrocarbons were outlined.

A meeting of the Society was held on Friday, October 30th, 1936, at 6 p.m. at the University of Liverpool, when Professor G. Ingle Finch, M.B.E., delivered a lecture on "Electron Diffraction and Surface Structure." Professor E. C. C. BALY being in the Chair. The lecture was well attended, and a vote of thanks proposed by Mr. R. Ablett and seconded by Dr. R. O. Griffith was carried with acclamation.

A joint meeting of the Society and of the local section of the Society of Chemical Industry was held in the Chemistry Lecture Theatre, Armstrong College, Newcastle-upon-Tyne, on Friday, October 30th, 1936, at 7.30 p.m. The following papers were read and discussed:—

- "The hydrolysis and alcoholysis of phenyl acetate. A kinetic study." By W. A. WATERS.
- "The estimation of selenium in sulphur." By H. N. WILSON and W. C. HUGHES.
- "Natural phenolic resins. Part VII." By R. D. HAWORTH and W. KELLY.
- "Adsorption of certain dyes at the interface between two fluids." By C. W. GIBBY and C. C. ADDISON.
- "The lupin alkaloids. Part X. The synthesis of *dl*-oxysparteine." By G. R. CLEMO, W. MCG. MORGAN, and R. RAPER.

A joint meeting of the Society and of the University College of North Wales Chemical Society was held on Friday, October 30th, 1936, at Bangor, when a lecture on "The Biochemistry of Waxes" was given by Professor A. C. Chibnall, M.A., Sc.D. The Lecturer outlined his investigations of the complex mixtures of which the natural waxes consist, and indicated the value and limitations of physical methods of study. At the conclusion Professor J. L. Simonsen expressed appreciation of the Lecturer's skilful work, and, on behalf of the audience, warmly thanked him for his clear exposition.

Two meetings of the Society were held jointly with the Birmingham University Chemical Society. On Monday, November 2nd, 1936, at 5 p.m., Professor J. W. Cook lectured on "Sterols, Sex Hormones, and Carcinogenic Hydrocarbons." and on Monday, December 7th, 1936, at 5 p.m., Dr. J. J. Fox, O.B.E., delivered a lecture on "Infra-Red Spectra and Chemical Constitution." Both lectures were highly appreciated by those present, and votes of thanks to the Lecturers were carried with acclamation.

A meeting of the Society was held jointly with the Manchester Section of the Society of Chemical Industry and the Manchester University Chemical Society on Tuesday, November 24th, 1936, at 7 p.m., in the Chemistry Lecture Theatre of Manchester University, when Professor F. Paneth delivered a lecture on "The Chemical Detection of Artificially Produced Elements." Professor M. POLANYI was in the Chair.

An audience of about 70 attended to hear a most interesting discourse, in which it was shown how the early dreams of the alchemists had been realised by the definite proof in recent years of the transmutation of elements by atomic bombardment. There was a brief discussion, in which Professor Lapworth and Mr. Tuck took part. A vote of thanks, proposed by Professor J. Kenner and seconded by Dr. Brindley, was carried with acclamation.

A meeting of the Society was held on Thursday, November 26th, 1936, at 7 p.m., in the new Chemistry Building of the University of Leeds, when Dr. H. A. Krebs delivered a lecture entitled "The Biological Breakdown of Carbohydrates." The Chairman, Professor F. CHALLENGER, in introducing the Lecturer, referred to his well-known researches on the mechanism of urea formation and on the deamination of amino-acids, whereby the intermediate α -keto-acid stage was clearly demonstrated.

Dr. Krebs summarised the views of Embden and Meyerhof on the formation of lactic acid and of alcohol from carbohydrate, and proceeded to discuss the behaviour of various aliphatic acids in presence of bacteria or of animal tissues. The reactions were of the oxidation-reduction (Cannizzaro) type, and probably represented intermediate stages in carbohydrate metabolism. The formation of citric acid by animal tissues from malic and pyruvic acids was discussed, and also the relation of this process to mould metabolism.

There was an excellent attendance, many representatives of the Medical Faculty being present, and a useful discussion followed the lecture.

A joint meeting of the Society and the University of Sheffield Chemical Society was held on Friday, December 4th, 1936, at 5.30 p.m., in the Chemistry Department, The University, Sheffield, with Professor G. M. BENNETT in the Chair, when Professor R. Robinson, F.R.S., delivered a lecture on "Molecular Structure of Strychnine" to a large and appreciative audience. After a short discussion, in which Professor G. M. Bennett, Dr. H. F. Coward, and Dr. S. Glasstone took part, a vote of thanks to the Lecturer, proposed by Dr. A. W. Chapman and seconded by Professor E. J. Wayne, was carried with acclamation.

A meeting of the Society was held on Tuesday, December 8th, 1936, at 7.30 p.m., in the Medical Chemistry Department of the University of Edinburgh, when Professor G. Barger, F.R.S., delivered a lecture on "Recent Researches on Hormones," with Dr. J. A. V. BUTLER in the Chair. The lecture was well attended by Fellows and visitors, and after an interval for refreshments, an interesting discussion followed in which the following took part: Mr. G. M. Henderson, Dr. T. R. Bolam, Dr. Robson, Dr. T. Stevenson, Dr. H. G. Rule, Dr. W. O. Kermack, Mr. W. N. M. Ramsay, Dr. C. P. Stewart, and Dr. Michaelis. A vote of thanks to the Lecturer, proposed by Dr. H. G. Rule, was carried with acclamation.

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

	ALIGARH, MUSLIM UNIVERSITY	£	s.	d.	£	s.	d.
R. D. Desai. "Effect of gem-dimethylcyclohexane ring on the carbon tetrahedral angle"					7	0 0
	BANGOR, UNIVERSITY COLLEGE OF NORTH WALES						
A. E. Bradfield. "Further investigation of (1) Cyperone, (2) Ketonic constituents of the oil from <i>Eremophila Mitchellii</i> "	10	0	0			
G. R. Ramage. "The caryophyllenes"	6	0	0			
	BRISTOL UNIVERSITY					16	0 0
E. B. Maxted. "Adsorption of hydrogen and of deuterium by platinum"					10	0 0

CAMBRIDGE UNIVERSITY		£	s.	d.	£	s.	d.
J. N. Agar.	"Mechanism of electrolytic evolution of hydrogen on noble metal electrodes"	11	0	0			
C. H. Bamford.	"Photochemical decomposition of carbonyl compounds"	6	0	0			
E. F. Brookman.	"Polymerisation of organic compounds"	6	0	0			
E. J. Buckler.	"Mechanism of chain reactions"	5	0	0			
P. J. Garner.	"Stereochemistry of ethers"	4	0	0			
K. P. Harrison.	"Isolation of metabolites from liver"	3	10	0			
T. P. Hughes.	"Sliding friction between clean metal surfaces and the influence of the adsorbed layer upon it"	10	0	0			
L. Leben.	"Measurement of fluctuating kinetic friction"	10	0	0			
E. A. Moelwyn-Hughes.	"Kinetics of reactions in solution"	4	0	0			
D. Richter.	"Synthesis of hydroxyanthraquinone colouring matters"	7	10	0			
H. P. Stout.	"Electrodeposition of the hydrogen isotope from alkaline solutions"	7	0	0			
D. Tabor.	"Area of contact of polished surfaces"	10	0	0			
					84	0	0
CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES							
N. M. Cullinane.	"Thermal analysis of mixtures of related organic oxygen, sulphur, selenium, and tellurium compounds"	6	0	0			
W. Cule Davies.	"Comparative studies of the tertiary bases of the elements of group Vb"	5	0	0			
					11	0	0
DURHAM UNIVERSITY							
W. A. Waters.	"Decomposition reactions of the aromatic diazo-compounds"		8	0	0		
EDINBURGH UNIVERSITY							
A. Schönberg.	"Free radicals and Zwitterion-molecules"		10	0	0		
GHAZIPUR, INDIA (Chemical Laboratory of the Applicant)							
J. N. Rakshit.	"Chemical variation of volatile oils in <i>Ocimum</i> plants with their variation in colour and in botanical classification"		5	0	0		
GLASGOW UNIVERSITY							
J. D. Loudon.	"Mobility of groups in nitrobenzene derivatives"		4	0	0		
LEEDS UNIVERSITY							
E. Rothstein.	"Influence of poles in the simple three-carbon system (cont.)"	12	0	0			
C. W. Shoppee.	"Synthesis of di-tert.-butyltriketones"	5	0	0			
W. A. Wightman.	"Spatial structure of cycloparaffins"	5	0	0			
					22	0	0
LEICESTER, UNIVERSITY COLLEGE							
L. Hunter.	"Molecular association due to hydrogen"		5	0	0		
BATTERSEA GRAMMAR SCHOOL, LONDON							
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List of Papers, or Abstracts thereof, received between November 19th and December 17th, 1936. (This list does not include the titles of papers which have appeared in the Journal, or which have been read at an Ordinary Scientific Meeting.)

- " Syntheses in the phenanthrene series. Part IV. 1-Methoxy-2-methylphenanthrene and the preparation of substituted phenylacetic acids." By P. HILL and W. F. SHORT.
- " An investigation of steric influences on the phenomenon of mesomerism." By R. H. BIRTLES and G. C. HAMPSON.
- " The application of Ullmann's reaction to the preparation of dinaphthyls." By H. H. HODGSON and R. L. ELLIOTT.
- " 2-Nitro-4-amino-1-naphthol-7-sulphonic acid and a new test for naphthol yellow S (potassium 2 : 4-dinitro-1-naphthol-7-sulphonate)." By H. H. HODGSON and E. W. SMITH.
- " An examination of the reaction between sodium iodide and toluenesulphonyl groups in derivatives of glucofuranose." By D. J. BELL, E. FRIEDMANN, and S. WILLIAMSON.
- " The mobility of groups in certain nitrodiphenylsulphones." By J. D. LOUDON and T. D. ROBSON.
- " The action of sulphinates on 1 : 5-dichloro-2 : 4-dinitrobenzene." By A. LIVINGSTON and J. D. LOUDON.
- " Experiments on the synthesis of brazilin and hæmatoxylin. Part IV. Synthesis of *o*-diethylenhæmatoxylyne." By (the late) W. H. PERKIN, jun., A. POLLARD, and R. ROBINSON.
- " Hydroxyanthraquinones. Part II. 1 : 2 : 5 : 6- and 1 : 4 : 5 : 8-Tetrahydroxyanthraquinones." By P. G. MARSHALL.

- "Syntheses in the phenanthrene series. Part V. 4-Methoxy-1-methylphenanthrene." By (Miss) A. HIGGINBOTTOM, P. HILL, and W. F. SHORT.
- "Orientation effects in the diphenyl series. Part XIII. The nitration of the four 2-halogeno-4:4'-dimethyldiphenyls." By (Miss) E. E. J. MARLER and E. E. TURNER.
- "The photo-synthesis of hydrogen chloride in oxygen-rich mixtures: the quantum efficiency of water formation." By M. RITCHIE.
- "The resinols. Part IV. The structure of α -amyrenol." By F. S. SPRING and T. VICKERSTAFF.
- "The action of selenium on compounds containing quaternary carbon atoms." By G. R. CLEMO and H. G. DICKENSON.
- "Studies in the resin acid series. Part I. The synthesis of Vocke's unsaturated acid, $C_{10}H_{14}O_4$." By H. N. RYDON.
- "Optically active alkylsuccinic acids. Part I. Resolution of τ -ethylsuccinic acid into its optical antipodes." By H. WREN and J. CRAWFORD.
- "Optically active alkylsuccinic acids. Part II. The stereochemical configuration of the symmetrical diethylsuccinic acids." By H. WREN and J. W. E. HALLER.
- "The action of phosphorus pentahalides on acetophenone." By W. TAYLOR.
- "Evidence for the existence of simple carbonium ions: $\alpha\alpha$ -dibromo- and $\alpha\alpha$ -dichloroethylbenzenes." By W. TAYLOR.
- "The displacement of bromine from mono- and di-bromoethylbenzenes." By W. TAYLOR.
- "The preparation of 1:5-dioximes from pyridine bases." By B. D. SHAW.
- "Studies in solvent action. Part XII. Optical rotatory powers of *l*-benzoin and *l*-benzoin methyl ether in solution." By H. G. RULE and J. CRAWFORD.
- "Studies in solvent action. Part XIII. Optical rotatory power and the refractive index of the medium." By H. G. RULE and A. R. CHAMBERS.
- "Experiments on the synthesis of substances related to the sterols. Part XIV. A simple synthesis of certain octalones and ketotetrahydrohydrindenes which may be of angle-methyl-substituted type. A theory of the biogenesis of the sterols." By E. C. DU FEU, F. J. MCQUILLIN, and R. ROBINSON.
- "The kinetic and thermodynamic activity of protons and deuterons in water-deuterium oxide solutions." By W. J. C. ORR and J. A. V. BUTLER.
- "Studies in the sterol group. Part XXVIII. The application of the Reformatsky reaction to 7-ketocholesteryl acetate; Δ^5 -cholestene-3:7-diol-7-acetic acid." By E. R. H. JONES and F. S. SPRING.
- "Influence of poles and polar linkings on tautomerism in the simple three-carbon system. Part IV. Activation by sulphonyl groups." By E. ROTHSTEIN.
- "Influence of poles and polar linkings on tautomerism in the simple three-carbon system. Part V. The course of prototropic change in the bis-sulphonyl propenes." By E. ROTHSTEIN.
- "Note on glucovanillin and a colour reaction for vanillin." By W. V. THORPE and R. T. WILLIAMS.
- "The influence of substituents on the coupling of phenols with diazonium salts. Part I. Halogens." By D. H. RICHARDSON.
- "Equilibrium constants in terms of activities (cryoscopic). Part VI. Pyridine *p*-chlorophenoxide in benzene and in *p*-dichlorobenzene." By W. R. BURNHAM and W. M. MADGIN.
- "The preparation of camphor-10-dichloroarsine from camphor-10-sulphinic acid." By J. D. LOUDON.
- "Experiments on the synthesis of substances related to the sterols. Part XV. (Part IX *continued*)." By R. ROBINSON and J. WALKER.
- "Experiments on the synthesis of substances related to the sterols. Part XVI. 4-Keto-7-*m*-methoxyphenylheptonic acid and some derivatives." By K. H. LIN, J. RESUGGAN, R. ROBINSON, and J. WALKER.
- "An X-ray study of the phthalocyanines. Part III. Quantitative structure determination of nickel phthalocyanine." By J. M. ROBERTSON and (Miss) I. WOODWARD.

- "Electrolytic dissociation processes. Part II. The Friedel-Crafts reaction." By F. FAIRBROTHER.
- "The rotatory dispersion of organic compounds. The first oxidation product of ascorbic acid." By W. C. G. BALDWIN.
- " α - and β -Hydroxylaudanosines. Part II. The products of exhaustive methylation." By F. E. KING and P. L'ECUYER.
- "Optical activity dependent on restricted rotation in a benzene derivative." By W. H. MILLS and R. M. KELHAM.
- "The oxidation of *cyclohexanone* and *suberone* by means of Caro's acid." By R. ROBINSON and L. H. SMITH.
- "The rotatory dispersion of organic compounds. Part XXX. Campholic aldehyde." By (the late) T. M. LOWRY and W. C. G. BALDWIN.
- "Some pyrimidine derivatives." By A. BOWMAN.

ADDITIONS TO THE LIBRARY.

I. Donations.

COPPER DEVELOPMENT ASSOCIATION. Copper for bus-bar purposes. London 1936. pp. vi + 160. ill. (*Recd.* 1/12/36.)

From the Director.

FRY'S METAL FOUNDRIES LTD. Printing metals. London [1936]. pp. viii + 92. ill. (*Recd.* 14/11/36.)

From the Technical Director.

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Bulletin No. 4. Tin plate and tin cans in the United States. London 1936. pp. 142. ill. (*Reference.*)

From the Director.

MANN, FREDERICK GEORGE, and SAUNDERS, BERNARD CHARLES. Practical organic chemistry. London 1936. pp. xiv + 403. ill. 8s. 6d. net. (*Recd.* 26/11/36.)

From the Authors.

SANFOURCHE, A. Le controle analytique dans l'industrie chimique minérale. Paris 1936. pp. 547. ill. *Fr.* 120. (*Recd.* 2/12/36.)

From the Publishers: MM. Masson et Cie.

SAUNDERS, K. H. The aromatic diazo-compounds and their technical applications. London 1936. pp. xii + 224. 12s. 6d. net. (*Recd.* 28/11/36.)

From the Author.

II. By purchase.

AMERICAN PUBLIC HEALTH ASSOCIATION and AMERICAN WATER WORKS ASSOCIATION. Standard methods for the examination of water and sewage. 8th edition. New York 1936. pp. xiv + 309. \$2.50. (*Recd.* 19/11/36.)

BONE, WILLIAM A., and HIMUS, GODFREY W. Coal: its constitution and uses. With a supplementary chapter upon fuel economy and heat transmission in industrial furnaces by REGINALD J. SARJANT. London 1936. pp. xvi + 631. ill. 25s. net. (*Recd.* 19/11/36.)

COMBER, A. W. Composition flooring and floorlaying. London 1936. pp. xii + 124. ill. 4s. net. (*Recd.* 19/11/36.)

DRINKER, PHILIP, and HATCH, THEODORE. Industrial dust: hygienic significance, measurement and control. New York 1936. \$4. (*Recd.* 19/11/36.)

EDWARDS, JUNIUS DAVID. Aluminum paint and powder. 2nd edition. New York 1936. pp. 216. ill. \$4.50. (*Recd.* 23/11/36.)

FOOD RESEARCH. Vol. I, etc. Champaign, Ill. 1936 +. (*Reference.*) \$4 per annum.

FRENKEL, J. Wave mechanics: elementary theory. 2nd edition. Oxford 1936. pp. x + 312. ill. 20s. net. (*Recd.* 19/11/36.)

GNADINGER, C. B. Pyrethrum flowers. 2nd edition. Minneapolis 1936. pp. xvi + 380. ill. 23s. net. (*Recd.* 19/11/36.)

HOUGEN, O. A., and WATSON, K. M. Industrial chemical calculations. 2nd edition. New York 1936. pp. x + 487. ill. \$4.50. (*Recd.* 19/11/36.)

HUTCHISON, ROBERT, and MOTTRAM, V. H. Food and the principles of dietetics. 8th edition. London 1936. pp. xxviii + 634. ill. 21s. net. (*Recd.* 19/11/36.)

JOURNAL OF ORGANIC CHEMISTRY. Vol. I, etc. Baltimore 1936 +. (*Reference.*) \$7 per annum.

KLEMM, WILHELM. Magnetochemie. Leipzig 1936. pp. xvi + 262. ill. *M.* 18. (*Recd.* 10/12/36.)

MEDICAL RESEARCH COUNCIL. Special Report Series, No. 213. The nutritive value of fruits, vegetables and nuts. By R. A. McCANCE, E. M. WIDDOWSON, and L. R. B. SHACKLETON. London 1936. pp. 107. ill. (*Reference.*) 2s. net.

MEUNIER, LOUIS, and VANÉY, CLÉMENT. La tannerie. Vol. I. Paris 1936. pp. vi + 804. ill. *Fr.* 120. (*Recd.* 27/11/36.)

MOTT, N. F., and JONES, H. The theory of the properties of metals and alloys. Oxford 1936. pp. xiv + 326. ill. 25s. net. (*Recd.* 19/11/36.)

OPFERMANN, ERICH, and HOCHBERGER, ERNST. Die Bleiche des Zellstoffs. 2 vols. Berlin 1935-36. pp. 285, 416. ill. *M.* 35, *M.* 40. (*Recd.* 10/12/36.)

REILLY, JOSEPH. Distillation. London 1936. pp. viii + 120. ill. 3s. 6d. net. (*Recd.* 19/11/36.)

ROWELL, HERBERT W. The technology of plastics. London 1936. pp. 206. ill. 10s. 6d. net. (*Recd.* 19/11/36.)

SCHMIDT, ERNST. Einführung in die technische Thermodynamik. Berlin 1936. pp. viii + 314. ill. *M.* 15. (*Recd.* 10/12/36.)

SCIENCE. New series, Vol. 83 etc. New York 1936 +. (*Reference.*) \$6 per annum.

SCRIABINE, I. Les matériaux constitutifs de l'appareillage chimique; leur résistance a la corrosion. Paris 1934. pp. iv + 100. ill. *Fr.* 20. (*Recd.* 2/12/36.)

SNELL, FOSTER DEE, and SNELL, CORNELIA T. Colorimetric methods of analysis, including some turbidimetric and nephelometric methods. [2nd edition.] Vol. I. Inorganic. New York 1936. pp. xxiv + 766. ill. \$9.50. (*Recd.* 23/11/36.)

SPENCER, L. J. A key to precious stones. London 1936. pp. viii + 237. ill. 5s. net. (*Recd.* 19/11/36.)

TIMMERMANS, JEAN. Les solutions concentrées: théorie et applications aux mélanges binaires de composés organiques. Paris 1936. pp. viii + 647. ill. *Fr.* 130. (*Recd.* 2/12/36.)

TRESSLER, DONALD K., and EVERS, CLIFFORD F. The freezing preservation of fruits, fruit juices, and vegetables. New York 1936. pp. xii + 351. ill. \$5. (*Recd.* 19/11/35.)

WULFF, PETER. Anwendung physikalischer Analysenverfahren in der Chemie. München 1936. pp. 239. ill. *M.* 7.80. (*Recd.* 30/11/36.)

III. Pamphlets.

BRITISH SCIENCE GUILD. Science in development. By the RT. HON. LORD RUTHERFORD. The Norman Lockyer Lecture 1936. pp. 20.

BRITISH STANDARDS INSTITUTION. British Standard Specifications. No. 614—1936. Graduated receivers for Dean and Stark apparatus. pp. 17. ill.

— — — No. 701—1936. Brewers' flasks. pp. 9. ill.

— — — No. 705—1936. British standard method for the determination of the agglutinating value of coal. pp. 9. ill.

COHEN, ERNST, and COHEN-DE MEESTER, W. A. T. Daniel Gabriel Fahrenheit (1686—1736). (From the *Kon. Akad. Wet., Verhand.*, 1936, 16.)

INTERNATIONAL TIN RESEARCH AND DEVELOPMENT COUNCIL. Technical Publications. Series A. No. 45. The retarding effect of stannous salts on the oxidation of olein and oils. By S. H. BERTRAM. London 1936. pp. 10.

— — — No. 46. The spectrographic analysis of tin. By D. M. SMITH. London 1936. pp. 26. ill.

NEW ZEALAND. *Department of Scientific and Industrial Research*. Bulletin No. 50. The cheese yielding capacity of milk and its relation to the method of payment for milk for cheesemaking. Wellington 1936. pp. x, 137 to 364. ill.

RESEARCH ASSOCIATION OF BRITISH PAINT, COLOUR AND VARNISH MANUFACTURERS. 16th Bulletin. The preservation of iron and steel by means of paint. By L. A. JORDAN and L. WHITBY. Teddington [1936]. pp. 68.

SMITH, G. FREDERICK, and SULLIVAN, V. R. The electron beam spectrometer: a line operated vacuum tube titrometer for potentiometric titrations with cathode ray tube replacement of the micro-ammeter. Columbus 1936. pp. 40. ill.

FORTHCOMING MEETINGS OUTSIDE LONDON.

BRISTOL.

Thursday, February 4th, 1937, at 7.30 p.m. Lecture on "The Chemistry of Ascorbic Acid and its Analogues," by Professor E. L. Hirst, D.Sc., F.R.S., in the Department of Chemistry of the University.

GLASGOW.

Friday, February 19th, 1937, at 7.30 p.m. Lecture on "Ionic Migration," by Professor J. Kendall, M.A., D.Sc., F.R.S., at the Royal Technical College.

LEEDS.

Thursday, January 28th, 1937, at 7 p.m. Lecture on "Silicates," by Professor W. L. Bragg, O.B.E., D.Sc., F.R.S., in the Lecture Theatre of the new Chemistry Building of the University.

LIVERPOOL.

Friday, January 29th, 1937, at 6 p.m. Lecture on "Sesquiterpene Ketones, their Structure and Synthesis," by Professor J. L. Simonsen, D.Sc., F.R.S.

Wednesday, February 24th, 1937, at 6 p.m. Lecture on "Some Aspects of Modern Analytical Chemistry," by Dr. J. J. Fox, O.B.E., F.I.C.

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

MANCHESTER.

Friday, January 8th, 1937, at 7 p.m. Joint meeting with the Manchester Section of the Society of Chemical Industry and the Society of Dyers and Colourists. Lecture on "Reaction of Diazosulphonates derived from β -Naphthol-1-sulphonic Acid," by Professor F. M. Rowe, D.Sc., F.I.C., at the Constitutional Club, St. Ann's Street, Manchester.

Tuesday, February 16th, 1937, at 4.30 p.m. Joint meeting with the Manchester University Chemical Society. Lecture on "The Biochemical Rôle of the Vitamin-B Complex," by Professor R. A. Peters, M.A., M.D., F.R.S., in the Chemistry Lecture Theatre of the University.

NEWCASTLE AND DURHAM.

Fellows are invited to attend the 36th Bedson Lecture to be held in the Chemistry Lecture Theatre, Armstrong College :

Monday, February 1st, 1937, at 6.30 p.m. Lecture on the "Catalytic Activation of Hydrogen," by Professor M. Polanyi, M.D., Ph.D.

NORTH WALES.

Thursday, January 21st, 1937, at 5.30 p.m. Joint meeting with University College of Bangor Chemical Society. Lecture on "Quantitative Study of some Gas Reactions," by Professor M. W. Travers, D.Sc., F.R.S., in the Chemistry Lecture Theatre of University College, Bangor.

SHEFFIELD.

Friday, February 19th, 1937, at 5.30 p.m. Lecture on "The Unravelling of Complex Reactions," by Professor H. M. Dawson, D.Sc., F.R.S., in the Chemistry Lecture Theatre of the University.

SOUTH WALES.

Friday, January 29th, 1937, at 6 p.m. Joint meeting with the University College of Swansea Chemical Society. Lecture on "Recent Progress in Inorganic Chemistry," by Dr. W. Wardlaw, F.I.C., in the Department of Chemistry of the University College.

ST. ANDREWS AND DUNDEE.

Friday, 26th February, 1937. Joint meeting with St. Andrews University Chemical Society. Lecture on "Crystallography as a Chemical Tool," by Professor G. M. Bennett, M.A., Sc.D., at the University, St. Andrews.

FORTHCOMING MEETINGS IN LONDON.

Thursday, January 21st, 1937, at 8 p.m.

Ordinary Scientific Meeting.

Thursday, February 4th, 1937, at 5 p.m.

Discussion on " The Transition State in Reaction Kinetics " to be opened by Professor M. Polanyi, followed by Dr. C. N. Hinshelwood, Dr. E. A. Moelwyn-Hughes, and Mr. M. G. Evans.

Thursday, February 18th, 1937, at 8 p.m.

Ordinary Scientific Meeting.

SOCIETY OF CHEMICAL INDUSTRY.

Fellows are invited to attend the Jubilee Memorial Lecture entitled " The Service of Science to Industry," to be given by Dr. J. T. Dunn, under the auspices of the Food Group, on Wednesday, January 6th, 1937, at 8.30 p.m. in the Main Lecture Theatre of the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C. 1.