

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, January 20th, 1927, at 8 p.m. In the absence of the President, the Chair was occupied by Dr. ALEXANDER SCOTT, F.R.S., Vice-President.

Reference was made to the loss sustained by the Society, through death, of the following Fellows :

	Elected.	Died.
Joseph J. Acworth	March 4th, 1875.	Jan. 3rd, 1927.
George Christopher	June 18th, 1874.	Aug. 7th, 1926.
Frank Cope	Feb. 16th, 1899.	May 12th, 1926.
William B. Hart	May 7th, 1891.	Dec. 29th, 1926.
Frederick H. Painter	Feb. 18th, 1909.	Dec. 12th, 1926.
Edward H. Rennie	Feb. 6th, 1879.	Jan. 1927.
Thomas A. Reid	Dec. 7th, 1893.	Nov. 15th, 1926.
Frederick J. Stoakley	May 5th, 1921.	Jan. 16th, 1927.

The CHAIRMAN announced that the names of the members of Council who retire at the Annual General Meeting on March 24th, 1927, and who are ineligible for re-election to the same office until after the lapse of one year, are as follows :

Vice-President who has filled the office of President :

Prof. W. H. Perkin.

Vice-Presidents who have not filled the office of President :

Mr. A. J. Greenaway and Prof. J. C. Philip.

Ordinary Members of Council :

(a) Town Members :

Dr. O. L. Brady, Dr. A. E. Dunstan, and Prof. T. S. Moore.

(b) Country Members :

Prof. D. R. Boyd, Mr. B. Lambert, and Prof. F. L. Pyman.

The following vacant places fall due to be filled at the Annual General Meeting on March 24th, 1927, in accordance with the Bye-Laws :

Vice-Presidents who have filled the office of
President

One vacancy.

Vice-Presidents who have not filled the office
of President

Two vacancies.

Ordinary Members of Council :

- (a) Town Members Three vacancies.
 (b) Country Members Three vacancies.

Certificates were read for the first time in favour of :

Cameron Gordon Anderson, B.Sc., 23, Warwick Road, Sparkhill, Birmingham.
 Gilbert Edward Archey, M.A., 10, Laurie Avenue, Auckland, N.Z.
 Eric Sidney Bacon, B.Sc., A.I.C., 78, South Street, Ponders End, Middlesex.
 Sydney Thomas Bowden, B.Sc., A.I.C., University College, Newport Road, Cardiff.
 Satyendra Nath Chakravarti, M.Sc., 96, Abingdon Road, Oxford.
 Lena Winifred Frost, B.Sc., 4, Sandy Lane, Pendleton, Manchester.
 Henry Frank Gillbe, B.Sc., A.I.C., 8, Myddleton Buildings, High Street, Islington.
 William Honneyman, B.Sc., F.I.C., Ph.C., 17, Cyprus Park, Belfast.
 Peter Jayaweera Jayaratne, B.Sc., Seevali School, Ratnapura, Ceylon.
 Sin-iti Kawai, Chemical Institute, Tohoku Imperial University, Sendai, Japan.
 Alexander Anderson Kennedy, 86, Babbacombe Road, Bromley.
 Alkin Lewis, B.Sc., A.I.C., 74, Sutherland Avenue, W. 9.
 Rt. Hon. Sir Alfred Moritz Mond, Bart., M.P., 35, Lowndes Square, S.W. 1.
 Masuo Murakami, M.Sc., Tohoku Imperial University, Sendai, Japan.
 Roger Saxon Nickalls, 61, Elm Park Gardens, S.W. 10.
 Mary Alice Marcia Penrose, B.Sc., 9, Grove Road, East Cliff, Bournemouth.
 Eric Charles Pickering, Ph.D., B.Sc., A.I.C., 14, Emperor's Gate, South Kensington, S.W. 7.
 Stanley Ernest Pusey, 54, Cranbury Road, Fulham, S.W. 6.
 Mysore Guru Srinivasa Rao, Central College, Bangalore, India.
 Alfred Leonard Read, B.Sc., 154, Southbury Road, Enfield.
 Rodney Thomas Shepherd, B.A., Westminster Training College, Horseferry Road, S.W. 1.
 Shintaro Ogawa, Tohoku Imperial University, Sendai, Japan.
 Walter Lewis Lee Smith, B.Sc., A.I.C., 9, Newton Road, Faversham.
 Robert Spence, B.Sc., 18, Croft Avenue, South Shields.
 Frederick Robert Storrie, B.Sc., A.I.C., 1, Carriagehill Drive, Paisley.
 Robert Bruce Walker, M.A., Buckingham, Que., Canada.
 Francis John Watson, M.A., M.Sc., 28, Bishop's Road, Paddington, W. 2.
 Albert Greville White, B.Sc., A.I.C., 45, Caledonia Road, Saltcoats.
 Robert Scott Wishart, M.A., D.Sc., Copthorne, Fawley.
 Norman Edward Wood, B.Sc., 422, Brockley Road, Crofton Park, S.E. 4.
 Lakshmi Narayan Yadava, M.Sc., Bareilly College, Bareilly, India.

The following Certificates have been authorised by the Council for presentation to ballot under Bye-Law I (2) in favour of :

Clarence A. Hall, 7951, Winston Road, Chestnut Hill, Phila., Pa., U.S.A.
 Isaac Silberman, F.I.C., Bedford Pharmacy, Teoville, Johannesburg, S. Africa.

The following papers were read :

- “The glow of arsenic.” By H. J. EMELÉUS.
 “On the origin of the spectrum of the glow of phosphorus.” By H. J. EMELÉUS and R. H. PURCELL.

“Ring-chain tautomerism. Part XVI. The effect of two adjacent *gem*-dimethyl groups on the ease of formation of the *cyclopentane* ring.” By I. VOGEL.

**ORDINARY SCIENTIFIC MEETING, THURSDAY,
FEBRUARY 3rd, 1927, AT 8 P.M.**

The following papers will be read :

- “The nature of the alternating effect in carbon chains. Part XIV. The directive action of some groups of the form $-CR'R''\cdot CO\cdot R\cdot$ in aromatic substitution.” By J. W. BAKER and C. K. INGOLD.
- “The nature of the alternating effect in carbon chains. Part XVII. The directive action of the groups $\cdot CH_2\cdot CH_2\cdot NO_2$, $\cdot CH\cdot CH\cdot NO_2$, and $\cdot C(NO_2)\cdot CHR$ in aromatic substitution.” By J. W. BAKER and I. S. WILSON.
- “The Storch equation, a general dilution formula, and the validity of the law of mass action at limiting dilutions.” By A. FERGUSON and I. VOGEL.
- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part II. Application to data at 0° , 18° , and 25° C.” By A. FERGUSON and I. VOGEL.
- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part III. The mobilities of the hydrogen and the hydroxyl ions.” By A. FERGUSON and I. VOGEL.

LECTURE.

A Memorial Lecture in honour of the late Kamerlingh Onnes will be delivered by Professor Dr. Ernst Cohen, of Utrecht, on Thursday, February 10th, 1927, at 8 p.m., at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W. 1.

ANNUAL GENERAL MEETING AND ANNIVERSARY DINNER.

The Annual General Meeting will be held at Burlington House on Thursday, March 24th, 1927, at 4 p.m., and the Anniversary Dinner will take place the same evening at the Hotel Victoria, Northumberland Avenue, W.C. 2. Further particulars will be circulated later.

List of Papers, or Abstracts thereof, received between December 16th, 1926, and January 20th, 1927. (This List does not include the titles of papers, or abstracts thereof, which have been read at an Ordinary Scientific Meeting, or which have appeared in the Journal.)

- “ Acid soaps : a crystalline potassium hydrogen dioleate.” By J. W. MCBAIN and A. STEWART.
- “ Studies of aromatic thionyl and chlorothionyl derivatives. Part I. Thionylcatechol and dichlorothionylquinol.” By A. GREEN.
- “ The platini-platino chloride electrode. A new type of chlorine electrode.” By V. F. MILLER and H. TERREY.
- “ The nature of the alternating effect in carbon chains. Part XIV. The directive action of some groups of the form $-CR'R''\cdot CO\cdot R\cdot$ in aromatic substitution.” By J. W. BAKER and C. K. INGOLD.
- “ The nature of the alternating effect in carbon chains. Part XV. The directive action of some groups of the form $-CO\cdot R$ in aromatic substitution.” By K. E. COOPER and C. K. INGOLD.
- “ The condensation of substituted anilines with *cyclopentanone* cyanohydrin. Derivatives of 1-anilino*cyclopentane*-1-carboxylic acid.” By S. H. OAKESHOTT and S. G. P. PLANT.
- “ Synthesis of 5 : 6-dimethoxyindole and its 2-carboxylic acid.” By A. E. OXFORD and H. S. RAPER.
- “ The condensation of *p*-hydroxybenzoic acid with chloral.” By F. D. CHATTAWAY and F. C. Y PRATS.
- “ The decomposition products of menthyl esters of sulphonic acids.” By T. S. PATTERSON and I. M. MCALPINE.
- “ The influence of solvents on the rotation of optically active compounds. Part XXIV. Menthyl benzenesulphonate, menthyl naphthalene- α -sulphonate, and menthyl naphthalene- β -sulphonate in various solvents.” By T. S. PATTERSON and I. M. MCALPINE.
- “ The complex chlorides of tervalent molybdenum.” By W. R. BUCKNALL, S. R. CARTER, and W. WARDLAW.
- “ The viscosity of ether at low temperatures.” By E. H. ARCHIBALD and W. URE.
- “ The nitration of benzil, 3 : 5 : 3' : 5'-tetranitrobenzil.” By F. D. CHATTAWAY and E. A. COULSON.
- “ The influence of nitro-groups on the reactivity of substituents in the benzene nucleus. Part IX. 2 : 3- and 2 : 5-Dinitro-4-methoxytoluenes.” By H. E. DADSWELL and J. KENNER.
- “ The union of benzoylacetonitrile with organic bases in the presence of salicylaldehyde. Part I.” By P. KRISHNAMURTI.
- “ Aminobenzthiazoles. Part VIII. The effect of substituents on tautomeric systems of the aminothiazole type and the

- synthesis of nuclear substituted 1-aminobenzthiazole derivatives." By G. M. DYSON, R. F. HUNTER, and R. W. MORRIS.
- "The synthesis of meso-alkyl and meso-aryl anthracene derivatives. Part I." By E. DE B. BARNETT, J. W. COOK, and I. G. NIXON.
- "Aminobenzthiazoles. Part IX. The unsaturation of aminothiazoles containing a static triad system, the mechanism of the transformation of arylthiocarbamides into aminobenzthiazole bromides, and the synthesis of some 1-dimethylaminobenzthiazoles." By R. F. HUNTER and E. R. STYLES.
- "The velocity of formation of quaternary ammonium salts from trimethylamine and benzyl chloride and the three mononitrobenzyl chlorides." By H. MCCOMBIE, H. A. SCARBOROUGH, and F. F. P. SMITH.
- "The nitration of *m*-iodophenol." By H. H. HODGSON and F. H. MOORE.
- "The partition of hydrogen chloride between water and benzene." By R. W. KNIGHT and C. N. HINSHELWOOD.
- "Pseudo-ternary systems containing sulphur. Part II. The system sulphur-benzoic acid." By D. L. HAMMICK and W. E. HOLT.
- "Colour and molecular geometry. Part VI. Explanation of the colours of the anthocyanins." By J. MOIR.
- "Acid and salt effects in catalysed reactions. Part VI. The embryonic stage of an auto-catalysed reaction. Generalised form of the simple autocatalytic catenary." By H. M. DAWSON.
- "The reaction between diazonium salts and malonyldiurethane." By M. A. WHITELEY and D. YAPP.
- "The mechanism of the reaction between aluminium-iodine-ethyl alcohol and water. The preparation of ethyl iodide." By A. O. JONES and G. M. GREEN.
- "The optical resolution of chloriodoacetic acid." By A. M. McMATH and J. READ.
- "The preparation of *N*-substituted *o*-benzoic sulphinides." By E. W. McCLELLAND.
- "The nature of the alternating effect in carbon chains. Part XVI. The nitration of some γ -phenylpropylamine derivatives." By C. K. INGOLD and I. S. WILSON.
- "On the alleged retardation of certain reactions by light." By A. J. ALLMAND and R. E. W. MADDISON.
- "The nature of the alternating effect in carbon chains. Part XVII. The directive action of the groups $\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{NO}_2$, $\cdot\text{CH}:\text{CH}\cdot\text{NO}_2$, and $\cdot\text{C}(\text{NO}_2):\text{CHR}$ in aromatic substitution." By J. W. BAKER and I. S. WILSON.

- “The production of fog in the neutralisation of alkali with hydrogen halides.” By H. O. ASKEW.
- “The Storch equation, a general dilution formula, and the validity of the law of mass action at limiting dilutions.” By A. FERGUSON and I. VOGEL.
- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part II. Application to data at 0°, 18°, and 25° C.” By A. FERGUSON and I. VOGEL.
- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part III. The mobilities of the hydrogen and the hydroxyl ions.” By A. FERGUSON and I. VOGEL.
- “The mechanism of reactions induced by hydrogen chloride between aromatic aldehydes and aldehydecyanhydrins in solution.” By B. H. INGHAM.
- “Ring-chain tautomerism. Part XV. The hydroxy-lactone type.” By E. ROTHSTEIN and C. W. SHOPPEE.
- “Solubility influences. Part IV. The salting-out of aniline from aqueous solutions.” By S. GLASSTONE, J. BRIDGMAN, and W. R. P. HODGSON.
- “The constitution of the supposed *N*-methylene sulphurous acid derivatives of amines. Part I. Examination by the Elvove method.” By G. NEWBERY and M. A. PHILLIPS.

**CERTIFICATES OF CANDIDATES FOR ELECTION AT
THE BALLOT TO BE HELD AT THE ORDINARY
SCIENTIFIC MEETING ON THURSDAY, FEBRUARY
3rd, 1927.**

ANDERSON, CAMERON GORDON, 23, Warwick Road, Sparkhill, Birmingham. British. Research Student, Chemistry Dept., University of Birmingham, B.Sc., 1st Class Honours, Chemistry. Priestley Scholar, Chemistry. Frankland Prizeman, Chemistry. (*Signed by*) W. N. Haworth, H. M. Spittle, W. Charlton, H. D. K. Drew, L. W. Needham.

ARCHEY, GILBERT EDWARD, 10, Laurie Avenue, Auckland. British. Secretary, Auckland Institute. M.A. (N.Z.). (*Signed by*) F. P. Worley, W. Frank Short, J. C. Andrews.

BACON, ERIC SIDNEY, 78, South St., Ponders End, Mddx. English. Chemist. B.Sc., 2nd Class Honours Chemistry (London). Associate of the Institute of Chemistry. (*Signed by*) T. J. Drakeley, G. J. Avey, H. J. S. King.

BAGNALL, MARIE, 15, Bent Lane, Heaton Park, nr. Manchester. British. Librarian and abstractor, British Cotton Industry Research Association, Didsbury. B.Sc. (Vict.), 1920. M.Sc. (Vict.), 1925. Thesis: Zymolysis of Starch and Cellulose. (*Signed by*) J. C. Withers, R. G. Fargher, D. Clibbens.

BARR, MOLLIE, Langton, Erith Rd., Belvedere, Kent. British. Student of Chemistry at Bedford College, London University. (*Signed by*) Holland Crompton, J. F. Spencer, Jessie Stewart.

BLOUNT, BERTIE KENNEDY, Idmiston Grange, Idmiston, nr. Salisbury. British. Undergraduate Student of Trinity College, Oxford. Reading for Honours in the School of Chemistry. (*Signed by*) M. P. Applebey, S. G. P. Plant, C. N. Hinshelwood.

BOAKE, EDMOND JOHNSON, Widford Lodge, Chelmsford. British. Director of Companies. Managing Director of A. Boake, Roberts & Co., Ltd., etc., Heavy and Fine Chemical Manufacturers. B.A. Camb. (Honours). (*Signed by*) W. J. Uglow Woolcock, W. H. Perkin, Leonard A. Levy.

BOWDEN, SYDNEY THOMAS, University College, Newport Road, Cardiff. Welsh. Assistant Lecturer and Demonstrator. B.Sc. (Honours), Wales. A.I.C. Formerly Fellow of the University of Wales. (*Signed by*) W. J. Jones, E. P. Perman, N. M. Cullinane.

BUTTERFIELD, GEORGE RICHARD, Selwyn College, Dunedin, N.Z. British. Medical Student. Completed B.Sc. course at Auckland Univ. College. Commencing Medical course at Otago University. I desire to keep in touch with developments of chemistry. (*Signed by*) F. P. Worley, W. F. Short, John R. Hosking.

CHAKRAVARTI, SATYENDRA NATH, 96, Abingdon Road, Oxford. British subject. Research Student in Organic Chemistry, Dyson Perrins Laboratory. B.Sc., First Class. M.Sc. (Organic Chemistry), First Class, of Lucknow University. Studying for D.Phil. at Oxford University. Worked on "The action of toluene sulphonic ester on nitrophenols" under Dr. S. M. Sane, Reader in Organic Chemistry, Lucknow University. (*Signed by*) W. H. Perkin, R. D. Haworth, V. M. Trikojus, S. G. P. Plant.

CHILVERS, CECIL, 29, St. Luke's Avenue, Ilford, Essex. British. Chemist (Anglo-American Oil Company). B.Sc. (London). A.I.C. 1922-1926, Temporary Assistant Chemist, The Government Laboratory. (*Signed by*) Robert Robertson, Geo. Stubbs, J. J. Fox, J. F. Hirst.

CLARK, ROBERT EDWARD DAVID, 46, London Road, Southborough, Tunbridge Wells. English. Student. Exhibitioner of St. John's College, Cambridge. Candidate for Natural Science Tripos. (*Signed by*) Hamilton McCombie, Gordon M. Wright, William Blakey.

DAVIES, JOHN STANLEY, 9, Winchester Avenue, Brondesbury, N.W. 6. British. Pharmaceutical Chemist. Bachelor of Science (London, 1925). (*Signed by*) R. H. Doughty, E. H. Williams, R. J. Evans.

DESAL, BHIMBHAI NICHABHAI, c/o Miss Dickson, 21, Warrender Park Terrace, Edinburgh. Indian. Research Student (King's Buildings, Chemistry Dept., Edinburgh University, Edinburgh). Research Worker and Lecturer in Chemistry (1924-1926), Wilson College, Bombay. Two papers submitted to Indian Science Congress, one in 1924 and the other in 1925. Two papers, one on "Coagulation of Thorium Hydroxide" and the other on "Viscosity Measurements of Ceric Hydroxide Sol and Gel," are in course of publication in the *Journal of Phys. Chemistry*. (*Signed by*) James Walker, Ernest Bowman Ludlam, John E. Mackenzie.

FROST, LENA WINIFRED, 4, Sandy Lane, Pendleton, Manchester. British. Second Mistress at Pendleton High School for Girls, Manchester. In charge of Chemistry Laboratory and all Chemistry Classes. I desire to receive the Society's publications in order to keep in touch with the progress of chemistry. B.Sc., Birmingham. Also studied at the University of Manchester and Salford Technical College. Over 8 years' experience in the teaching of Matri-

cultation and Higher School Certificate Chemistry. (*Signed by*) B. Prentice, Vernon Edge, J. W. McMyn, Harold B. Dixon, Frederick Challenger, John F. Wilkinson.

GILLBE, HENRY FRANK, 8, Myddelton Bldgs., High St., Islington. British. Research Student in Physical Chemistry at University College, London. 1st Class Honours B.Sc. in Chemistry (Univ. of London). A.I.C. Paper accepted for publication in the *J.C.S.* in Nov. 1925, entitled: "The Change in the Absorption Spectra of Aromatic Nitro-compounds in Liquid Ammonia with Time," but withdrawn as work was to be extended. (*Signed by*) W. E. Garner, F. G. Donnan, J. N. Collie.

GUJRAL, KIRPAL SINGH SANTOSH, Chhachhi Street, Rawalpindi (Punjab). Indian. Student. Bachelor of Science. LL.B. (St.). (*Signed by*) N. A. Yajnik, E. T. Dean, M. Gopal Rau.

HONEYMAN, WILLIAM, 17, Cyprus Park, Belfast. British. Research Chemist. B.Sc. (Lond.). F.I.C. (e). Ph.C. (G.B.). Textile Research Chemist, York Street Flax Spinning Co., Ltd., Belfast. (*Signed by*) Henry Warn, Theophilus Harper, J. Carroll Culbert.

HUGHES, HUBERT IVOR, 89, Penchwintan Road, Bangor, N.W. Welsh. Research Student at University College of North Wales, Bangor. B.Sc., Univ. of Wales (Hons. Chemistry), 1924. Sept. 1925—, Research Student at U.C.N.W. (*Signed by*) Kennedy Orton, H. B. Watson, A. E. Bradfield.

HUSBAND, ALFRED DUDLEY, Dept. of Agriculture, Salisbury, S. Rhodesia. English. Chief Agricultural Chemist, Dept. of Agriculture, Salisbury, S. Rhodesia. A.I.C. *Biochem. Journ.*, 1922, **16**, 3; 1923, **17**, 707. (*Signed by*) W. Thomas, W. Godden, J. E. Humphries.

JAYARATNE, PETER JAYAWEERA, Mirissa, Weligama, Ceylon. Sinhalese (British). Headmaster, Seevali School, Ratnapura (Ceylon). B.Sc. (London). (*Signed by*) Norman Rae, J. P. C. Chandrasena, J. R. Bhatt.

JONES, ARTHUR FREDERICK, 12, Colville Terrace, Colville Street, Nottingham. British. Science Master. Bachelor of Science, University of London, with 2nd Class Honours in Chemistry. 1923-26, Science Master, Anglo-Chinese College, Swatow, China. (*Signed by*) F. S. Kipping, J. B. Firth, E. B. R. Prideaux.

JONES, BRYNMOR, "Hilbre," Fronhenlog Terrace, Bangor, N. Wales. British. Research Student at University College of North Wales, Bangor. B.Sc., First Class Honours, Chemistry. (*Signed by*) A. E. Bradfield, H. B. Watson, F. G. Soper.

JONES, DAVID IDRIS, 118, Gough Road, Edgbaston, Birmingham. British. University Student (Research Chemistry, Birmingham). B.Sc. Honours (Chemistry), Second Class (1926), Birmingham. (*Signed by*) W. N. Haworth, S. Peat, W. Charlton, H. D. K. Drew.

KAWAI, SIN-ITI, Chemical Institute, Faculty of Science, Tohoku Imperial University, Sendai, Japan. Japanese. Assistant to Professor Majima in the Tohoku Imperial University, Sendai, Japan, and a Research Student of the Physical and Chemical Research Institute, Hongo, Tokyo. Graduate of the Tohoku Imperial University, Sendai, Japan. Has been engaged in Research Work under Prof. R. Majima, M.I.A., for the last six years. (1) "Synthesis of the Simplest Homologue of Urushiol" (*Scient. Pap. Phys. Chem. Res. Inst., Tokyo*, 1925, **3**, 263; C. 1926, **1**, 3144). (2) "On a New Reaction between Triacetine and Phenol and an Improved Method for the Preparation of Triacetine" (*Scient. Pap. Phys. Chem. Res. Inst.*, 1925, **3**, 275; C. 1926, **1**, 3143). (3) "On the Preparation of Catechol-ortho-carboxylic Acid and the Condensation between Catechol and Glycerol" (*Scient. Pap.*

Phys. Chem. Res. Inst., 1925, **3**, 279; C. 1926, **1**, 3144). (*Signed by*) Riko Majima, Shigeru Komatsu, Hiroshi Nomura.

KENNEDY, ALEXANDER ANDERSON, 86, Babbacombe Rd., Bromley, Kent. British. Technical Director of Soap and Toilet Speciality Factory. Member of the Pharmaceutical Society. (*Signed by*) F. C. Dyche-Teague, W. H. Simmons, Percy C. C. Isherwood.

KEYES, ALFRED WILLIAM, 14, Wilson St., Richmond, Auckland, N.Z. English. Student of Chemistry at Auckland University College. About to be employed in chemical industry and wish to keep in touch with the development of chemical science. (*Signed by*) F. P. Worley, A. H. Bowell, W. F. Short, J. C. Andrews.

LEESE, ERNEST, Portland, Whangarei, New Zealand. British. Analyst and Technical Chemist. 3 Years Walthamstow Technical Institute, England. 4 Years Auckland University College. 16 Years' experience as Analyst. Late Assistant to J. A. Pond, Esq., late Govt. Analyst for Auckland. Last 7 years Chief Chemist to Wilson's (N.Z.) Portland Cement, Ltd., Whangarei, N.Z. R.A.M.C. hospital ship work during War. (*Signed by*) J. A. Pond, K. M. Griffin, Alf. J. Parker.

LEWIS, ALKIN, 74, Sutherland Av., Maida Vale, W. 9. British. Student. Have been engaged in Research at King's College since 1923. B.Sc., London, Honours in Chemistry (2nd Class). A.I.C. (*Signed by*) A. J. Allmand, Samuel Smiles, A. Fairbourne.

LINSTEAD, REGINALD PATRICK, 46, Compton Road, Winchmore Hill, N. 21. British. Research Chemist, Imperial College of Science. Ph.D. (London). D.I.C. Joint Author of 3 papers in the Journal of the Society: *Trans.*, 1922, **121**, 2502; 1925, **127**, 616, 815. (*Signed by*) Jocelyn Thorpe, G. A. R. Kon, E. F. Linstead.

LOCKTON, EDWARD HUBERT, 62, Pattison Rd., London, N.W. 2. British. Research Student. B.Sc., 1st Class Hons., 1926. A.R.C.S., 1926. (*Signed by*) G. A. R. Kon, R. W. West, John D. Johnson.

LONG, CHARLES WILLIAM, "Mayesvale," Shrubbery Road, Bromsgrove, Worcs. British. Research Student, Chemistry Department, Birmingham University. 1st Class Honours B.Sc. (Birmingham) in Chemistry, June, 1926. Priestley Scholar. (*Signed by*) W. N. Haworth, W. Charlton, H. D. K. Drew, S. Peat.

MOIR, DANIEL DONALD, 116, Orsett Rd., Grays, Essex. British. Student. B.Sc. (Chem. Special). Organic Research Student at East London College. (*Signed by*) E. E. Turner, R. J. W. Le Fèvre, H. A. Mayes.

MOND, The Rt. Hon. Sir ALFRED MORITZ, Bart., M.P., 35, Lowndes Square, London, S.W. 1. British. Chairman, Imperial Chemical Industries, Ltd. (*Signed by*) H. B. Baker, Jocelyn Thorpe, William J. Pope, T. Slater Price, Charles S. Gibson.

MORRIS, MATTHEW, Sewage Works, Hoscarr, nr. Ormskirk. British. Chemist and Manager. Student, 4 years, Blackburn Technical College. Member of The Sewage Disposal Works Managers' Association. I also wish to have the use of your library, and to keep in touch with chemical research. (*Signed by*) Harry G. Leigh, W. H. Duckworth, W. E. Speight.

MURAKAMI, MASUO, Faculty of Science, Tohoku Imperial University, Sendai, Japan. Japanese. Research Student in Organic Chemistry at the Tohoku Imperial University. M.Sc. (Tohoku). Engaged at present in research work in Organic Chemistry at the Tohoku Imperial University. (*Signed by*) Riko Majima, Shigeru Komatsu, Hiroshi Nomura.

NICKALLS, ROGER SAXON, 61, Elm Pk. Gds., S.W. 10. British. Under-

graduate, Oxford. Wishes to receive Society's publications, use Library, etc., etc. (*Signed by*) Allan F. Walden, J. Masson Gulland, B. Lambert, Frederick Soddy, C. N. Hinshelwood.

OGAWA, SHINTARO, Institute of Chemistry, Faculty of Science, Tohoku Imperial University, Sendai, Japan. Japanese. Assistant in the Chemical Institute of the Tohoku Imperial University. I graduated at that University in 1926 with dissertation on "The Application of the Perkin Reaction to Phenolic Aldehydes." Now engaged in research work in Organic Chemistry. (*Signed by*) Riko Majima, Shigeru Komatsu, Hiroshi Nomura.

PENROSE, MARY ALICE MARCIA, Woodbury, 9, Grove Road, East Cliff, Bournemouth. English. Teacher of Chemistry. B.Sc., Lond., Chemistry. I desire to have access to the publications of the Society. (*Signed by*) James C. Philip, M. A. Whiteley, H. C. H. Carpenter.

PICKERING, ERIC CHARLES, 14, Emperor's Gate, S. Kensington, S.W. 7. British. Head of Chemistry Dept., The Borough Polytechnic Institute, London. Ph.D. (Glasgow). B.Sc. (London). A.I.C. 5 Years Lecturer in Chemistry, The Royal Technical College, Glasgow. Wilson and Pickering, "Derivatives of Semioxamazide," *J.C.S.*, 1923, **123**, 394; 1924, **125**, 1152; 1925, **127**, 965. (*Signed by*) H. Lambourne, B. R. Heasman, H. S. Bolton.

PUSEY, STANLEY ERNEST, 54, Cranbury Rd., Fulham, S.W. 6. British. Student. Six years' experience at Wellcome Chemical Research Laboratories. Now taking B.Sc. Honours Chemistry course at University College, London. (*Signed by*) T. A. Henry, H. Paget, W. H. Gray, T. M. Sharp, J. A. Goodson, O. L. Brady.

RAO, MYSORE GURU SRINIVASA, Bangalore. Hindu. Professor of Chemistry. (1) Has been a Lecturer since 1908 (Asst. Prof. 1912 and Prof. 1918) (2) Published a paper *J. Amer. Chem. Soc.* (1919) on "cycloPropanes" (with Dr. E. P. Kohler). (3) Published a paper in 1923, "Perfumery and Essential Oil Records." (4) Published a paper in 1925 (*J.C.S.*) "Substitution in Resorcinol Derivatives." (*Signed by*) J. L. Simonsen, Roland V. Norris, M. O. Forster.

READ, ALFRED LEONARD, 154, Southbury Road, Enfield, Mddx. British. Works' Chemist, Enfield Cable Works, Ltd., Brimsdown, Mddx. University College, Southampton, 1918-1921. B.Sc. (Lond.), Honours Chemistry, 1920. (*Signed by*) D. R. Boyd, A. E. Clarence Smith, Bernard W. Crutchlow.

ROBERTSON, ALEXANDER, Clofrickford, Auchnagatt, Aberdeenshire. British. Assistant Lecturer, Chemistry Dept., Manchester University. M.A. (Aberdeen University, 1919). B.Sc. (Glasgow University, April, 1922). Ph.D. (Glasgow University, 1924). (1) 1923, **123**, 1713. (2) 1923, **123**, 1849. (3) 1924, **125**, 1992. (4) 1926, July, p. 1713. (5) 1926, Aug., p. 1951. (6) 1926, Oct., p. 2761. (*Signed by*) Arthur Lapworth, H. Raymond Ing, Wilson Baker, R. Robinson.

ROWELL, SYDNEY WILLIAM, Christ Church, Oxford. British. Research Student of Christ Church. B.A. *J.C.S.*, 1925, **127**, 2900; 1926, **128**, 1872; 1926, **128**, 1881. (*Signed by*) W. H. Perkin, N. V. Sidgwick, A. S. Russell.

SAUNDERS, BERNARD CHARLES, Pembroke College, Cambridge. British. Research Student. B.A. (Cantab.). 1st Class Honours, Part I, Natural Sciences Tripos. 1st Class Honours, Part II, Natural Sciences Tripos (Chemistry). (*Signed by*) W. J. Pope, W. H. Mills, Gordon E. Watts.

SCHOFIELD, MAURICE, 64, Oakleigh Rd., Clayton, Bradford. British. Senior Science Master, Worksop College, Notts. Student (Chemistry), Magdalen College, Oxford, 1920-1924 (Demyship). Senior Science Master, Worksop College, Notts., at present. B.A. Hons. (Oxon.). B.Sc. Hons.

(London). One year's research, 1923-24. (*Signed by*) E. Hope, N. V. Sidgwick, S. G. P. Plant.

SCHOFIELD, ROBERT KENWORTHY, M.A., Ph.D. University, Durham. British. University Lecturer in Physics, Durham. (a) Previous to present appointment part-time Demonstrator and Research Student in Chemical Laboratories, Cambridge. (b) *Publications*: Jointly with Dr. E. K. Rideal: "The Kinetic Theory of Surface Films," Parts I and II, *Proc. Roy. Soc.*, 1925, A, 109, 57; 1926, A, 110, 167. Alone: "An Experimental Verification of Gibbs' Adsorption Equation by Observing the Adsorption by Mercury of its own Ions from Solution, etc.," *Phil. Mag.*, 1926, (7), 1, 641. (*Signed by*) Irvine Masson, A. Killen Macbeth, G. H. Christie.

SHAW, FLORENCE RUTH, 64, Westfield Rd., Toller Lane, Bradford. British. Research Student, Organic Chemistry, Leeds University. B.Sc., 1st Class Honours Chemistry, Leeds University (1926). (*Signed by*) C. K. Ingold, P. K. Dutt, J. W. Baker, H. M. Dawson, W. Lowson.

SHEPHERD, RODNEY THOMAS, Westminster Training College, Horseferry Rd., S.W. 1. English. Lecturer in Chemistry. B.A. Hons., First Class, Chemistry, Oxford. Research on "The Electrical Absorption of Gases in Quartz Discharge Tubes" (unpublished). "The Direct Synthesis of Nitrous Oxide," Chapman, Shepherd, and Goodman, *Trans.*, June 1926, p. 1404. (*Signed by*) P. C. Austin, H. J. George, D. L. Chapman.

SMITH, WALTER LEWIS LEE-, 9, Newton Rd., Faversham, Kent. British. Temporary Assistant Chemist, Government Laboratory. B.Sc. (London). A.I.C. (*Signed by*) R. Robertson, A. More, Geo. Stubbs, Ernest M. Hawkins, B. D. Porritt.

SNOW, PERCY HENRY, "Lamorna," Greenhill Road, Moseley, Birmingham. British. Managing Director and Chief Chemist of the Eclipsol Oil Co., Ltd. Desires admission to the Society as Research Chemist in Lubricating Oils; much work being done at the request of other oil firms, and of a secret nature. (*Signed by*) Joseph Lones, Arthur Adams, J. H. Wood.

SPEDDING, KENNETH, Mounthill House, Chickenley Lane, Dewsbury. British. Student in Chemistry. I desire to follow the progress of chemical investigation. (*Signed by*) Irvine Masson, C. W. Gibby, A. Killen Macbeth, G. H. Christie.

SPEIGHT, RONALD, 8, Park View, Thornhill, Dewsbury, Yorks. British. Student in Chemistry. I desire to keep in touch with the development of chemistry. (*Signed by*) Irvine Masson, A. Killen Macbeth, G. H. Christie, C. W. Gibby.

SPENCE, ROBERT, 18, Croft Avenue, South Shields. British. Research Student at Armstrong College, Newcastle-on-Tyne. 1st Class Hons. B.Sc. (Chemistry), Univ. of Durham, 1926. Shared Senior Pemberton Scholarship, 1925. Shared Freire-Marreco Prize and Medal, 1926. (*Signed by*) G. R. Clemo, H. V. A. Briscoe, P. L. Robinson.

STARK, ALLAN RAMSAY, 61, St. Vincent Crescent, Glasgow, C. 3. Scottish. Assistant Analyst, Anglo-Persian Oil Co., Ltd., Meadhurst, Sunbury-on-Thames, Middlesex. B.Sc. (Hons.), Glasgow. A.I.C. (*Signed by*) Thomas Gray, F. J. Wilson, R. M. Caven, M. M. J. Sutherland, W. M. Cumming.

STEELE, ALFRED RAYMOND, 24, Newlands Avenue, West Hartlepool. British. Research Student. B.Sc. Lond., 1st Class Honours, Chemistry. (*Signed by*) F. S. Kipping, B. D. Shaw, F. C. Laxton.

STEVENS, MARY ELIZABETH, 521, King's Rd., Chelsea, S.W. 10. British. Student. Student of Chemistry in the University of London. (*Signed by*) Holland Crompton, J. F. Spencer, Jessie Stewart.

STORRIE, FREDERICK ROBERT, B.Sc. (Glas.), A.I.C., 1, Carriagehill Drive, Paisley. Scots. Assistant to the Gardiner Professor of Organic Chemistry, The University of Glasgow. Part-time Demonstrator in Chemistry to Students of Engineering, 1923-26; Assistant in Org. Chemistry, 1926-; Research Student, 1923-26 (University of Glasgow). No papers published. (*Signed by*) T. S. Patterson, J. Roberts, S. Horwood Tucker, G. G. Henderson, T. S. Stevens.

STORY, CHARLES WILLIAM HERBERT, Woodside Vicarage, Horsforth. English. Student at Leeds University. 1st Class Honours B.Sc. (Technology). 12 Months' Research. M.Sc. (Technology). (*Signed by*) C. K. Ingold, R. B. Forster, A. G. Perkin.

TAPLEY, RICHARD ARTHUR BEATER, 234, Evering Road, Clapton, E. 5. British. Temporary Assistant Chemist, Government Laboratory. B.A. (2nd Class Hons.), Chemistry, Oxon. B.Sc., Chemistry, Oxon, 1924. Perkin and Tapley, *J.C.S.*, 1924, **125**, 2428. (*Signed by*) R. Robertson, Geo. Stubbs, A. More.

TURNER, ARTHUR, 235, College St., Long Eaton, Nottingham. British. Chemical Research at University College, Nottingham. B.Sc. (Lond.). A.I.C. (*Signed by*) F. S. Kipping, J. B. Firth, B. D. Shaw, F. C. Laxton.

VRDEN, CYRIL JOSEPH, 24, Richmond Rd., Oxford. British. Research Student at Dyson Perrin Laboratory, Oxford. Passed Part I Final Honours School of Chemistry of the University of Oxford. (*Signed by*) W. H. Perkin, J. M. Gulland, S. G. P. Plant, E. Hope.

WALKER, ROBERT BRUCE, Buckingham, Que., Canada. Canadian-Scotch extraction. Research Assistant in Chemistry for Electric Reduction Co., Ltd. B.A. and M.A., Toronto. Two terms Assistant in Chemistry, Toronto University. Publication: *Trans. Amer. El. Chem. Soc.*, **46**, 205. (*Signed by*) Alfred E. Macintyre, Frank T. Shutt, Frank G. Wait.

WARD, GILBERT OAKLEY, 325, Superior Ave., Cleveland, Ohio, U.S.A. American. Technical Librarian, Cleveland Public Library. Graduate of Columbia College. A.B. P.B.K. Work involves co-operation with chemists and chemical engineers in research into chemical literature; also supervision of such work. Active Member Cleveland Engineering Society. (*Signed by*) Olin F. Tower, H. T. Clarke, Edmund B. Middleton.

WATSON, FRANCIS JOHN, 28, Bishop's Rd., Paddington, W. 2. British. Lecturer in Chemistry, Working Men's College, Melbourne. M.A. M.Sc. (Melb.). (*Signed by*) James C. Philip, A. A. Eldridge, M. S. Shah.

WHITE, ALBERT GREVILLE, B.Sc. (Wales), A.I.C., "Arthurlie," 45, Caledonia Rd., Saltcoats. Welsh. Research Scientist, Nobel Industries, Ltd. Author of various communications on the ignition and propagation of flame in gas- and vapour-air mixtures, including: *J.C.S.*, 1919, **115**, 1248 and 1462; 1922, **121**, 1244, 1688, and 2561; 1924, **125**, 2387; 1925, **127**, 48 and 672. (*Signed by*) Wm. Barbour, W. J. Jenkins, F. D. Miles.

WHITE, EDMUND, 16 and 17, Cross Street, Hatton Garden, London, E.C. 1. British. Chemical Manufacturer. Desires to receive the publications of the Society. (*Signed by*) H. B. Baker, C. S. Gibson, Robert H. Pickard.

WISHART, ROBERT SCOTT, Cophthorne, Fawley, Hants. British. Assistant Superintendent, Petroleum Oil Refinery. M.A., D.Sc. (Edinburgh). "Synthesis of Inosit" (with H. Wieland), *Ber.*, June, 1914, p. 2082. Research Chemist, B.D.C. (1919-25). "Constitution of *iso*Cyanine" (with W. H. Mills), *J.C.S.*, 1920. (*Signed by*) W. H. Perkin, F. H. Garner, W. H. Mills.

WOOD, NORMAN EDWARD, 422, Brockley Rd., Crofton Park, S.E. 4. British. Research Student. B.Sc. (1st Class Hons., Chemistry, Bristol). "The

Boiling Points of some *n*-Aliphatic Hydrocarbons" (1926, p. 1420). (*Signed by*) F. Francis, R. C. Menzies, T. Malkin.

YADAVA, LAKSHMI NARAYAN, Bareilly. Indian. Professor of Chemistry, Bareilly College. M.Sc., Allahabad University. Has been teaching chemistry for the last 12 years. Published "Notes on Qualitative Analysis of Single Salts and a Chart for Group Analysis of Inorganic Bases." (*Signed by*) K. C. Pandya, N. A. Yajnik, E. T. Dean.

YAMAMOTO, RYO, Chemical Department, University, Manchester. Japanese. Professor of the Agricultural College of Taiwan, Japan. Graduate of Tohoku University, Japan. Dr. of Agricultural Chemistry of Tokyo University. Have done Research Work under Prof. U. Suzuki, M.I.A., 10 years. Wrote a paper, "On the Insecticidal Principle of Insect Powder" (*Sci. Paper of the Inst. of Ph. and Chem. Res. in Tokyo*, 1925, 3, 193). Now working under Prof. R. Robinson, F.R.S., in the University, Manchester. (*Signed by*) Robert Robinson, Arthur Lapworth, Ernest W. Wignall.

The following Certificates have been authorised by the Council for presentation to ballot under Bye-Law I (2) :

HALL, CLARENCE A., 7951, Winston Road, Chestnut Hill, Phila., Pa. American Citizen. Asst. Factory Engineer, Electric Storage Battery Co., Philadelphia, Penn. Graduate of University of Pennsylvania, Class, 1896. Member of following societies: American Institute of Chemical Engineers, American Institute of Mining and Metallurgical Engineers, American Electro-chemical Society, American Chemical Society, American Ceramic Society, Faraday Society, Society of Chemical Industry, Franklin Institute (Member Board Managers—Chairman of the Committee of Science and Arts). For 30 years chemical, electro-chemical, and chemical engineering work has occupied my time. U.S. as well as foreign patents cover some of my work. I have neither published nor delivered any papers; corporations as a rule are not eager to make public the investigations, improvements, or changes in their methods. (*Signed by*) Wilder D. Bancroft.

HARRIS, CECIL EDWARD GADWIN, 188, Montpelier Rd., Durban, Natal, S.A. British South African. Chemist and Druggist. Late Student of the Natal Technical College. (*Signed by*) Charles Douglas Golding.

MOITRA, GANESH CHANDRA, 42, Barr Street, Rangoon. Bengalee Hindu. Assistant Chemist, Harcourt Butler Institute of Public Health, Burma, Rangoon. (1) Passed the B.Sc. degree Exam. of the Calcutta University in 1919 with distinction (with Physics, Chemistry, and Maths.). (2) Served for about 2 years as Chief Chemist in the Howrah Flour Mills, Bengal. (3) Working for about 3 years as Lecturer in Physics and Chemistry in the Govt. Training Class for Public Health Inspectors, Rangoon. (*Signed by*) Thein Kin, Maung Ba San.

SILBERMAN, ISAAC, Bedford Pharmacy, Yeoville, Johannesburg, S.A. British. Chemist and Druggist. Late Lecturer Physics, Johannesburg College. Demonstrator Practical Chemistry. F.I.C. Student. (*Signed by*) Bennett A. Jacobson, Max Rubin.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

ABDERHALDEN, EMIL. [Editor.] Handbuch der biologischen Arbeitsmethoden. Abt. I. Chemische Methoden, Teil II, Heft ii. Berlin 1926. pp. 71 to 216. ill. (*Recd.* 7/1/27.)

From the Publishers : Herren Urban & Schwarzenberg.

BRYANT AND MAY MUSEUM OF FIRE-MAKING APPLIANCES. Catalogue of the exhibits. Compiled, with an introduction and notes, by MILLER CHRISTY. London 1926. pp. viii + 255. ill. (*Reference.*) 5s. net.

From the Publishers : Messrs. Bryant & May, Ltd.

KENT-JONES, DOUGLAS WILLIAM. A study of the effect of heat upon wheat and flour especially in relation to strength. Dover 1926. pp. vi + 116. ill. (*Recd.* 22/12/26.)

From the Author.

KOLTHOFF, J. M. With the collaboration of HEINRICH MENZEL. Die Massanalyse. Teil I. Die theoretischen Grundlagen der Massanalyse. Berlin 1927. pp. xii + 254. ill. *M.* 10.50. (*Recd.* 14/1/27.)

From the Publisher : Herr Julius Springer.

RESEARCH ASSOCIATION OF BRITISH FLOUR-MILLERS. 2nd Annual Report, 1924-25, etc. London 1925 +.

From the Director.

SANO, SHIZUWO. Scientific papers. Tokyo 1926. pp. xii + 340. (*Recd.* 5/1/27.)

From the Publishing Committee.

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. The cleaning and restoration of museum exhibits : third report upon investigations conducted at the British Museum. London 1926. pp. 70 + 58 plates. (*Reference.*) 5s. net.

From the Director.

THOMS, HERMANN. Handbuch der praktischen und wissenschaftlichen Pharmazie. Vol. VI. Part ii. Berlin 1926. pp. 241 to 480. *M.* 10. (*Recd.* 22/12/26.)

From the Publishers : Herren Urban & Schwarzenberg.

THORPE, JOCELYN FIELD, and WHITELEY, MARTHA ANNIE. A student's manual of organic chemical analysis, qualitative and quantitative. Reissue, with appendix on new methods of organic analysis, by HENRI TER MEULEN and J. HESLINGA. London 1926. pp. x + 250. ill. 9s. net. (*Recd.* 17/1/27.)

From the Authors.

II. *By Purchase.*

CLAUDE, GEORGES. Air liquide, oxygène, azote, gaz rares. 2nd edition. Paris 1926. pp. iv + 424. ill. 32 fr. (*Recd.* 22/12/26.)

CUSHNY, ARTHUR ROBERTSON. Biological relations of optically isomeric substances. London 1926. pp. ix + 80. ill. 9s. net. (*Recd.* 17/1/27.)

FRITZ, FELIX. Das Linoleum und seine Fabrikation mit besonderer Berücksichtigung seiner Geschichte, Eigenschaften und Verwendung. Berlin [1926]. pp. 377. ill. *M.* 25. (*Recd.* 29/12/26.)

GATTEFOSSÉ, R. M. Distillation des plantes aromatiques et des parfums. Paris 1926. pp. vi + 152. ill. 16.50 fr. (*Recd.* 29/12/26.)

KAYSER, HEINRICH. Tabelle der Hauptlinien der Linienspektren aller Elemente nach Wellenlänge geordnet. Berlin 1926. pp. viii + 198. *M.* 24. (*Recd.* 30/12/26.)

KEGHEL, MAURICE DE. Traité général de la fabrication des colles, des glutinants et matières d'apprêts. Paris 1926. pp. iv + 714. ill. 154 fr. (*Recd.* 29/12/26.)

LORENZ, RICHARD, and EITEL, WILHELM. Pyrosole: das kolloide Phänomen in der glühigen flüssigen Materie und seine Erstarrungszustände. Unter Berücksichtigung des latenten photographischen Bildes. (Kolloidforschung in Einzeldarstellungen.) Leipzig 1926. pp. x + 290. *M.* 20. (*Recd.* 18/12/26.)

MARK, HERMANN. Die Verwendung der Röntgenstrahlen in Chemie und Technik. Leipzig 1926. pp. xvi + 528. ill. *M.* 50. (*Recd.* 29/12/26.)

MEYER, JULIUS. Der Gaskampf und die chemischen Kampfstoffe. 2nd edition. Leipzig 1926. pp. xiv + 470. ill. *M.* 20. (*Recd.* 18/12/26.)

MÖHLAU, RICHARD, and BUCHERER, HANS THEODOR. Farbenchemisches Praktikum. 3rd edition. Berlin 1926. pp. x + 390 + 7 pattern cards. *M.* 22. (*Recd.* 18/12/26.)

MÜLLER, ERICH. Die elektrometrische (potentiometrische) Massanalyse. 4th edition. Dresden 1926. pp. viii + 246. ill. *M.* 14. (*Recd.* 18/12/26.)

NERNST, WALTHER. Theoretische Chemie. 11th–15th edition. Stuttgart 1926. pp. xvi + 928. ill. *M.* 50. (*Recd.* 21/12/26.)

RYSCHKEWITSCH, EUGEN. Graphit: Charakteristik, Erzeugung, Verarbeitung und Verwendung. Leipzig 1926. pp. xii + 324. ill. *M.* 16.50. (*Recd.* 18/12/26.)

SCHIEBER, JOHANNES, with the collaboration of **KURT SÄNDIG.** Lacke und ihre Rohstoffe. Leipzig 1926. pp. xviii + 642. ill. *M.* 32.40. (*Recd.* 29/12/26.)

SCHÖN, M. Le problème des fermentations: les faits et les hypothèses. Paris 1926. pp. iv + 200. ill. 21.50 fr. (*Recd.* 22/12/26.)

SÜVERN, KARL. Die künstliche Seide: ihre Herstellung und Verwendung. 5th edition. With the collaboration of **H. FREDERKING.** Berlin 1926. pp. xx + 1108. ill. *M.* 64.50. (*Recd.* 29/12/26.)

VERNE, J. Les pigments dans l'organisme animal: chimie, morphologie, physiologie, éthologie. Paris 1926. pp. xvi + 604. ill. 28 fr. (*Recd.* 29/12/26.)

WEIMARN, PETR PETROVIČ VON. Die Allgemeinheit des Kolloidzustandes: kolloides und kristalloides Lösen und Niederschlagen. Translated from the Russian by S. F. SLOKASOW. 2nd edition. Edited by ALFRED KUHN. Vol. I. Dresden 1925. pp. xvi + 506. ill. M. 27. (*Recd.* 18/12/26.)

III. Pamphlets.

GUILD, JOHN. A trichromatic colorimeter suitable for standardisation work. (From the *Trans. Optical Soc.*, 1925-6, 27.) ill.

MINES DEPARTMENT. *Safety in Mines Research Board*. Paper No. 29. The pressure wave sent out by an explosive. Part II. By WILLIAM PAYMAN and W. C. F. SHEPHERD. London 1926. pp. 28. ill.

NIELSEN, ROGER. The Emil Christian Hansen Memorial erected in Ribe by the Alumni Association of the Wahl-Henius Institute, Chicago. Copenhagen [1926]. pp. 30.

PENFOLD, ARTHUR RAMON. Some industrial uses of the oil of *Eucalyptus phellandra*. (*Sydney Technological Museum Bulletin*, No. 11.) 1926. pp. 6.

ROTH, GEORGE B. A consideration of arsphenamine and certain other organic arsenic compounds used in the treatment of syphilis. (From the *U.S. Public Health Reports*, 1921, 36.)

— Keeping qualities of market samples of neoarsphenamine while in ampule. (From the *U.S. Public Health Reports*, 1921, 36.)

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. Report of test on the "fusion" rotary retort installed at the works of Electrobleach and By-products, Ltd. London 1926. pp. vi + 21. ill.

— The anodic oxidation of aluminium and its alloys as a protection against corrosion. London 1926. pp. iv + 40. ill.

— Second Report of the Gas Cylinders Research Committee. (Periodical heat treatment.) London 1926. pp. iv + 29 + 13 plates.

— *Building Research*. Technical Paper No. 3. The permeability of Portland cement concrete. By W. H. GLANVILLE. London 1926. pp. vi + 50. ill.

— — Technical Paper No. 4. The determination of free lime in hydraulic cement. By FRANK LAWRENCE BRADY and FRANCIS JOHN MCCONNELL. London 1926. pp. iv + 13.

— — Technical Paper No. 5. The consistence of cement pastes, mortars, and concrete. By N. DAVEY. London 1926. pp. viii + 54. ill.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, February 3rd, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Charles E. Beadnell	Feb. 7th, 1861.	Jan. 26th.
John Webster	May 6th, 1909.	Jan. 20th.

Neilson Brown and R. W. Morris were formally admitted Fellows of the Chemical Society.

Certificates were read for the first time in favour of :

- David Henry Burton, B.Sc., A.R.C.S., A.I.C., 49, Rayleigh Road, Wimbledon, S.W. 19.
- Edwin Herbert Bunce, A.I.C., 37, Northcote Road, Walthamstow, E. 17.
- Edgar Dawn Copley, B.A., B.Sc., 36, Lee Terrace, Blackheath, S.E. 3.
- John Gurney, B.A., Walsingham Abbey, Norfolk.
- Leonard Joseph Hooley, B.A., A.I.C., 11, Newhouse Road, Grangemouth.
- George Robert Howard, B.Sc., 32, Gilpin Street, Peterborough.
- Arthur William Knapp, B.Sc., F.I.C., Trinidad, Pine Apple Rd., King's Heath, Birmingham.
- Herbert Joseph Millward, Ivydene, Gravelly Lane, Erdington, Birmingham.
- Otto Leslie Shaw, Betula, Park View Road, New Eltham, S.E. 9.
- Allan George Tyler, B.Sc., 48, Bentley Street, Lockwood, Huddersfield.
- Albert Denny Usher, B.Sc., 106, Bolingbroke Grove, S.W. 11.

The following papers were read :

- “ The nature of the alternating effect in carbon chains. Part XIV. The directive action of some groups of the form $-CR'R''CO\cdot R$ in aromatic substitution.” By J. W. BAKER and C. K. INGOLD.
- “ The nature of the alternating effect in carbon chains. Part XVII. The directive action of the groups $\cdot CH_2\cdot CH_2\cdot NO_2$, $\cdot CH\cdot CH\cdot NO_2$, and $\cdot C(NO_2)\cdot CHR$ in aromatic substitution.” By J. W. BAKER and I. S. WILSON.
- “ The Storch equation, a general dilution formula, and the validity of the law of mass action at limiting dilutions.” By A. FERGUSON and I. VOGEL.

- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part II. Application to data at 0°, 18°, and 25° C.” By A. FERGUSON and I. VOGEL.
- “The calculation of the equivalent conductivity of aqueous solutions of strong electrolytes at infinite dilution. Part III. The mobilities of the hydrogen and the hydroxyl ions.” By A. FERGUSON and I. VOGEL.

Meeting held in the Lecture Hall of the Institution of Mechanical Engineers, Storey's Gate, S.W. 1, on Thursday, February 10th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

Professor Dr. Ernst Cohen delivered the Kamerlingh-Onnes Memorial Lecture. A vote of thanks to the Lecturer, proposed by Professor F. G. Donnan, F.R.S., and seconded by Sir James Walker, F.R.S., was carried with acclamation, Professor Dr. Cohen making acknowledgment.

Ordinary Scientific Meeting, Thursday, February 17th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

Certificates were read for the first time in favour of :

Charles McKenley Cameron, 146, Whalley Road, Clayton-le-Moors, Accrington.
 Richard Chadwick, B.A., 101, Whitefriar's Avenue, Wealdstone.
 Ronald Kington Christy, B.Sc., 3, Crieff Road, Wandsworth, S.W. 18.
 William Herbert Hatfield, D.Met., Muswell Lodge, Brincliffe Crescent, Sheffield.
 James Hutchison McGregor, A.I.C., Avenue Cottage, Alexandria, Dumbartonshire.
 Tarak Nath Majumdar, 11, Belvedere Road, Calcutta, India.
 Dorothy May Lyddon Rippon, B.A., Springfield House, Abingdon, Berks.
 Carl Rowen Ward, B.A., Woodcroft, Newburn, Northumberland.
 Charles Barnett Wingfield, 36, Clarendon Gardens, Wembley.

Dr. A. D. Mitchell and Mr. H. Paget were elected Scrutators, and a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows :

Cameron Gordon Anderson, B.Sc.	Satyendra Nath Chakravarti, M.Sc.
Gilbert Edward Archey, M.A.	Cecil Chilvers, B.Sc., A.I.C.
Eric Sidney Bacon, B.Sc., A.I.C.	Robert Edward David Clark.
Marie Bagnall, M.Sc.	John Stanley Davies, B.Sc.
Mollie Barr.	Bhimbhai Nichhabhai Desai.
Bertie Kennedy Blount.	Lena Winifred Frost, B.Sc.
Edmond Johnson Boake, B.A.	Henry Frank Gillbe, B.Sc., A.I.C.
Sydney Thomas Bowden, B.Sc., A.I.C.	Kirpal Singh Santosh Gujral, B.Sc., LL.B.
George Richard Butterfield.	Clarence A. Hall.

- Cecil Edward Gadwin Harris.
 William Honneyman, B.Sc., F.I.C.
 Hubert Ivor Hughes, B.Sc.
 Alfred Dudley Husband, A.I.C.
 Peter Jayaweera Jayaratne, B.Sc.
 Arthur Frederick Jones, B.Sc.
 Brynmor Jones, B.Sc.
 David Idris Jones, B.Sc.
 Sin-Iti Kawai.
 Alexander Anderson Kennedy.
 Alfred William Keyes.
 Ernest Leese.
 Alkin Lewis, B.Sc., A.I.C.
 Reginald Patrick Linstead, Ph.D.,
 D.I.C.
 Edward Hubert Lockton, B.Sc.,
 A.R.C.S.
 Charles William Long, B.Sc.
 Daniel Donald Moir, B.Sc.
 Ganesh Chandra Moitra, B.Sc.
 Rt. Hon. Sir Alfred Moritz Mond,
 Bart., M.P.
 Matthew Morris.
 Masuo Murakami, M.Sc.
 Roger Saxon Nickalls.
 Shintaro Ogawa.
 Mary Alice Marcia Penrose, B.Sc.
 Eric Charles Pickering, Ph.D., B.Sc.,
 A.I.C.
 Stanley Ernest Pusey.
 Mysore Guru Srinivasa Rao.
 Alfred Leonard Read, B.Sc.
 Alexander Robertson, M.A., B.Sc.,
 Ph.D.
 Sydney William Rowell, B.A.
 Bernard Charles Saunders, B.A.
 Maurice Schofield, B.A., B.Sc.
 Robert Kenworthy Schofield, M.A.,
 Ph.D.
 Florence Ruth Shaw, B.Sc.
 Rodney Thomas Shepherd, B.A.
 Isaac Silberman.
 Walter Lewis Lee Smith, B.Sc.,
 A.I.C.
 Percy Henry Snow.
 Kenneth Spedding.
 Ronald Speight.
 Robert Spence, B.Sc.
 Allan Ramsay Stark, B.Sc., A.I.C.
 Alfred Raymond Steele, B.Sc.
 Mary Elizabeth Stevens.
 Frederick Robert Storrie, B.Sc.,
 A.I.C.
 Charles William Herbert Story,
 M.Sc.Tech.
 Richard Arthur Beater Tapley, B.A.,
 B.Sc.
 Arthur Turner, B.Sc., A.I.C.
 Cyril Joseph Virden, B.A.
 Robert Bruce Walker, M.A.
 Gilbert Oakley Ward, A.B.
 Francis John Watson, M.A., M.Sc.
 Albert Greville White, B.Sc., A.I.C.
 Edmund White.
 Robert Scott Wishart, M.A., D.Sc.
 Norman Edward Wood, B.Sc.
 Lakshmi Narayan Yadava, M.Sc.
 Ryo Yamamoto.

The following papers were read :

- “ The mechanism of the reaction between a carboxylic ester and a Grignard reagent.” By D. R. BOYD and H. H. HART.
 “ The production of fog in the neutralisation of alkali with hydrogen halides.” By H. O. ASKEW.
 “ Constituents of *Myopurum laetum*, Forst. (the “ Ngaio ”). Part II. Hydrogenation of ngaione and ngaiol, and dehydration of ngaiol.” By F. H. McDOWALL.

ANNUAL GENERAL MEETING

The Annual General Meeting will take place on Thursday, March 24th, 1927, at 4 p.m., when the President, Professor H. Brereton Baker, C.B.E., D.Sc., F.R.S., will deliver his address.

ANNIVERSARY DINNER.

The Anniversary Dinner of the Society will be held at the Hotel Victoria, King Edward VIIth Rooms, Northumberland Avenue, W.C. 2, on Thursday, March 24th, 1927 (the day of the Annual General Meeting), at Seven for Half-past Seven o'clock.

The Presidents of the Belgian, Dutch, French, German, and Italian Chemical Societies have been invited by the Council to the Dinner, and it is hoped that there will be a large and representative gather of Fellows present.

Tickets, price Twelve Shillings and Sixpence (12s. 6d.) each, including gratuities to waiters, can be obtained from the Assistant Secretary, Chemical Society, Burlington House, Piccadilly, W. 1. A remittance for the number of tickets required, made payable to S. E. Carr, must accompany each application.

LIST OF FELLOWS, 1927.

It has been decided to print the List of Fellows for 1927 and to supply the List to those Fellows who make application to the Assistant Secretary by July 31st, 1927.

List of Papers, or Abstracts thereof, received between January 20th and February 3rd, 1927. (This List does not include the titles of papers, or abstracts thereof, which have been read at an Ordinary Scientific Meeting, or which have appeared in the Journal.)

- “The constituents of the cell-wall of the flax fibre.” By A. E. CASHMORE.
- “Heterocyclic organic compounds of arsenic. Part I. The action of chloroacetamide on 3:4-diaminophenylarsinic acid.” By A. J. EWINS, G. NEWBERY, and R. W. E. STICKINGS.
- “The constitution of the disaccharides. Part XII. Lactose.” By W. N. HAWORTH and C. W. LONG.
- “The labile nature of the halogen atom in organic compounds. Part XIII.” By H. GRAHAM, A. K. MACBETH, and W. B. ORR.
- “Derivatives of 2-phenyl-1:3-benzdithiole.” By W. R. H. HURTLEY and S. SMILES.
- “The molecular conductivity of cadmium iodide in acetonitrile.” By F. K. V. KOCH.
- “The influence of groups and associated rings on the stability of certain heterocyclic ring systems. Part I. The substituted glutarimides.” By S. S. G. SIRCAR.
- “Apparatus for the determination of viscosities under various conditions, and discussion of the errors due to velocity changes in the moving liquid, surface tension, and air-buoyancy.” By E. MASTERS and A. E. GODDARD.

- “Studies of aromatic thionyl and chlorothionyl derivatives. Part II. 1:2-Thionyldihydroxyanthracene and 2:3-thionyldihydroxyanthracene.” By A. GREEN.
- The properties of conjugated compounds. Part II. Addition to butadiene esters.” By E. H. FARMER and A. T. HEALEY.
- A note on the properties of malonic anhydride (carbon suboxide) C_3O_2 .” By M. J. EDWARDS and J. M. WILLIAMS.
- “A new synthesis of oxyberberine and a synthesis of palmatine.” By R. D. HAWORTH, J. B. KOEPLI, and W. H. PERKIN.
- “Melezitose and turanose.” By G. C. LEITCH.
- “Note on the preparation of 2-methylacenaaphthpyridine.” By J. STEWART.
- “Reduction of nitroaromatic compounds by sugars: constitution of azoxy- and azo-compounds.” By T. C. CHAUDHURI.
- “Studies of electrolytic polarisation. Part VI. Electro-deposition potentials of alloys of zinc with iron, cobalt, and nickel.” By S. GLASTONE.
- “The stereochemistry of the hydronaphthalenes. Part II. Decahydro- β -naphthoic acid and its optical resolution.” By B. BEILENSOHN and F. W. KAY.
- “The isomerism of the oximes. Part XXIX. Isomeric *p*-nitrobenzyl- and methyl-ethers of some aldoximes.” By O. L. BRADY and L. KLEIN.
- “The decomposition of carbon monoxide in the corona due to alternating electric fields. Part II.” By R. W. LUNT and R. VENKATESWARAN.
- “The properties of the chlorides of sulphur. Part I. Freezing points.” By T. M. LOWRY, L. P. McHARTON, and G. G. JONES.
- “The vapour pressure of intensively-dried nitrogen tetroxide.” By J. W. SMITH.
- “The action of nitric acid on unsaturated hydrocarbons. The action of nitric acid on acetylene and ethylene.” By P. V. MCKIE.
- “Molybdenyl salts and the co-ordination number of oxygen.” By W. WARDLAW and R. L. WORMELL.
- “The isomerism of the oximes. Part XXX. The preparation of *o*-methoxybenzaloxime from bisnitrosyl-*o*-methoxybenzyl.” By O. L. BRADY and C. L. BENNETT.
- “Studies in polymerisation. Part I. 2:3:4-Trimethyl-*l*-arabonolactone.” By H. D. K. DREW and W. N. HAWORTH.
- “On the photobromination of *cyclohexane*.” By B. J. WOOD and E. K. RIDEAL.
- “A method for the determination of total carbon in the soil solution.” By C. F. FLINT.

- “A method for the determination of carbon dioxide in the soil solution.” By C. F. FLINT.
- “1-Methoxy-1'-carboxy-diphenyl and its demethylation with thionyl chloride.” By H. G. RULE and E. BRETSCHER.
- “Optical activity and the polarity of substituent groups. Part VII. *sec.*- β -Octyl hydrogen terephthalate and the isomeric *sec.*- β -octyl chlorobenzoates.” By H. G. RULE, T. R. PATERSON, and A. H. NUMBERS.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

ASSOCIATION OF BRITISH CHEMICAL MANUFACTURERS. British Chemicals, their manufacture and uses : being the official directory of the Association of British Chemical Manufacturers. London 1927. pp. 242. (*Reference.*) 10s. 6d. net.

From the Publishers : Messrs. Ernest Benn.

CRAMER, MARC. Les sucres et leurs dérivés. Paris 1927. pp. xiv + 354. ill. 28 fr. (*Recd.* 9/2/27.)

From the Publishers : MM. Gaston Doin et Cie.

DEWAR, SIR JAMES. Collected papers. Edited by LADY DEWAR [and others]. With two supplementary papers not heretofore published. 2 vols. Cambridge 1927. pp. xxii + 674, x, 675 to 1490. ill. 84s. net. (*Recd.* 21/2/27.)

From Lady Dewar.

DOOTSON, FREDERICK WILLIAM, and BERRY, ARTHUR JOHN. First principles of chemistry. Cambridge 1927. pp. viii + 340. ill. 6s. net. (*Recd.* 26/1/27.)

From the Syndics of the Cambridge University Press.

GROSSFELD, JOHANN. Anleitung zur Untersuchung der Lebensmittel. Berlin 1927. pp. xii + 410. ill. M. 22.50. (*Recd.* 9/2/27.)

From the Publisher : Herr Julius Springer.

INSTITUT INTERNATIONAL DE CHIMIE SOLVAY. Deuxieme Conseil de Chimie tenu a Bruxelles du 16 au 24 Avril 1925. Structure et activité chimiques. Rapports et discussions. Paris 1926. pp. xiv + 672. ill. (*Reference.*) 96 fr.

From Mr. J. Pryce Jones.

MACLEAN, HUGH, and MACLEAN, IDA SMEDLEY. Lecithin and allied substances. The lipins. [2nd] edition. London 1927. pp. viii + 220. 10s. 6d. net. (*Recd.* 9/2/27.)

From the Publishers : Messrs. Longmans, Green & Co.

MENDELÉEFF, DMITRI IVANOVICH. The law of periodicity. (Classics of Natural Science, Vol. 15.) Moscow 1926. pp. viii + 256. ill. [In Russian.] (*Recd.* 6/1/27.)

From Professor B. N. Menshutkin.

MENSCHUTKIN, BORIS NIKOLAEVITSCH. Carbocyclic compounds
Leningrad 1926. pp. viii + 388. [In Russian.] (*Recd.* 6/1/27.)

From the Author.

ODDO, GIUSEPPE. Trattato di chimica inorganica. Palermo
1925. pp. xvi + 868. ill. *L.* 75. (*Recd.* 18/1/27.)

From the Author.

SÃO PAULO. Faculdade de Medicina. Annaes. Vol. I. São
Paulo 1926. pp. xx + 384. ill. (*Reference.*)

From the Faculty.

SOCIETY OF PUBLIC ANALYSTS AND OTHER ANALYTICAL CHEMISTS.
Decennial Index to The Analyst. Vols. XLI-L (1916-1925).
Compiled by M. B. ELLIOTT. Cambridge [1926]. pp. 354. (*Refer-
ence.*)

From the Council.

II. *By Purchase.*

CELLULOSECHEMIE. Wissenschaftliche Beiblätter zu der Zeit-
schrift "Der Papier-Fabrikant." Year VII, etc. Berlin 1926 +.
(*Reference.*)

CHIMIE ET INDUSTRIE. Dix ans d'efforts scientifiques et indus-
triels. 1914-1924. 2 vols. Paris [1926]. pp. xxxii + 1552, vi +
1508. ill. (*Reference.*)

DOYLE, AIDA M. [Editor.] Digest of patents relating to coal-
tar dyes and allied compounds. United States patents issued prior
to January 1, 1924. Easton, Pa. 1926. pp. viii + 586. (*Refer-
ence.*) 90s. net.

FISCHER, JOSEPH. Die Zerstäubungserscheinungen bei Metallen
unter besonderer Berücksichtigung der mechanisch-thermischen
Zerstäubung und der elektrischen Stoffverdampfung. (Fortschritte
der Chemie, Physik und physikalischen Chemie, Vol. XIX.) Berlin
1927.

GARROD, ARCHIBALD EDWARD. Inborn errors of metabolism.
2nd edition. London 1923. pp. viii + 216. 7s. 6d. net. (*Recd.*
28/1/27.)

GATTERMANN, LUDWIG. Die Praxis der organischen Chemikers.
20th edition. Edited by HEINRICH WIELAND. Berlin 1927.
pp. xii + 382. ill. *M.* 15. (*Recd.* 5/2/27.)

HAWK, PHILIP BOUVIER, and BERGEIM, OLAF. Practical physio-
logical chemistry. 9th edition. Philadelphia 1926. pp. xviii +
932. ill. 28s. net. (*Recd.* 28/1/27.)

KAYE, GEORGE WILLIAM CLARKSON. High vacua. London
1927. pp. xii + 176. ill. 10s. 6d. net. (*Recd.* 28/1/27.)

KOLLOIDCHEMISCHE TECHNOLOGIE. Ein Handbuch kolloid-
chemischer Betrachtungsweise in der chemischen Industrie und
Technik. Edited by RAPHAEL ED. LIESEGGANG. Parts I-VI.
Dresden 1926-27. *M.* 5 per part. (*Recd.* 10/2/27.)

MICHAELIS, LEONOR. Hydrogen ion concentration: its significance in the biological sciences and methods for its determinations. Vol. I. Authorised translation from the 2nd . . . German edition. By WILLIAM A. PERLZWEIG. Baltimore 1926. pp. xiv + 300. ill. 22s. 6d. net. (*Recd.* 1/2/27.)

OSTWALD, WILHELM. Lebenslinien: eine Selbstbiographie. Vols. I and II. Berlin 1926-7. pp. viii + 268, xii + 446. ill. *M.* 17-50. (*Recd.* 10/2/27.)

RIDEAL, ERIC KEIGHTLEY, and TAYLOR, HUGH STOTT. Catalysis in theory and practice. [2nd edition.] London 1926. pp. xvi + 516. ill. 20s. net. (*Recd.* 1/2/27.)

SCHULTZ, GUSTAV. Die Chemie des Steinkohlenteers mit besonderer Berücksichtigung der künstlichen organischen Farbstoffe. 4th edition. Vol. I. Edited by ERWIN FERBER. Braunschweig 1926. pp. viii + 568. ill. *M.* 42-50. (*Recd.* 10/2/27.)

STAIN TECHNOLOGY. Published by the COMMISSION ON STANDARDISATION OF BIOLOGICAL STAINS. Vol. I, etc. Geneva, N.Y. 1926 +. (*Reference.*)

TAGUE, EDGAR L. Casein: its preparation, chemistry, and technical utilization. [New York] 1926. pp. vi + 218. ill. 17s. net. (*Recd.* 28/1/27.)

WAITE, ARTHUR EDWARD. The secret tradition in alchemy: its development and records. London 1926. pp. xxii + 416. 15s. net. (*Recd.* 28/1/27.)

WAKSMAN, SELMAN A., and DAVISON, WILBURT C. Enzymes: properties, distribution, methods, and applications. [Baltimore, Md.] 1926. pp. xiv + 364. ill. 25s. net. (*Recd.* 28/1/27.)

III. Pamphlets.

DEY, BIMAN BIHARI. Presidential address. (From the *Proc. 13th Indian Science Congress, Section of Chemistry.*) 1926.

DONALD, ROBERT. A Wassermann micro-technique needing only occasional titration of the complement. (From the *Brit. J. Derm. Syphilis*, 1923, 35.)

GIMMINGHAM, CONRAD THEODORE, MASSEE, A. M., and TATTERSFIELD, FREDERICK. A quantitative examination of the toxicity of 3:5-dinitro-*o*-cresol and other compounds to insect eggs, under laboratory and field conditions. (From the *Ann. Applied Biol.*, 1926, 13.)

GOVERNMENT LABORATORY. Report of the Government Chemist . . . for the year ending 31st March, 1926, etc. London 1926 +.

INTERNATIONAL CONFERENCE ON THE BIOLOGICAL STANDARDIZATION OF CERTAIN REMEDIES, Second. (From the *U.S. Public Health Reports*, 1926, 41.)

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, March 3rd, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on February 17th, of Mr. Montague Williams, who was elected a Fellow on February 15th, 1923.

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

Vice-President who has filled the office of President (one vacancy) :
Harold B. Dixon.

Vice-Presidents who have not filled the office of President (two vacancies) :

G. G. Henderson and Arthur Smithells.

Ordinary Members of Council :

(a) Town Members, *i.e.*, those resident within 50 miles of Charing Cross (three vacancies) :

E. R. Bolton, J. C. Drummond, and J. F. Spencer.

(b) Country Members, *i.e.*, those resident beyond 50 miles from Charing Cross (three vacancies) :

M. P. Applebey, J. E. Coates, and E. K. Rideal.

The following were formally admitted Fellows of the Chemical Society : R. T. Shepherd, G. B. Scott, F. J. Watson, N. E. Wood.

Certificates were read for the first time in favour of :

Robert Andrew, Old Park Road, Belfast.

William Barklamb, 48, Brookmill Road, Deptford, S.E. 13.

Fritz Alfred Bate, B.Sc., 50, Eastwood Lane, Westcliff-on-Sea.

William Bradley, M.Sc., 130, New Bold Street, Leigh, Lancs.

Charles Forrester, F.I.C., Indian School of Mines, Dhanbad, India.

Gerald Charles Leake Griffin, Ministry of Labour, Whitehall, S.W. 1.

James Charles Harral, 201, Bradford Road, Batley.

Norman Holt Hartshorne, M.Sc., A.I.C., 40, Druslyn Road, West Cross, Swansea.

Jason Louis Edward Lewkowitsch, A.R.C.S., 71, Priory Road, N.W. 6.

Ernest Matthews, M.Sc., A.R.C.S., 44, Badminton Road, Balham, S.W. 12.

John Tomlinson, B.Sc.Tech., 33, Windsor Road, Levenshulme, Manchester.

The following papers were read :

- “The decomposition of carbon monoxide in the corona due to alternating electric fields. Part II.” By R. W. LUNT and R. VENKATESWARAN.
- “The properties of the chlorides of sulphur. Part I. Freezing-points.” By T. M. LOWRY, L. P. McHATTON, and G. G. JONES.

Ordinary Scientific Meeting, Thursday, March 17th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Arthur William Crossley	Dec. 4th, 1890.	Mar. 5th, 1927.
James Alfred Kendall	Dec. 17th, 1874.	Mar. 1st, 1927.
Edmund Felix Mondy	Dec. 17th, 1879.	April 20th, 1926.
Ira Remsen (Honorary Fellow)	Jan. 20th, 1898.	Mar. 1927.

and stated that the following resolution had been passed at the Council Meeting held that afternoon :

The Council desires to express, on behalf of the general body of Fellows, its deep sorrow and sense of loss in the death of Dr. Arthur W. Crossley. Since his election 36 years ago, Dr. Crossley has served on the Council for a period of 23 years, filling with conspicuous zeal and ability the offices of Secretary, Foreign Secretary, and President.

In offering to Mrs. Crossley its sincere sympathy in her great loss, the Council desires to record its high appreciation of the distinguished services rendered by Dr. Crossley not only to the Society, but to the science of Chemistry and its application to industry.

The company present expressed their concurrence in this resolution by rising from their places. The Society was represented at the funeral on March 9th by Professor H. B. Dixon, other present and past members of Council, and the Assistant Secretary.

The PRESIDENT announced that in accordance with Bye-Law II, Professor Dr. Richard Willstätter, of Munich, was proposed by the Council as an Honorary Fellow of the Society, and that a ballot for his election would be held at the next Ordinary Scientific Meeting on April 7th.

Certificates were read for the first time in favour of :

Keith Lester Beak, 25, Chadwick Road, Leytonstone, E. 11.
 Thomas Eric Ellison, 22, Kelvin Parade, Belfast.
 Thomas Alfred Jenkinson, B.Sc., 5, Glebe Street, Marsh, Huddersfield.
 Louis Arnold Jordan, D.Sc., A.R.C.S., F.I.C., 14, Parklands, Surbiton.
 Alfred William Mond, B.A., 104, Eaton Place, S.W. 1.
 John Hopkinson Parker, 57, Grafton Road, Keighley.
 Arthur Shortt, B.Sc., St. Andrews, Clayton Road, Newcastle-on-Tyne.
 Robert Louis Wormell, Coniston, Stoke Park, Coventry.

The following papers were read :

- “Tetrachloro-(triaminopropane- γ -monohydrochloride)-platinum, a new type of optically active complex salt.” By F. G. MANN.
 “The activation of wood charcoal by progressive oxidation in relation to bulk density and iodine adsorption.” By A. B. P. PAGE.
 “The parachor and chemical constitution. Part V. Evidence for the existence of singlet linkages in the pentachlorides of phosphorus and antimony.” By S. SUGDEN.

LIST OF FELLOWS, 1927.

It has been decided to print the List of Fellows for 1927 and to supply the List to those Fellows who make application to the Assistant Secretary by July 31st, 1927.

List of Papers, or Abstracts thereof, received between February 17th and March 17th, 1927. (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.)

- “Acid and salt effects in catalysed reactions. Part VII. The tridimensional co-ordination of catalytic variables. Relations between the data for pure acids and the corresponding minimum velocity mixtures.” By H. M. DAWSON.
 “The gelatin precipitation test for tannins.” By A. E. JONES.
 “The solubility of potassium ferrocyanide in water at temperatures up to 25° C.” By R. H. VALLANCE.
 “Reactions of incandescent tungsten with nitrogen and with water vapour.” By C. J. SMITHELLS and H. P. ROOKSBY.
 “The nature of the alternating effect in carbon chains. Part XVIII. Mechanism of exhaustive methylation and its relation to anomalous hydrolysis.” By W. HANHART and C. K. INGOLD.

- “The constitution of certain salts and acids in solution by observations of critical solution temperatures.” By S. R. CARTER and N. J. L. MEGSON.
- “A micro-method for the estimation of nitrate in soil solutions and extracts.” By C. F. FLINT.
- “The determination of carbonyl in aldehydes and ketones.” By G. W. ELLIS.
- “A note on the Schwartzchild law with reference to photographic spectrophotometry.” By F. SIMEON.
- “New fluorides of selenium.” By E. B. R. PRIDEAUX and C. B. COX.
- “Investigations in the diphenyl series. Part V. Derivatives of 4-aminodiphenyl and diphenic acid.” By F. BELL and P. H. ROBINSON.
- “ $\alpha\beta$ -Dichloro β -bromovinyl ethyl ether.” By I. A. SMITH.
- “Studies of precipitated solids (especially SrSO_4 and CaSO_4).” By P. P. VON WEIMARN.
- “The optically active diphenylhydroxyethylamines and isohydrobenzoin. Part I.” By J. READ and C. C. STEELE.
- “Higher substitution products of 4-aminodiphenyl.” By H. A. SCARBOROUGH and W. A. WATERS.
- “The iodination of *o*-nitrophenol.” By H. H. HODGSON.
- “The interaction of ethyl acetoacetate with distyryl ketones. Part III. *ortho*Hydroxychlorodistyryl ketones.” By I. M. HEILBRON and R. HILL.
- “Jackson and White’s synthesis of phenanthrene.” By J. KENNER and J. WILSON.
- “The basic character of the acetylides and its influence on the course of their substitution.” By H. E. DADSWELL and J. KENNER.
- “The dicarbazyls. Part II. 9:9’-Dicarbazyl and its halogen derivatives.” By J. McLINTOCK and S. H. TUCKER.
- “The influence of groups and associated rings on the stability of certain heterocyclic ring systems. Part II. The substituted succinimides.” By S. S. G. SIRCAR.
- “The influence of groups and associated rings on the stability of certain heterocyclic ring systems. Part III. Substituted paraconic acids.” By S. S. G. SIRCAR.
- “The interaction of alkali sulphites with some halogeno-compounds, and the optical resolution of α -phenylpropanesulphonic acid.” By E. B. EVANS, E. E. MABBOTT, and E. E. TURNER.
- “The periodic electro-deposition of metals through secondary reaction.” By E. S. HEDGES.
- “Piperidine as a general reagent for the determination of con-

- stitution of halogeno-nitro-compounds. The nitration of 4 : 4'-dihalogeno-diphenylmethane and *s*-diphenylethane." By R. J. W. LE FÈVRE and E. E. TURNER.
- "The laws of sympathetic vibrations. Unisons and octaves." By A. T. S. CLARK.
- "Some experiments with 1 : 8-naphthalyl chloride." By W. DAVIES and G. W. LEEPER.
- "The disulphonation of *m*-dichlorobenzene and of *s*-trichlorobenzene." By W. DAVIES and H. G. POOLE.
- "The recovery of pinene from its nitrosochloride." By J. C. EARL and J. KENNER.
- "Researches on residual affinity and co-ordination. Part XXIX. Cupric salts stabilised by ethylenediamine." By G. T. MORGAN and F. H. BURSTALL.
- "The purification of acetic acid. The estimation of acetic anhydride in acetic acid." By K. J. P. ORTON and A. E. BRADFIELD.
- "The chlorination of anilides. The directing influence of the acylamino-group." By K. J. P. ORTON and A. E. BRADFIELD.
- "The constitution of sulphur dioxide in solution. Part I. The influence of hydrochloric acid on the distribution ratio of sulphur dioxide." By S. R. CARTER and A. E. T. NEALE.
- "The constitution of sulphur dioxide in solution. Part II. The influence of temperature on the distribution ratio of sulphur dioxide." By S. R. CARTER and A. E. T. NEALE.
- "The solubility of sulphur dioxide in water, chloroform, and westron." By S. R. CARTER and A. E. T. NEALE.
- "Acid and salt effects in catalysed reactions. Part VIII. The determination of hydrolytic velocity coefficients from *iso*-catalytic data. Reaction velocities in buffer solutions and compound catalytic catenaries." By H. M. DAWSON.

**CERTIFICATES OF CANDIDATES FOR ELECTION AT
THE BALLOT TO BE HELD AT THE ORDINARY
SCIENTIFIC MEETING ON THURSDAY, MAY 5TH, 1927.**

ANDREW, ROBERT, Old Park Road, Belfast. British. Pharmaceutical Chemist. Member of the Pharmaceutical Society of Northern Ireland. Licentiate of the Pharmaceutical Society, Irish Free State. No published communications. Interest in current advances in chemistry, particularly in relation to pharmacy and medicine. (*Signed by*) Theo. Harper, James Dundee, D. Hughes, P. J. Thompson, D. P. Woosley.

BARKLAMB, WILLIAM, 48, Brookmill Road, Deptford, S.E. 13. English. Asst. Chemist. Student at the Sir John Cass Technical Institute (Adv.

Organic Chem.). Wish to keep in touch with the latest advances in Chemistry and would appreciate the use of the Library. (*Signed by*) E. de Barry Barnett, W. V. Lloyd, J. L. Wiltshire.

BATE, FRITZ ALFRED, 50, Eastwood Lane, Westcliff-on-Sea, Essex. British Student. B.Sc., 2nd Hons., London. 4 Years East London College. 1 Year research, Battersea Polytechnic. (*Signed by*) J. Kenyon, F. Bell, Henry Phillips.

BEAK, KEITH LESTER, 25, Chadwick Road, Leytonstone, E. 11. British. Assistant in Engineer-in-Chief's G.P.O. Test Section, Chemical Dept., Studd St., N. 1. (*Signed by*) Bernard W. Crutchlow, W. Williamson, A. H. Durrant.

BRADLEY, WILLIAM, 130, New Bold Street, Leigh, Lancs. British. Research Student. Graduated 1924. B.Sc. (Hons.), University of Manchester. M.Sc. Degree, 1925, University of Manchester. "Hydrolytic Fission of some Substituted Dibenzoylmethanes," *J.C.S.*, 1926, 2356. (*Signed by*) Robert Robinson, Arthur Lapworth, Frederick Challenger.

BUNCE, EDWIN HERBERT, 37, Northcote Road, Walthamstow, Essex. British. Works Chemist to Grays, Colors, & Dyes, Ltd. A.I.C. Formerly for 5 years in the laboratory of Dr. Bernard Dyer. (*Signed by*) Bernard Dyer, George Senter, George Taylor, F. J. Thorneycroft.

BURTON, DAVID HENRY, 49, Rayleigh Road, Wimbledon, S.W. 19. British. Research Assistant. B.Sc. (1st Class Hons., London). A.R.C.S. A.I.C. (*Signed by*) C. S. Gibson, J. Davidson Pratt, M. A. Whiteley.

CAMERON, CHARLES MCKENLEY, 146, Whalley Road, Clayton-le-Moors, Accrington. British. Chemist and Druggist. Member of the Pharmaceutical Society. 1915-1919, Lancashire and Cheshire Institute Course (certificates with honours). 1920-1921, Student, Manchester College of Pharmacy (certificate of proficiency). 1922 onwards, giving instruction to students preparing for the Chemist and Druggist Qualifying Examination, Part I (Chemistry and Physics). Completed the Major Course for the Pharmaceutical Chemists Diploma. Present reading up Metallurgical Chemistry and the Analysis of Food and Drugs. (*Signed by*) H. Brindle, J. W. Bell, Jules Cofman Nicoresti.

CHADWICK, RICHARD, 133, Whitefriar's Avenue, Wealdstone, Middlesex. British. Natural Science Tripos, Part II, Chemistry, 1925, 2nd Class. B.A., Honours, Cambridge, 1925. Research work in Metallurgy under Mr. C. T. Heycock, F.R.S., for 18 months. (*Signed by*) A. J. Berry, Hamilton McCombie, F. W. Dootson.

CHRISTY, RONALD KINGTON, 3, Crieff Road, Wandsworth, S.W. 18. British. University Demonstrator. B.Sc. (Lond.), 2nd Class Honours in Chemistry. Demonstrator in Biochemistry. (*Signed by*) A. J. Allmand, Samuel Smiles, H. Gordon Reeves.

COPLEY, EDGAR DAWN, Bulawayo, S. Rhodesia. British. Works Chemist. Degrees: B.Sc. (South Africa) (Physics and Chemistry). B.A. and B.Sc. (Oxon.) (Chemistry). (*Signed by*) J. L. Wiltshire, M. Farrow, J. K. Marsh, M. P. Applebey, S. G. P. Plant, J. M. Gulland, E. Hope.

ELLISON, THOMAS ERIC, 22, Kelvin Parade, Belfast, N.I. English. University Assistant in Chemistry. Assistant in Chemistry in the Queen's University of Belfast, 1924-1927. (*Signed by*) A. W. Stewart, H. Graham, W. H. Crowe.

FORRESTER, CHARLES, Indian School of Mines, Dhanbad, Bihar and Orissa, India. British. Professor of Chemistry and Assaying, Indian School of Mines, Dhanbad, Bihar and Orissa, India, E.I.R. Associate Heriot-Watt College, Edinburgh. Fellow of the Institute of Chemistry. Several years

Lecturer in Chemistry and Assaying at the Heriot-Watt College, Edinburgh. (*Signed by*) John Dall, J. J. Blackie, Eric Knott.

GRIFFIN, GERALD CHARLES LEAKE, Ministry of Labour, Montagu House, Whitehall, S.W. 1. British. Civil Servant. Foundation Scholarship in Exp. Sc., Trinity College, Dublin. Senior Moderatorship, B.A., Large Gold Medal, Exp. Sc. (Chem. and Phys.), Dublin Univ. I desire to keep in touch with the progress of Chemistry. (*Signed by*) Sydney Young, Emil. A. Werner, Kenneth C. Bailey, A. G. G. Leonard, James Bell.

GURNEY, JOHN, Walsingham Abbey, Norfolk. British. Research Student. Part I, Honour School of Chemistry, Oxford, 1926. (*Signed by*) W. H. Perkin, S. G. P. Plant, J. Masson Gulland.

HARRAL, JAMES CHARLES, 201, Bradford Rd., Batley, Yorks. English. Analytical Chemist (Assistant). With Messrs. F. W. Richardson and A. Jaffé, Public Analysts, etc., Bradford. Over five years' pupilship with Messrs. Richardson and Jaffé, with whom he is now Assistant. (*Signed by*) Frederick William Richardson, Adolph Jaffé, Herbert Hodgson.

HARTSHORNE, NORMAN HOLT, 40, Druslyn Road, West Cross, Swansea. British. Assistant Lecturer in Inorganic and Physical Chemistry, University College, Swansea. Late Demonstrator in Inorganic and Physical Chemistry, Bedford College, University of London. M.Sc. (B'ham.). A.I.C. Published work (in *J.C.S.*): "System Ferric Oxide-Phosphoric Acid-Water," 1923, 123, 2223; "Apparatus for Viscosimetric Determination of Transition Points," 1924, 125, 2096; "System Ferrous Oxide-Phosphoric Acid-Water," 1926, 363. (*Signed by*) J. E. Coates, L. E. Hinkel, E. E. Ayling.

HATFIELD, WILLIAM HERBERT, Muswell Lodge, Brincliffe Crescent, Sheffield. British. Principal of the Brown Firth Research Laboratories, Princess St., Sheffield. D.Met. (Sheffield), F.Inst.P. M.Inst.Mech.E. Papers given to Royal Society, Iron and Steel Inst., Inst. of Metals, Inst. Mech. Eng., etc. (*Signed by*) Ulick R. Evans, Cecil H. Desch, W. P. Wynne.

HOOLEY, LEONARD JOSEPH, 11, Newhouse Road, Grangemouth, Stirlingshire. English. Chemist. B.A. (Cantab.). Natural Science Tripos, Part II, Chemistry, 2nd Class, 1920. A.I.C. (*Signed by*) W. J. Pope, W. H. Mills, John Thomas.

HOWARD, GEORGE ROBERT, 32, Gilpin St., Peterborough. British. Teacher of Chemistry (Junior Science Master, Skipton Grammar School). 1st Class Hons. B.Sc. (Honours School of Chemistry, Univ. of Sheffield). Desirous of receiving Journal and keeping in touch with recent research. (*Signed by*) W. P. Wynne, F. G. Tryhorn, G. M. Bennett, Arthur W. Chapman, W. F. Wyatt.

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JORDAN, LOUIS ARNOLD, 14, Parklands, Surbiton. British. Director Paint and Varnish Research Asscn. D.Sc. (London). A.R.C.Sc. (London). D.I.C. F.I.C. *J.C.S.*, 1915, p. 387. (*Signed by*) Jocelyn Thorpe, James C. Philip, H. F. Harwood.

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the *Journal of the Society of Chemical Industry*: Dec. 1910; 1911, 165; 1914, 158; 1915, 1121; 1918, 240r; 1924, 124r and 402r; 1925, 453r; 1926, 123r and 140t. (*Signed by*) Wm. Wardlaw, W. J. Hickinbottom, S. R. Carter, J. D. Main Smith.

LEWKOWITSCH, JASON LOUIS EDWARD, 71, Priory Rd., N.W. 6. British. Student. At present engaged in Physical Chemistry research. A.R.C.S. (*Signed by*) James C. Philip, H. J. T. Ellingham, J. H. G. Carlile.

MCGREGOR, JAMES HUTCHISON, Avenue Cottage, Alexandria, Dumbartonshire. British. Technical Chemist, The United Turkey Red Co., Ltd., Glasgow. Associate of The Royal Technical College, Glasgow (A.R.T.C.). Associate of The Institute of Chemistry (A.I.C.). Formerly Research Chemist with The British Alizarine Co., Ltd., Manchester. (*Signed by*) William M. Cumming, M. M. J. Sutherland, R. M. Caven, John A. Cranston.

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MILLWARD, HERBERT JOSEPH, "Ivydene," Gravelly Lane, Erdington, Birmingham. British. Lecturer's Assistant, Birmingham University. Senior Laboratory Steward, King Edwards Grammar School, 3 years. Army Dispenser, R.A.M.C. (T.F.), 4 years. Lecturer's Assistant, Birmingham University, 7 years. I am desirous of keeping in touch with Chemical progress. (*Signed by*) W. N. Haworth, S. R. Carter, E. L. Hirst.

MOND, ALFRED WILLIAM, 104, Eaton Place, London, S.W. 1. British. Assistant Works Manager, Brunner, Mond & Co., Ltd., Northwich. B.A., Cambridge. 3 Years' research at Oxford. (*Signed by*) F. A. Freeth, F. G. Donnan, N. V. Sidgwick.

PARKER, JOHN HOPKINSON, 57, Grafton Road, Keighley, Yorks. English. Assistant Brewer and Chemist. Studied Chemistry under Mr. H. Harper, B.Sc., A.R.C.Sc., A.I.C., F.C.S.; Mr. L. M. Stockdale, B.Sc., M.Sc., F.C.S., and Mr. J. Ross-Mackenzie, F.C.S., F.R.M.S., and am desirous of receiving the publications of the Society. (*Signed by*) Herbert Hobson, Harry Harper, Leonard M. Stockdale.

RIPPON, DOROTHY MAY LYDDON, Springfield House, Abingdon, Berks. British. Research Student. B.A., Oxon. (Chemistry), Honours. (*Signed by*) W. H. Perkin, S. G. P. Plant, J. M. Gulland, E. Hope.

SHAW, OTTO LESLIE, "Betula," Park View Rd., New Eltham, S.E. 9. English. Analytical Chemist (in the employ of the Shell-Mex Oil Co., Ltd.). Delivered course of lectures on the Growth of Chemistry. (*Signed by*) George Senter, F. J. Thorneycroft, A. M. Ward, Samuel Sugden.

SHORTT, ARTHUR, St. Andrews, Clayton Rd., Newcastle-on-Tyne. British. Industrial Chemist. B.Sc. (Hons.), Durham. Barrister-at-Law. 4½ Years' Research Chemist, United Alkali Co., Ltd. Now Pelaw Main Colliery Co. (*Signed by*) P. Phillips Bedson, J. A. Smythe, P. L. Robinson.

TOMLINSON, JOHN, 33, Windsor Road, Levenshulme, Manchester. British.

Research Student (Geology Department of Manchester University). B.Sc. (Tech.), Honours, Fuel. (*Signed by*) W. H. Brindley, T. K. Walker, John K. Wood.

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USHER, ALBERT DENNY, 106, Bolingbroke Grove, S.W. 11. British. Assistant Schoolmaster. B.Sc. (London). Post-graduate Student of Chemistry. Wishing to keep in touch with the progress of the subject. (*Signed by*) J. W. Cook, E. de Barry Barnett, P. C. L. Thorne.

WARD, CARL ROMEN, Woodcroft, Newburn, Northumberland. English. Student (Emmanuel College, Camb.). Intends to be teacher in Chemistry. B.A. (Cambridge). Nat. Science Tripos, Pt. I. At present training for Diploma in Education with Endorsement in Chemistry. (*Signed by*) John S. Bousfield, R. G. W. Norrish, F. W. Dootson.

WINGFIELD, CHARLES BARNETT, 36, Clarendon Gdns., Wembley, Middlesex. British. Senior Asst. Chemist with Messrs. A. Duckham & Co., Ltd., Oil Refiners and Lubricant Manufacturers, 6, Broad Street Place, E.C. 2. Fourteen years' experience of practical laboratory work with the above firm. Associate Member Institution Petroleum Technologists. (*Signed by*) A. Duckham, Robert Redwood, S. Bowrey.

WORMELL, ROBERT LOUIS, "Coniston," Stoke Park, Coventry. English. Research Chemist. Part-time Demonstrator in Chemistry, Birmingham University (1925-27). *J.C.S.*, 1924, **125**, 2370; 1927, 130. (*Signed by*) Wm. Wardlaw, F. W. Pinkard, H. M. Spittle.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

ABDERHALDEN, EMIL. Handbuch der biologischen Arbeitsmethoden. Abt XI. Chemische, physikalische und physikalisch-chemische Methoden zur Untersuchung des Bodens und der Pflanze, Teil 3, Heft. v. Berlin 1927. pp. 715 to 864. ill. *M.* 7.20. (*Recd.* 2/3/27.)

From the Publishers: Herren Urban & Schwarzenberg.

AMERICAN MEDICAL ASSOCIATION. Annual Reports of the Chemical Laboratory. Vol. 17-18, 1924-25. Chicago. (*Reference.*) \$1.25.

From the Laboratory.

INDUSTRIAL CHEMIST and Chemical Manufacturer. Vol. 3, etc. London 1927 +. (*For circulation.*)

From the Society of Dyers and Colourists.

JOURNAL OF POMOLOGY AND HORTICULTURAL SCIENCE. Vol. V, etc. London 1925 +. (*Reference.*)

From the Bureau of Chemical Abstracts.

KUHLMANN. Cent ans d'industrie chimique. Les établissements Kuhlmann 1825-1925. Paris 1926. pp. 138. ill. (*Recd.* 17/2/27.)

From the Director.

NATUURWETENSCHAPPELIJK TIJDSCHRIFT. Tolk van Afdeelingen I en III van het Vlaamsch Natuur- en Geneeskundig Congres. Year VIII, etc. Antwerpen 1926 +. (*Reference.*)

From the Secretary.

SCHIMMEL & Co. Bericht über ätherische Öle, Riechstoffe usw. 12 vols. Miltitz bez. Leipzig 1914-15, 1918-26. (*Reference.*)

— Semi-annual [later, Annual] report on essential oils, synthetic perfumes, etc. 12 vols. Miltitz near Leipzig 1914-25. (*Reference.*)

From Messrs. Schimmel & Co.

VAN NOSTRAND'S Chemical Annual: a handbook of useful data for analytical, manufacturing, and investigating chemists, chemical engineers, and students. Edited by JOHN C. OLSEN and T. R. LE COMPTE. 6th issue, 1926. London 1927. pp. xvi + 882. ill. (*Reference.*) 21s. net.

From the Publishers: Messrs. Chapman & Hall.

WEIMARN, PETER PETROVIC VON. Kolloides und Kristalloides Loesen und Niederschlagen. 3 vols. Kyoto 1921. pp. xx + 743 + 108 plates. (*Reference.*)

From the Author, per Dr. William Clayton.

II. *By Purchase.*

ANDRADE, EDWARD NEVILLE DA COSTA. The structure of the atom. 3rd edition. London 1927. pp. xx + 750. ill. 30s. net. (*Recd.* 11/3/27.)

AUSTIN, JOSHUA HAROLD, and CULLEN, GLENN E. Hydrogen ion concentration of the blood in health and disease. Baltimore 1926. pp. xii + 75. ill. 9s. net. (*Recd.* 11/3/27.)

AUWERS, KARL VON. Über die Bildung von Chinon-imiden und Phenoxazonen aus *o*-Amino-phenolen. Nach Versuchen von E. MÜRBE, K. SAURWEIN, G. DEINES, und J. SCHORNSTEIN. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1924.

BEAN, PERCY, and McCLEARY, WILLIAM. The chemistry and practice of finishing. A practical treatise on bleaching, and the finishing of white, dyed, and printed cotton goods. 3rd edition. 2 vols. Manchester 1926. pp. xxiv + 624, xvi + 396. ill. 60s. net. (*Recd.* 11/3/27.)

BEECH, FRANKLIN. The dyeing of cotton fabrics. 3rd edition, revised by ARCHIBALD JOHN HALL. London 1927. pp. xii + 296. ill. 18s. net. (*Recd.* 11/3/27.)

BERL, ERNST, and BRAUNE, A. Über die Darstellung von Natriumcyanid aus Luftstickstoff, Soda, und Kohle. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1925.

CLARK, ALFRED JOSEPH. Applied pharmacology. 2nd edition. London 1927. pp. x + 430. ill. 15s. net. (*Recd.* 11/3/27.)

CLARK, GEORGE L. Applied X-rays. New York 1927. pp. xiv + 256. ill. 20s. net. (*Recd.* 11/3/27.)

COMPTON, ARTHUR H. X-rays and electrons: an outline of recent X-ray theory. New York 1927. pp. xvi + 404. ill. 25s. net. (*Recd.* 11/3/27.)

COMPTON, KARL TAYLOR, and MOHLER, FRED L. Ionisierungs- und Anregungsspannungen. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1925.

CORSON, M. G. Aluminium: the metal and its alloys (a critical descriptive treatise). Including chapter on "structurography" prepared in co-operation with J. R. VILELLA. New York 1926. pp. xx + 292 + 122 plates. 36s. net. (*Recd.* 11/3/27.)

EDER, JOSEF MARIA. Ausführliches Handbuch der Photographie. Vol. II, Part 1. Die Grundlagen der photographischen Negativverfahren. By [HINRICUS] LÜPPO-CRAMER. 3rd edition. Halle (Saale) 1927. pp. x + 814. ill. *M* 41. (*Recd.* 4/3/27.)

EISENLOHR, FRITZ. Der molekulare Brechungskoeffizient in der Reihe der Polymethylenverbindungen. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1925.

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FIERZ-DAVID, HANS EDUARD. Künstliche organische Farbstoffe. Berlin 1926. pp. xvi + 720. ill. *M*. 63. (*Recd.* 17/2/27.)

FORTSCHRITTE DER CHEMIE, PHYSIK UND PHYSIKALISCHEN CHEMIE. Vol. XVIII, etc. Berlin 1924-26 +. (*Reference.*)

GARLAND, HERBERT, and BANNISTER, CHARLES OLDEN. Ancient Egyptian metallurgy. London 1927. pp. xii + 214. ill. 12s. 6d. net. (*Recd.* 11/3/27.)

HERZOG, ALOIS. Die Unterscheidung der Flachs- und Hanffaser. Berlin 1926. pp. viii + 110. ill. *M*. 13.20. (*Recd.* 17/2/27.)

HÜTTIG, GUSTAV F. Über Gitterbestandteile, die im Kristallgitter vagabundieren. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1924.

JAQUET, EMANUEL. Theorie der Adsorption von Gasen. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1925.

RASTALL, ROBERT HERON. Physico-chemical geology. London 1927. pp. viii + 248. ill. 15s. net. (*Recd.* 11/3/27.)

SMITH, [ALEXANDER]. Inorganic chemistry. Revised and rewritten by JAMES KENDALL. New York 1926. pp. xxxviii + 1030. ill. 17s. 6d. net. (*Recd.* 1/3/27.)

THEIL, ALFRED, DASSLER, ADOLF, and WÜLFKEN, F. Über Azo-Indikatoren vom Typus des Methylgelb, Methylorange, und Methylrot. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1924.

TSCHIRCH, ALEXANDER. Festschrift für Alexander Tschirch zu seinem 70. Geburtstag am 17. Oktober 1926. Gewidmet von Freunden und Schülern. Leipzig 1926. pp. xii + 448. ill. *M.* 30. (*Recd.* 17/2/27.)

TYLER, CHAPLIN. Chemical engineering economics. New York 1926. pp. x + 272. ill. 17s. 6d. net. (*Recd.* 11/3/27.)

WIGAND, ALBERT. Luftelektrische Untersuchungen bei Flugzeugaufstiegen. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XVIII.) Berlin 1925.

III. Pamphlets.

KOGERMAN, PAUL NICOLAI, and KRANIG, J. Physical constants of some alkyl carbonates. (From the *Acta Comm. Univ. Tartu*, 1927, A12.)

MINES DEPARTMENT, *Safety in Mines Research Board*. Paper No. 30. The support of underground workings in the East Midland Coalfield (Yorkshire, Derbyshire excluding South Derbyshire, and Nottinghamshire). London 1927. pp. 48 + 14 plates.

MÜLLER, WOLF JOHANNES, Unterrichtsprobleme in Chemie und chemischer Technologie im Hinblick auf die Anforderungen der Industrie. Wien 1927. pp. 17.

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. Report of tests . . . on the Freeman multiple retort of the British Oil and Fuel Conservation, Ltd., Willesden. London 1926. pp. vi + 35. ill.

— *Food Investigation*. Special Report No. 27. Temperature conditions in refrigerated holds carrying apples. By A. J. M. SMITH. London 1926. pp. vi + 52. ill.

— — Special Report No. 28. Bitter pit in apples: a review of the problem. By A. J. M. SMITH. London 1926. pp. iv + 24. ill.

— — Special Report No. 29. Temperature conditions in small cold storage chambers containing fruit. By A. J. M. SMITH. London 1926. pp. iv + 37. ill.

— *Forest Products Research*. Technical Paper No. 1. The movement of moisture with reference to seasoning. By S. T. C. STILLWELL. London 1926. pp. iv + 29. ill.

— — Technical Paper No. 2. Moisture movement through wood: the steady state. By JOHN FRANCIS MARTLEY. London 1926. pp. iv + 22. ill.

PAGES MISSING FROM 37 TO 56

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, May 5th, 1927, at 8 p.m.,
Professor H. BRERETON BAKER, C.B.E., LL.D., F.R.S., President,
in the Chair.

The PRESIDENT referred to the loss sustained by the Society,
through death on March 28th, of Mr. Hildyard John Eglinton
Dobson, who was elected a Fellow on May 3rd, 1923.

Certificates were read for the first time in favour of :

James Bell, jun., B.Sc., A.I.C., 3, Finnart Terrace, Greenock.
William Ryle Clifford Curjel, B.A., Netherside, Woodbridge, Suffolk.
Albert de Bussy Goodman, Hatchgate, Massetts Road, Horley, Surrey.
Bhaba Nath Das Gupta, B.Sc., M.B., Noakhali, Bengal, India.
Cecil Owen Harvey, B.Sc., A.R.C.S., A.I.C., Government Laboratory, Clement's
Inn Passage, Strand, W.C. 2.
James Shankland Merry, 22, Norwood Grove, Liverpool.

Mr. F. H. Lowe and Dr. G. A. C. Gough were elected Scrutators,
and a ballot for the election of Fellows was held. The following
were subsequently declared elected as Fellows :

Robert Andrew.	Thomas Alfred Jenkinson, B.Sc.
William Barklamb.	Louis Arnold Jordan, D.Sc., A.R.C.S.
Fritz Alfred Bate, B.Sc.	F.I.C.
Keith Lester Beak.	Arthur William Knapp, B.Sc., F.I.C.,
William Bradley, M.Sc.	Jason Louis Edward Lewkowitsch,
Edwin Herbert Bunce, A.I.C.	A.R.C.S.
David Henry Burton, B.Sc., A.R.C.S.,	James Hutchison McGregor, A.I.C.
A.I.C.	Tarak Nath Majumdar.
Charles McKenley Cameron.	Ernest Matthews, M.Sc., A.R.C.S.,
Richard Chadwick, B.A.	D.I.C.
Ronald Kington Christy, B.Sc.	Herbert Joseph Millward.
Edgar Dawn Copley, B.A., B.Sc.	Alfred William Mond, B.A.
Thomas Eric Ellison.	John Hopkinson Parker.
Charles Forrester, F.I.C.	Dorothy May Lyddon Rippon, B.A.
Gerald Charles Leake Griffin, B.A.	Otto Leslie Shaw.
John Gurney, B.A.	Arthur Shortt, B.Sc.
James Charles Harral.	John Tomlinson, B.Sc.Tech.
Norman Holt Hartshorne, M.Sc.,	Allan George Tyler, B.Sc.
A.I.C.	Albert Denny Usher, B.Sc.
William Herbert Hatfield, D.Met.	Carl Roman Ward, B.A.
Leonard Joseph Hooley, B.A., A.I.C.	Charles Barnett Wingfield.
George Robert Howard, B.Sc.	Robert Louis Wormell.

The following papers were read :

- “ The nature of the alternating effect in carbon chains. Part XVIII. Mechanism of exhaustive methylation and its relation to anomalous hydrolysis.” By W. HANHART and C. K. INGOLD.
- “ The interrelationships of the sulphur acids.” By H. BASSETT and R. G. DURRANT.
- “ The constitution of the disaccharides. Part XIV. Melibiose and its relationship to raffinose.” By W. CHARLTON, W. N. HAWORTH, and W. J. HICKINBOTTOM.
-

Extra Meeting held in the Theatre of the Royal Institution (by kind permission of the Managers) on Wednesday, May 18th, 1927, at 5.30 p.m., the President, Professor H. BRERETON BAKER, C.B.E., LL.D., F.R.S., occupying the Chair.

The company present numbered about 600.

In introducing the lecturer, the PRESIDENT said that they had met to honour the immortal name of Faraday. These Faraday Lectures were in no sense Memorial Lectures; the name of Faraday needed no memorial, for so long as science endured, the name of Faraday would be honoured and revered. In these Lectures, delivered triennially, the Chemical Society had had the co-operation of the most celebrated chemists and other men of science from all over the world, and that day it was able to add to that distinguished list the name of Richard Willstätter. Faraday was a border-line chemist, for although his discovery of benzene would entitle him to be called an organic chemist, most of his work dealt with the border-line of physics and chemistry. Prof. Willstätter was also a border-line chemist; the frontier on which he had won his fame was the frontier which joined chemistry and botany.

The President then asked Prof. Willstätter to deliver his lecture entitled : “ Problems and Methods in Enzyme Research.”

At the conclusion of the Lecture, the President, in presenting the Faraday Medal to Professor Willstätter, expressed the hope that it would be a happy souvenir of this great occasion.

In proposing a vote of thanks to the lecturer, Prof. W. H. Perkin paid a tribute to Prof. Willstätter for his outstanding work not only in connection with biochemical problems, but also in the various sections of pure organic chemistry. It had been rather difficult for those who had little or no practical acquaintance with the enzymes to keep touch with and follow the large number of important investigations which had been carried out in the laboratories of Prof. Willstätter. Fortunately, however, the Professor had recently

published two summaries containing the main results of the work which he and his co-workers had done in this field. From those summaries it was easy to appreciate how very difficult the work must always have been, and, in particular, how disappointing it must have been to find that these elusive substances lost their activity and other characteristic properties, and were sometimes even destroyed altogether, as the solution was concentrated. But it was far more instructive even than a study of those summaries to have the pleasant experience of listening to the author of all this work explaining the main results which had been achieved, and giving some idea of the amount of work which remained to be done in the future. They were all very greatly obliged to Prof. Willstätter for having given his brilliant and stimulating Lecture.

Prof. J. F. Thorpe, in seconding the vote of thanks, referred to Prof. Willstätter as a great organic chemist—so great that he was placed on a pinnacle as high as that occupied by his countrymen, Baeyer and Fischer. Prof. Willstätter had carried out epoch-making researches in a great number of branches of organic chemistry, any one of which would have made the reputation of any lesser man. With a courage which all admired, and which very few could emulate, he had left the “flowery” paths of organic chemical research and had entered that wilderness which was the province of the biochemist. Great things had been accomplished by the biochemists. The materials they had made, and the reactions they had discovered, were wonderful, but we still knew nothing of the mechanism of biochemical reactions, and until we did, we should know nothing of the meaning of life. It was only from the standpoint of organic structure that we could hope to obtain any insight into the mechanism of biochemical action, and therefore, when Prof. Willstätter had abandoned those “easy” syntheses and had entered the more difficult field, organic chemists welcomed the fact. Prof. Willstätter was still a young man; he had many years of active research before him, and they all hoped that he would continue his classical researches, and that his future work would be attended with every success. Organic chemists felt that if Prof. Willstätter failed in the study of the structure of the enzymes, then no one else would succeed.

The vote of thanks was accorded with enthusiasm, and, in making acknowledgment, Prof. Willstätter said :

“ At this moment it is difficult for me adequately to express my feelings. Your invitation to give this Lecture and your award of this beautiful medal means for me the greatest distinction that could ever be conferred upon me, and the impressions of this hour are still further deepened by the more than warm and

friendly welcome you have given me, and which will ever live in my memory. Allow me to express my sincerest and most cordial thanks. By my reception into the circle of the Faraday Lecturers, you wish to associate me with that small band of scientists immortalised by your Society. I cannot but be aware of the distance that separates me from my great predecessors, but do I not owe this honour to your intention to unite together the scientists of every country and to let them share in paying homage to Faraday, who has so enriched all the world ?

“ In the last few days I have been privileged to visit Westminster Abbey and your museums and libraries. The impressions of these great works are vivid in my mind, for there are found the painter’s brush, the sculptor’s chisel, the poet’s lyre, and thereto belongs also the scientist’s ink, which the Koran even parallels with the martyr’s blood. These lasting achievements of human spirit are international, they are the common possession of all mankind.”

In concluding the business, the PRESIDENT expressed the Society’s warm and appreciative thanks to the Managers of the Royal Institution for granting permission to hold this important celebration in this historic room. No one could stand in that room, with its associations of Davy, Faraday, and other great men of science, without profound emotion, and he was convinced of the fact that the Lecture being delivered there had helped to inspire Prof. Willstätter. The vote of thanks was accorded with acclamation.

Ordinary Scientific Meeting, Thursday, May 19th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., LL.D., F.R.S., President, in the Chair.

The PRESIDENT announced that Miss Gladstone had presented an album containing photographs of eminent Chemists and other Men of Science belonging to the late Dr. John Hall Gladstone, Past-President.

Professor Dr. Richard Willstätter was formally admitted an Honorary Fellow of the Chemical Society.

Certificates were read for the first time in favour of :

Otto Guido Backeberg, B.A., M.Sc., A.I.C., University of the Witwatersrand, Johannesburg.

Leonard Bayley, 31, The Crescent, Friern Barnet, N. 11.

William Bleloch, B.Sc., Hazleyshaw, Albemarle Street, Kensington, Johannesburg.

Donald William Parker Boyd, M.A., c/o Messrs. Boileau & Boyd, Ltd., 91-93, Bride Street, Dublin.

Francisco Miguel Camps-Campins, B.Sc., 67, Frederick Road, Port-of-Spain, Trinidad.

Frederick Arthur Filby, B.Sc., 378, High Street North, East Ham, E. 12.
 Robert Edwin Goldsbrough, Woodside, Great Horkesley, Colchester.
 Vaidyanatha Subrahmanyan, B.A., Indian Institute of Science, Bangalore,
 India.

The following certificate has been authorised by the Council for presentation to ballot under Bye-Law I (2) :

Eugenie Sachs, 280, Market Street, Pretoria, S. Africa.

The following paper was read :

“ New developments in the study of acid catalysis. The catalytic catenary.” By H. M. DAWSON.

At the next Ordinary Scientific Meeting, to be held on June 2nd, the following papers will be read :

“ The passivity of metals. Part I. The isolation of the protective film.” By U. R. EVANS.

“ Studies of valency. Part VIII. The molecular structure of Vernon's dimethyltelluronium salts.” By T. M. LOWRY and R. R. GOLDSTEIN.

“ The factors controlling the formation of some derivatives of quinoline, and a new aspect on the problem of substitution in the quinoline series.” By E. ROBERTS and E. E. TURNER.

List of Papers, or Abstracts thereof, received between April 7th and May 19th. (This List does not include the titles of papers which have been read at a Scientific Meeting, or which have appeared in the Journal.)

“ Preparation of some substituted thioanisoles by direct methylthiolation.” By H. H. HODGSON and F. W. HANDLEY.

“ An investigation of the alleged second isoelectric point of gelatin.” By B. N. GHOSH.

“ The reduction of arsenic compounds in acid, and in alkaline solution by sodium hyposulphite (hydrosulphite). Production of sodium arseno-hyposulphite.” By W. FARMER and J. B. FIRTH.

“ Reduction of silver compounds in alkaline solution. Part I. Reduction in presence of aluminium.” By W. FARMER and J. B. FIRTH.

“ Reduction of silver compounds in alkaline solution. Part II. Hydrolysis of silver nitride.” By W. FARMER and J. B. FIRTH.

“ Monothioethyleneglycol. Part III. Nitrophenyl thioethers.” By G. M. BENNETT and W. A. BERRY.

- “The influence of the sulphur atom on the reactivity of adjacent atoms or groups. Part II. A quantitative comparison of the reactivities of chlorine in some β - and γ -chlorosulphides.” By G. M. BENNETT and W. A. BERRY.
- “The reactions of 1-anilino*cyclohexane*-1-carboxylic acid. Synthesis of ψ -indoxyl-*spirocyclohexane*.” By R. L. BETTS, R. MUSPRATT, and S. G. P. PLANT.
- “Sugar carbonates. Part III. Derivatives of γ -methylfructoside, γ -ethylfructoside, and normal methylfructoside.” By C. F. ALLPRESS, W. N. HAWORTH, and J. J. INKSTER.
- “The study of lactones derived from simple sugars.” By H. D. K. DREW, E. H. GOODYEAR, and W. N. HAWORTH.
- “The ternary system barium iodide-iodine-water and the formation of polyiodides.” By A. C. D. RIVETT and J. PACKER.
- “Substituted diaryl ethers. Part II. Amino-di-*p*-tolyl ethers.” By J. REILLY and H. S. B. BARRETT.
- “Some sulphur derivatives of substituted benzaldehydes.” By H. H. HODGSON and H. G. BEARD.
- “Substitution in hexahydrocarbazole derivatives.” By J. GURNEY and S. G. P. PLANT.
- “Striated photographic records of explosion-waves.” By C. CAMPBELL and D. W. WOODHEAD.
- “The action of bromine on strontium hydroxide.” By K. L. MALHOTRA, H. B. DUNNICLIFF, and H. D. SURI.
- “The action of iodine on strontium hydroxide.” By K. L. MALHOTRA, H. B. DUNNICLIFF, and R. K. B. BAHL.
- “Electrometric and colorimetric dissociation constants of mono- and di-nitro-dihydric phenols.” By F. L. GILBERT, F. C. LAXTON, and E. B. R. PRIDEAUX.
- “The two *o*-cyanocinnamic acids.” By W. DAVIES and H. G. POOLE.
- “Acid and salt effects in catalysed reactions. Part IX. A general kinetic method for the determination of the degree of dissociation of water.” By H. M. DAWSON.
- “The dicarbazyls. Part III. The oxidation of carbazole and *N*-alkylcarbazoles in acid solution.” By P. MATTLAND and S. H. TUCKER.
- “The nature of the alternating effect in carbon chains. Part XIX. The mechanism of certain migrations.” By C. K. INGOLD, E. W. SMITH, and C. C. N. VASS.
- “*ortho*-Nitrobenzyl phenyl dimethyl ammonium chloride.” By H. BAW.
- “The constitution of anthracene.” By D. H. PEACOCK and B. K. MENON.

- “Melting points of the substituted amides of dibasic acids.” By C. R. BARNICOAT.
- “The diacyl derivatives of benzidine and *p*-phenylene diamine.” By F. J. A. BROGAN.
- “Aromatic sulphonyl disulphides.” By L. G. S. BROOKER, R. CHILD, and S. SMILES.
- “The chemistry of the three-carbon system. Part XII. The effect of positive substituents in the α -position.” By G. A. R. KON and B. T. NARAYANAN.
- “The preparation of unsaturated ketones from the chlorides of hydroxy acids.” By G. A. R. KON and B. T. NARAYANAN.
- “The chemistry of the three-carbon system. Part XIII. The effect of bulky substituents and of the *cycloheptane* ring.” By G. A. R. KON and C. J. MAY.
- “The constitution of the disaccharides. Part XIII. The γ -fructose residue in sucrose.” By W. N. HAWORTH, E. L. HIRST, and V. S. NICHOLSON.
- “The heat of adsorption of gases by charcoal.” By S. J. GREGG.
- “The Reimer-Tiemann reaction with *m*-chlorophenol.” By H. H. HODGSON and T. A. JENKINSON.
- “The temperature effects of mixing non-aqueous liquids.” By W. M. MADGIN, J. B. PEEL, and H. V. A. BRISCOE.
- “Low temperature oxidation at charcoal surfaces. Part IV. The active areas for different acids and their relative rates of oxidation.” By W. M. WRIGHT.
- “Imino-aryl ethers. Part V. The effect of substitution on the velocity of molecular rearrangement.” By A. W. CHAPMAN.
- “The preparation and hydrolysis of the isomeric β -tolylethyl bromides.” By J. B. SHOESMITH and R. J. CONNOR.
- “Melting points and heats of crystallisation of homologous series. Part III. Myristic acid derivatives.” By W. E. GARNER and J. E. RUSHBROOKE.
- “The electroendosmosis of aqueous solutions through a diaphragm of sintered glass powder.” By F. FAIRBROTHER and H. VARLEY.
- “Aminobenzthiazoles. Part X. The effect of polar substituents on the formation and stability of the bromo-addition compounds of the benzthiazole series and the synthesis of some disubstituted 1-anilinobenzthiazoles.” By G. M. DYSON, R. F. HUNTER, and C. SOYKA.
- “Aminobenzthiazoles. Part XI. The effect of the atomic volume of the alkyl group on the stability of the bromides of the 5-substituted 1-alkylaminobenzthiazoles.” By R. F. HUNTER and E. R. STYLES.

- “Investigations in the diphenyl series. Part VI. Note on the configuration of diphenyl derivatives.” By F. BELL and P. H. ROBINSON.
- “The action of diazonium salts on pyrones, and their parent substances. Part I.” By R. T. MULLEN and W. H. CROWE.
- “The decomposition of nitrous acid in aqueous solution.” By T. W. J. TAYLOR, E. W. WIGNALL, and J. F. COWLEY.
- “Some observations on the determination of surface tension by means of capillary rise. The surface tension of water, ethyl alcohol, boron trichloride, and silicon tetrachloride.” By H. MILLS and P. L. ROBINSON.
- “The action of the silver salt of ethyl dehydroundecylenate upon alkyl halides.” By W. W. MYDDLETON and R. G. BERCHEM.
- “A new equation for electrode potentials.” By M. MEYER.
- “The inflammation of mixtures of the paraffins and air in a closed spherical vessel.” By G. B. MAXWELL and R. V. WHEELER.
- “The chemistry of polycyclic structures in relation to their homocyclic unsaturated isomerides. Part VIII. The differing effects of the *gem*-dimethyl and *spiro-cyclohexane* groupings on the direction of blocking of an intra-annular tautomeric system by substitution.” By C. K. INGOLD and E. A. SEELEY.
- “The nature of the alternating effect in carbon chains. Part XX. The conditions underlying vicinal substitution in *o*-substituted benzenes containing *op*-orienting groups.” By C. K. INGOLD and E. W. SMITH.
- “Note on the estimation of potassium in presence of iodide.” By F. S. HAWKINS and J. R. PARTINGTON.
- “The factors controlling the formation of some derivatives of quinoline, and a new aspect on the problem of substitution in the quinoline series.” By E. ROBERTS and E. E. TURNER.
- “Chemical action at an interface; the production of acidity in neutral salt solutions.” By N. V. ACHAR and F. L. USHER.
- “Syntheses of cyclic compounds. Part I. Ethyl $\beta\gamma$ -dimethyl butane $\alpha\alpha\delta\delta$ -tetracarboxylate and some *cyclobutane* compounds derived therefrom.” By I. VOGEL.
- “*cis-trans*-Isomerism of disulphoxides.” By E. V. BELL and G. M. BENNETT.
- “The mercuration of *o*-nitrophenol.” By H. H. HODGSON.
- “A new method of (absolute) potentiometric titration.” By B. CAVANAGH.
- “Ionisation and chemical change during slow combustion.” By J. A. J. BENNETT and E. W. J. MARDLES.
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CERTIFICATES OF CANDIDATES FOR ELECTION AT
THE BALLOT TO BE HELD AT THE ORDINARY
SCIENTIFIC MEETING ON THURSDAY, JUNE 16TH,
1927.

BACKEBERG, OTTO GUIDO, University of the Witwatersrand, Johannesburg, South Africa. British. Lecturer in Chemistry. B.A. (Hons.), Oxford, 1923. M.Sc., Johannesburg, 1926. A.I.C., 1924. "The Theory of Indicators," *South African Journal of Science*, Vol. XXI, pp. 243-257. "Alkyl Hypochlorites," *Journal of S.A. Chemical Institute*, January, 1925; "Alkyl Hypochlorites," *J.C.S.*, 1923, p. 2999 (with Dr. F. D. Chattaway); "The Chlorination of Ethyl Alcohol," *J.C.S.*, 1924, p. 1097 (with Dr. F. D. Chattaway). (*Signed by*) J. A. Wilkinson, Henry Stephens, F. D. Chattaway.

BAYLEY, LEONARD, 31, The Crescent, Friern Barnet, N. 11. English. Propaganda Manager to The Hoffmann-La Roche Chemical Works, Ltd., 7 & 8 Idol Lane, E.C. 3. Reasons for wishing to become a Fellow: (1) to be privileged to attend the evening meetings; (2) to have an opportunity of perusing and studying the Society's proceedings and literature; (3) to use the Society's Library. For many years engaged in writing, compiling, and editing printed matter on chemical, pharmaceutical, and medical subjects, and in translating such matter into English from various continental languages. (*Signed by*) J. Langford Moore, Archibald Macpherson, E. T. Neathercoat.

BELL, JAMES, jun., 3, Finnart Terrace, Greenock. British. Research Student, Chemistry Dept., Glasgow University. B.Sc. with 1st Class Hons. in Chemistry, June 1926. Elected A.I.C. 1926. D.S.I.R. Research Student for 1926-27-28. (*Signed by*) G. G. Henderson, T. S. Patterson, R. Wright, David T. Gibson.

BISSELL, WILLIAM JOHN, 863, London Road, Westcliff-on-Sea, Essex. British. Works Chemist. Student at the East London College, 1922-1926. Chemist at the Ipswich Beet Sugar Factory during the 1926-27 Campaign. (*Signed by*) J. R. Partington, W. H. Patterson, F. E. King.

BLELOCH, WILLIAM, "Hazleyshaw," Albemarle St., Kensington, Johannesburg, South Africa. British. Research Student in Chemistry. B.Sc., University of the Witwatersrand. At the present time carrying out research in organic chemistry for the degree of M.Sc., and therefore desirous of keeping in touch with modern developments of the subject. (*Signed by*) Henry Stephen, J. McCrae, J. A. Wilkinson.

BOYD, DONALD WM. PARKER, M.A., "Glensavage," Stillorgan, Co. Dublin. Irish. Chemist and Druggist. Having been a student of chemistry both at Trinity College (Dublin University) and Kevin St. Tech. Schools, Dublin. Candidate has now complete control and charge of the manufacturing laboratory of Messrs. Boileau & Boyd, Ltd., Wholesale Chemists and Druggists, Dublin, and desires admission as Fellow of the Society in order that he may be brought into closer touch with manufacturing chemistry. (*Signed by*) Emil A. Werner, Sydney Young, Kenneth C. Bailey, James Bell.

BROOKER, LESLIE GEORGE SCOTT, 54, Augustine Street, Rochester, N.Y., U.S.A. British. Organic Chemist, Eastman Kodak Coy., Rochester, N.Y. 1st Class Hons. B.Sc. (Lond., 1923). A.I.C. Ph.D. (Lond., 1926). "A Method of Inserting the Thio-aryl Group," *Brooker and Smiles, J.C.S.*, 1926, 1723. (*Signed by*) H. T. Clarke, Samuel Smiles, A. J. Allmand.

CAMPS-CAMPINS, FRANCISCO MIGUEL, 67, Frederick Street, Port of Spain, Trinidad. British Subject. Sugar Technologist and Chemist. B.Sc. (Audubon Sugar School). Superintending Chemist to J. Supple's Sons Pltg. Co.,

Sugar Factory at Bayou Goula, La., U.S.A., and to The American Syrup & Sorghum Co., Fort Smith (Syrup) Factory at Arkansas, U.S.A., during the grinding season. (*Signed by*) P. E. Turner, Joseph de Verteuil, James D. Kettle.

CURJEL, WILLIAM RYLE CLIFFORD, Netherside, Woodbridge, Suffolk. British. Research Student. B.A. (Oxon.), 1st Class Hons. Chemistry. Research Studentship (Oxford), 1926. (With F. D. Chattaway), *J.C.S.*, 1926, p. 3210, "The Crystalline Forms of 5-Nitro-salicylic Acid and of Related Compounds." (*Signed by*) H. L. Bowman, F. D. Chattaway, T. V. Barker.

FILBY, FREDERICK ARTHUR, 378, High St. N., East Ham, London, E. 12. English. Student, entering Secondary School Teaching in September (1927). B.Sc., 2nd Class Hons., London, Chem., 1926. (*Signed by*) J. R. Partington, E. E. Turner, F. E. King.

GEORGE, VICTOR SCOTTHORN, 139, Bearwood Road, Smethwick. British. Analytical and Metallurgical Chemist. Over 14 years' experience as an Analytical Chemist, including 3 years' partnership with J. Lones, F.I.C., Smethwick. I wish to keep in touch with modern research. (*Signed by*) J. Newton Friend, J. Cooper Duff, J. H. Wood.

GOLDSBROUGH, ROBERT EDWIN, Woodside, Great Horkesley, Colchester. British. Managing Director. Managing Director of Goldsbrough Patents Co., Ltd. Inventor of Oil Water Gas Processes and Processes for the Production of Ethylene from Fuel Oil. (*Signed by*) Herbert Harris, A. M. Low, K. C. Browning.

GOODMAN, ALBERT DE BUSSY, Hatchgate, Massetts Rd., Horley, Surrey. British. A.I.C. Student, Battersea Polytechnic. Exams. passed: (1) Cambridge Local; (2) Union of Education, 1st Class Theor. Chemistry; (3) Royal Soc. Arts English; (4) Matriculation; (5) Inter. B.Sc., Chemistry, Physics, and Botany; (6) Honours Course at King's College; (7) A.I.C. passed Pract. Chemistry, French, German, failed Theoretical Chemistry. Experience in Cement Analysis, with H. F. Knight, F.I.C., 14, Old Queen St. (*Signed by*) J. Kenyon, Harold Hunter, J. L. White.

GUPTA, BHABA NATH DAS (Noakhali—a district town in Bengal, India). Indian Hindu. B.Sc., M.B. (Calcutta University). As a medical practitioner, I like to remain in constant touch with the progress of chemistry (especially biochemistry). (*Signed by*) A. C. Sircar, J. C. Ghosh, P. C. Guha.

HARVEY, CECIL OWEN, Government Laboratory, Clement's Inn Passage, Strand, W.C. 2 (31, Camden Square, N.W. 1). British. Assistant Chemist. B.Sc. (London). A.R.C.S. A.I.C. Late Assistant Chemist to Messrs. T. Morson & Son, Ltd., The British Launderers' Research Association, etc. *The Analyst*, 1925, 538; 1926, 238. *Chemistry and Industry*, 1925, 815, 1110; 1926, 233; 1927, 317. (*Signed by*) A. G. Francis, W. Maw, J. S. Carter.

LYLE, WILLIAM CLAUDE, 308, Dumbarton Road, Glasgow, W. 1. British. Research Student, Chemistry Dept., Glasgow University. B.Sc., 1st Class Honours in Chemistry, Glasgow, 1926. A.I.C., elected 1926. Strang-Steel Research Scholar, Glasgow Univ., 1926-27. (*Signed by*) G. G. Henderson, T. S. Patterson, R. Wright, David T. Gibson.

MERBY, JAMES SHANKLAND, 22, Norwood Grove, Liverpool. English. Assistant Chemist and Demonstrator to the Liverpool Borax Co., Ltd. Five years in the Liverpool laboratory of Messrs. William Gossage & Sons, Ltd., doing all kinds of process control analysis. Two months in the Gossage Widnes laboratory. Three months as Assistant Chemist to the Liverpool Borax Co., Ltd. (*Signed by*) George Tate, George S. Irving, Charles A. Kelly.

POULSON, CECIL ARTHUR, "Haverstock," Shawlands, Glasgow. British.

Superintending Engineer for Scotland for Messrs. Wests Gas Improvement Co., Ltd., Manchester. *Present Position* : To advise upon and direct tests to obtain improved results in the carbonisation of coals, and extraction of residuals, together with the manufacture of bye-products from residuals. *Late* : Chief Technical Assistant Engineer and Manager for Messrs. W. G. Bagnall, Ltd., Locomotive Engineers, Stafford. Studied Chemistry for 5½ years at Stafford Technical School. (*Signed by*) Thomas Henry Poulson, Joseph Poulson, Cyril Douglas Birks.

RUMBOLD, JOHN STORROW, 22, Calton Avenue, Wavertree, Liverpool. British. Chemistry Master at the Holt Secondary School, Sefton Park, Liverpool. Special B.Sc. (Lond.), 1st Class Hons. in Chemistry. A.I.C. Formerly Research Chemist with the British Oxygen Co. Works Chemist with the Corby Ironstone Co. Works Chemist with the British Celanese Co. Now engaged in research work at the University of Liverpool and in independent research. (*Signed by*) J. B. Firth, F. C. Laxton, V. J. Occleshaw, A. O. Jones.

SUBRAHMANYAN, VAIDYANATHA, Lecturer in Biochemistry, Indian Institute of Science, Bangalore, India. British Indian. Lecturer in Biochemistry. B.A., University of Madras. "Studies relating to Acetone-producing Organisms," *J. Ind. Inst. Sci.*, 1925; "Biochemistry of Waterlogged Soils" (4 parts), in *J. Ag. Sci.*, 1927; "On New Methods relating to the Estimation of Carbohydrates, Fatty Acids, and Lactic Acid in Soils"; "A Modified Method for Estimating Dissolved Oxygen," etc., etc. (*Signed by*) H. J. Page, Ralph P. Hobson, H. L. Richardson.

The following Certificates have been authorised by the Council for presentation to ballot under Bye-Law I (2) :

KURABAYASHI, GENSHIRO, The Tokyo Higher Normal College, Koishikawaku, Tokyo, Japan. Japanese. Prof. of Inorganic and Analytical Chemistry, Tokyo Higher Normal College. Graduate of the Tokyo Higher Normal College (1905). Prof. of Inorganic and Analytical Chemistry at the Department of Chemistry, Tokyo Higher Normal College (1911-). Member of the Chemical Society of Japan (1923-). (*Signed by*) Joji Sakurai.

SACHS, EUGENIE, 280, Market Street, Pretoria, S. Africa. British subject. Chemist and Pharmacist. Occupied in making Pharmaceutical preparations in firm of Nathan Sachs, Pretoria, S. Africa. I have also the qualification as a pharmacist of the Pharmaceutical Society of Great Britain. (*Signed by*) H. Lucas.

ADDITIONS TO THE LIBRARY.

I. Donations.

ARCHBUTT, LEONARD, and DEELEY, RICHARD MOUNTFORD. Lubrication and lubricants. A treatise on the theory and practice of lubrication, and on the nature, properties, and testing of lubricants. 5th edition. London 1927. pp. xxxii + 650. ill. 36s. net. (*Recd.* 3/5/27.) From the Authors.

CHEMICAL ENGINEERING AND CHEMICAL CATALOGUE. A catalogue of heavy and fine chemicals, raw material, machinery, plant, and

equipment applicable to production industries, standardised, condensed and cross-indexed. Compiled with the co-operation of leading British manufacturers. Edited by DUDLEY MAURICE NEWITT. 3rd edition. London [1927]. pp. 404. ill. (*Reference.*) 15s. net. From the Publisher : Mr. Leonard Hill.

DOTY, MARION FOSTER. Selenium : a list of references, 1817-1925. New York 1927. pp. iv + 114. (*Reference.*) \$-65.

From Mr. C. Ainsworth Mitchell.

HORSFALL, RONALD S., and LAWRIE, LESLIE GORDON. The dyeing of textile fibres. London 1927. pp. xii + 416. 28s. net. (*Recd.* 29/4/27.) From the Publishers : Messrs. Ernest Benn.

IRON AND STEEL INDUSTRY and British Foundryman. Supplement to "The Metal Industry." Vol. I, etc. London 1927 +. (*Reference.*) From the Faraday Society.

THOMS, HERMANN. [Editor.] Handbuch der praktischen und wissenschaftlichen Pharmazie. Vol. V. Part ii. Berlin 1927. pp. 290 to 528. M. 10. (*Recd.* 30/4/27.)

From the Publishers : Herren Urban & Schwarzenberg.

II. *By Purchase.*

COHEN, ERNST. Physico-chemical metamorphosis and some problems in piezochemistry. New York 1926. pp. x + 190. ill. 12s. 6d. net. (*Recd.* 11/5/27.)

COLLOID SYMPOSIUM MONOGRAPH. Papers presented at the fourth National Symposium on Colloid Chemistry. New York 1926. pp. 378. ill. 27s. net. (*Recd.* 25/4/27.)

LA WALL, CHARLES H. Four thousand years of pharmacy : an outline history of pharmacy and the allied sciences. Philadelphia 1927. pp. xvi + 666. ill. 25s. net. (*Recd.* 11/5/27.)

LINTON, R. G. Animal nutrition and veterinary dietetics. Edinburgh 1927. pp. xii + 400. ill. 21s. net. (*Recd.* 11/5/27.)

NEBLETTE, C. B. Photography, its principles and practice : a manual . . . for use in colleges, technical institutions, and by the advanced student of the science. [New York] 1927. pp. xviii + 644. ill. 30s. net. (*Recd.* 11/5/27.)

PARRISH, PERCY, and OGILVIE, ALEXANDER. Artificial fertilisers : their chemistry, manufacture and application. Vol. I. London 1927. pp. 356. ill. 45s. net. (*Recd.* 11/5/27.)

ROSS-MACKENZIE, JOHN. A standard manual of brewing and malting and laboratory companion : a practical guide to the art and science of brewing and malting, and to the physical and chemical evaluation of the materials employed. . . . Based on "A handy book for brewers," by H. E. WRIGHT. London 1927. pp. xxii + 412. ill. 45s. net. (*Recd.* 11/5/27.)

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, June 2nd, 1927, at 8 p.m.,
Professor H. BRERETON BAKER, C.B.E., LL.D., 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.
Wilfred Carpmael	June 15th, 1899.	May 31st, 1927.
James David Kettle	Dec. 6th, 1901.	May 20th, 1927.
Edalji Manekji Modi.....	Dec. 7th, 1905.	Sept. 13th, 1924.
William Carleton Williams ...	Feb. 19th, 1874.	May 25th, 1927.

W. H. Hatfield was formally admitted a Fellow of the Chemical
Society.

Certificates were read for the first time in favour of :

Stephen de Finály, Lónyay-u, 41, Budapest.

David Clarence Rhys Jones, B.Sc., 10, Berkeley Avenue, Levenshulme,
Manchester.

Robert Napier Kerr, B.Sc., Ph.D., 22, St. Bernard's Crescent, Edinburgh.

Cyril Dunn Lawrence, B.Sc., 46, Juer Street, Park Road, Battersea, S.W. 11.

Harry Pavion, 4, Brideoak Street, Cheetham, Manchester.

The following papers were read :

“The passivity of metals. Part I. The isolation of the protective
film.” By U. R. EVANS.

“Studies of valency. Part VIII. The molecular structure of
Vernon's dimethyltelluronium salts.” By T. M. LOWRY and
(MRS.) R. R. GOLDSTEIN.

“The factors controlling the formation of some derivatives of
quinoline, and a new aspect on the problem of substitution in
the quinoline series.” By E. ROBERTS and E. E. TURNER.

Ordinary Scientific Meeting, Thursday, June 16th, 1927, at 8 p.m.,
Professor H. BRERETON BAKER, C.B.E., LL.D., F.R.S., President,
in the Chair.

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

	Elected.	Died.
Edward Day Gravill	June 16th, 1887.	May 6th.
Harold McLean Read	May 4th, 1899.	April 23rd.
Gotfred Midgley Taylor	Dec. 7th, 1882.	June 11th.

The PRESIDENT announced that :

1. It had been decided to issue shortly, in separate form, the Faraday Lecture delivered by Prof. Richard Willstätter on May 18th. The price will be one shilling each, and application should be made to the Assistant Secretary.

2. The Annual Reports on the Progress of Chemistry for 1927, Volume XXIV, will be sold at 5s. 6d. post free to those Fellows who apply by *Christmas Day, 1927*.

3. It had been decided to issue the Abstracts "A" (Pure Chemistry) for 1928, printed on one side of the page only at the reduced price of £1 to Fellows who apply to the Assistant Secretary by *Christmas Day, 1927*. A remittance for £1 must accompany the application, and Fellows should state whether they wish to receive the Abstracts gummed, or ungummed. Further notice will be given.

The PRESIDENT then stated that he had the happy duty to perform of making a presentation to Mr. S. E. Carr, to mark the completion of his 25th year as Assistant Secretary. Before making the formal presentation, he asked Dr. Alexander Scott to make a few remarks.

Dr. Scott said that it gave him great pleasure to comply with the President's request, for he had held office for 24 out of the 25 years Mr. Carr had been Assistant Secretary—as Secretary from 1902 to 1904, as Treasurer from 1904 to 1915, and as President from 1915 to 1917—and no one could speak with greater knowledge and authority than he of the services rendered by Mr. Carr to the Society.

The announcement of Mr. Carr's appointment was made in the Annual Report of the Council for 1903 in the following simple words: "After careful consideration, the Council decided to separate the duties of Assistant Secretary from those of the Librarian and Curator, Mr. Steele retaining the latter, whilst Mr. S. E. Carr has been appointed Assistant Secretary." The Council never did an act more timorously, and no Council had ever made a wiser or more successful appointment.

He stated that it was found necessary to undertake a thorough revision of the entire business methods of the Society, and the brunt of this work had fallen upon Mr. Carr and himself, and only they could appreciate what this meant. At this early and trying stage of his career, Mr. Carr fully justified the selection of the Council and proved the value of his business training. Throughout all the

succeeding years and the consequent numerous changes in the Officers and in the personnel of the Committees, there has been only one opinion as to the wisdom of the appointment made 25 years ago. Mr. Carr has thrown his whole soul and energy into everything that he could do to promote the welfare of the Society, utterly regardless of the amount of work any new development might bring upon himself. He would say to those present and to all who know Mr. Carr personally that nothing could have given him greater pleasure and satisfaction than this opportunity of thus testifying to Mr. Carr's inestimable services to the Society.

The PRESIDENT, after expressing his appreciation of Mr. Carr's courtesy and of his devotion to his work, handed him two cheques, one from the Council and the other from Fellows, who had given in addition a "Grandmother" clock and an Album containing the signatures of the Honorary Fellows and the Fellows who had contributed.

Mr. Carr, in expressing his gratitude for the gifts, spoke of his great indebtedness to the Council, and to the Fellows of the Society who had contributed to the presentation. The Album would, he said, be particularly precious, as it would ever serve as a reminder of the intimate and happy associations he had always had with the Honorary Officers and with many of the Fellows. He deeply regretted that the Album did not contain the signatures of Sir William Tilden and Dr. Crossley, recalling that it was Sir William who offered him the appointment and who honoured him with his friendship. Mr. Carr stated how much pleasure it gave him to see present Prof. Thomson, for he was associated with him more than 30 years ago, and Dr. Scott, with whom he had worked for so many years; it was also a very happy coincidence that Dr. Forster should happen to be in London at this time. Again expressing his deep thanks to all those who had contributed to the presentation, Mr. Carr wished to thank especially warmly the Treasurer and those assisting him for the trouble they had so generously taken with regard to the presentation. The appreciation of his services manifested by the generous gifts would be an incentive to him to continue to carry on his work for the Society with enthusiasm and to the utmost of his ability.

Certificates were read for the first time in favour of :

Albert William Kemp Ingram, B.A., 261, High Street, Sheerness.

Arthur Hereward Millard, 8, Westhall Road, Park Lane, Bath.

William Alexander Hugh Oswald, B.A., White Knights, St. George's Hill, Weybridge.

Bijoor Sanjiva Rao, B.A., Indian Institute of Science, Bangalore, India.

Dr. H. Burgess and Mr. F. P. Dunn were elected Scrutators, and

a ballot for the election of Fellows was held. The following were subsequently declared elected as Fellows :

Otto Guido Backeberg, B.A., M.Sc., A.I.C.	Victor Scotthorn George. Robert Edwin Goldsbrough.
Leonard Bayley.	Albert de Bussy Goodman.
James Bell, jun., B.Sc., A.I.C.	Bhaba Nath Das Gupta, B.Sc., M.B.
William John Bissell.	Cecil Owen Harvey, B.Sc., A.R.C.S., A.I.C.
William Bleloch, B.Sc.	Genshiro Kurabayashi.
Donald Wm. Parker Boyd, M.A.	William Claude Lyle, B.Sc., A.I.C.
Leslie George Scott Brooker, B.Sc., Ph.D., A.I.C.	James Shankland Merry.
Francisco Miguel Camps-Campins, B.Sc.	Cecil Arthur Poulson.
William Ryle Clifford Curjel, B.A.	John Storrow Rumbold, B.Sc., A.I.C.
Frederick Arthur Filby, B.Sc.	Eugenie Sachs. Vaidyanatha Subrahmanyam, B.A.

The following papers were read :

- “Syntheses of cyclic compounds. Part I. Ethyl $\beta\gamma$ -dimethyl butane- $\alpha\alpha\delta\delta$ -tetracarboxylate and some *cyclobutane* compounds derived therefrom.” By I. VOGEL.
- “A new method of (absolute) potentiometric titration.” By B. CAVANAGH.
- “*Cis-trans*-isomerism of disulphoxides.” By E. V. BELL and G. M. BENNETT.
- “Decomposition of some halogenated sulphides, and the nature of the ‘polymeric’ ethylene sulphides.” By E. V. BELL, G. M. BENNETT, and A. L. HOCK.

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

	£	s.	d.
Study of ketones of the type $R_2C:CH\cdot CO\cdot C_2H_5$. (Miss) A. E. Abbott	10	0	0
Orienting influences of certain groups in benzene nuclei. A. W. Baldwin	5	0	0
Studies in aliphatic and cyclic sulphides (<i>contd.</i>). G. M. Bennett Effect of ring formation on substitution and on the reactivity of substituted groups. A. Brewin	10	0	0
Mechanism of isomeric change in aromatic compounds (<i>contd.</i>). A. W. Chapman	10	0	0
Determination of structure of certain sesquiterpene derivatives by synthesis. G. R. Clemo	15	0	0
Introduction of substituents into the azo benzene molecule. J. Dexter	5	0	0
Tautomerism of the ketones of the type <i>cyclohexanyl</i> acetone (<i>contd.</i>). A. H. Dickins	10	0	0
Synthetic experiments in the sugar group. H. D. K. Drew ...	10	0	0
Isolation of dvi-manganese from manganese-containing compounds (<i>contd.</i>). J. G. F. Druce	6	0	0

	£	s.	d.
$\alpha\beta$ -Dicyano esters of aliphatic acids. P. K. Dutt	15	0	0
Properties of conjugated compounds. Factors governing additive reactions. J. T. Evans	10	0	0
Syntheses of partially substituted glycerols and other compounds. A. Fairbourn	15	0	0
Equilibria between $\alpha\beta$ - and $\beta\gamma$ -unsaturated acids (<i>contd.</i>). A. A. Goldberg	10	0	0
Experiments in the isoquinoline series. R. D. Haworth	10	0	0
Studies in the monosaccharide group. E. L. Hirst	10	0	0
Oxidation of sugars and the preparation of reference compounds. D. I. Jones	5	0	0
Formation and nitration of <i>N</i> -substituted piperidines. R. J. W. Le Fèvre	5	0	0
Studies in polymerisation. C. W. Long	7	0	0
Condensation of aldehydes with glycine anhydride. P. G. Marshall and W. P. Dickinson	5	0	0
Synthesis of hexoses. S. Peat	5	0	0
Structure of simple sugars. J. H. G. Plant	5	0	0
Effect of the so-called "strainless" rings on the carbon tetrahedral angle (<i>contd.</i>). K. A. N. Rao	15	0	0
Structure of sparteine. R. Raper	10	0	0
Relative reactivities of halogens in alkyl halides. H. W. Rudd	3	0	0
Influence of groups and associated rings on the stability of certain ring systems (<i>contd.</i>). S. S. G. Sircar	12	10	0
Synthesis of cyclic compounds. I. Vogel	10	0	0
Mechanism of the oxidation of fatty acids by enzymes secreted by mould fungi. T. K. Walker	10	0	0
Spatial structure of cycloparaffins (<i>contd.</i>). W. A. Wightman	10	0	0
	£263	10	0

THE LIBRARY.

The Library will be closed for Stocktaking from Monday, August 1st, until Saturday, August 13th, 1927 (inclusive). During the following four weeks (August 15th to September 10th), the Library will close daily at 5 p.m.

LIST OF FELLOWS, 1927.

The List of Fellows for 1927 is now in active preparation, and will be supplied to those Fellows who make application to the Assistant Secretary by July 31st, 1927. In order that the new List may be as complete as possible, Fellows are invited to notify any change of address, or other alteration, before that date.

List of Papers, or Abstracts thereof, received between May 19th and June 16th, 1927. (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.)

- “Equilibrium diagram of the system thallium–phosphorous.” By Q. A. MANSURI.
- “On the condensation of cinnamic acid with resorcinol and pyrogallol.” By T. E. ELLISON.
- “The nature of the sintering of active copper catalysts.” By F. H. CONSTABLE.
- “The action of alkalis on clay.” By H. B. OAKLEY.
- “Strychnine and brucine. Part IV.” By G. R. CLEMO, W. H. PERKIN, and R. ROBINSON.
- “Strychnine and brucine. Part V.” By J. M. GULLAND, W. H. PERKIN, and R. ROBINSON.
- “Besson’s supposed phosphorus suboxide, P_2O .” By L. J. CHALK and J. R. PARTINGTON.
- “The electronic structure of atoms. Part I. The periodic classification.” By J. D. M. SMITH.
- “The oxidation of nitrophenylcyanoacetates. Part II.” By A. FAIRBOURNE and H. R. FAWSON.
- “Gold and mercury derivatives of 2-thiolglyoxalines. Mechanism of the oxidation of 2-thiolglyoxalines to glyoxalines.” By I. E. BALABAN and H. KING.
- “The preparation of 4-hydroxycoumarin derivatives.” By I. M. HEILBRON and D. W. HILL.
- “Styrylpyrylium salts. Part IX. Colour phenomena associated with benzonaphtha- and dinaphtha-*spiropyrans*.” By R. DICKINSON and I. M. HEILBRON.
- “The absorption spectrum of ergosterol, in relation to the photosynthetic formation of vitamin-*D*.” By R. A. MORTON, I. M. HEILBRON, and E. D. KAMM.
- “Organic compounds of arsenic. Part III. Orthotriphenylene diarsine.” By N. P. McCLELAND and J. B. WHITWORTH.
- “Chlorocamphoranilic acids and chlorophenyl camphorimides.” By M. SINGH and R. SINGH.
- “The isomeric hydroxybenzyl dimethylamines.” By E. STEDMAN.
- “A synthesis of rutaecarpine.” By Y. ASAHINA, R. H. F. MANSKE, and R. ROBINSON.
- “Methyl mercuric halides and hydroxide.” By L. E. HINKEL and T. H. ANGEL.
- “The oxidation of triacontane.” By F. FRANCIS and N. E. WOOD.
- “A new form of thermostat and observation tubes for polarimetric work.” By T. S. PATTERSON.
- “Molecular structure in solution. Part II. The refractive indices

- and surface tension of aqueous solutions of cobalt chloride and hydrochloric acid." By O. R. HOWELL.
- "A synthesis of safrole and *o*-safrole." By W. H. PERKIN and V. M. TRIKOJUS.
- "Acid and salt effects in catalysed reactions. Part X. The hydrolysis of ethyl acetate with acetic acid as catalyst." By H. M. DAWSON and W. LOWSON.
- "Experiments on the synthesis of anthocyanins. Part III." By A. ROBERTSON and R. ROBINSON.
- "The catalytic hydrogenation of different types of unsaturated compounds. Part II. The hydrogenation of conjugated systems." By S. V. LEBEDEV and A. O. YAKUBCHIK.
- "The systems $B_2O_3-SO_3-H_2O$ and $B_2O_3-P_2O_5-H_2O$." By M. LEVI and L. F. GILBERT.
- "Studies in the coumarin series. Part I. The action of the Grignard reagent upon substituted coumarins." By I. M. HEILBRON and D. W. HILL.
- "The intermolecular condensation of styryl methyl ketones. Part I." By R. DICKINSON, I. M. HEILBRON, and F. IRVING.
- "Reactions of sodium compounds of aromatic ketones. Part I. Synthesis of triarylcbinols and of triarylmethane dyes." By E. H. RODD and F. W. LINCHE.
- "Reactions of sodium compounds of aromatic ketones. Part II. Their reaction with methyl and methylene groups and their products of decomposition." By E. H. RODD and F. W. LINCHE.
- "Molecular volumes at absolute zero. Part I. Density as a function of temperature." By S. SUGDEN.
- "Molecular volumes at absolute zero. Part II. Zero volumes and chemical composition." By S. SUGDEN.
- "The action of hydrazines on semicarbazones. Part III." By W. BAIRD and F. J. WILSON.
- "Nitro-derivatives of the homopyrocatechol ethers." By A. E. OXFORD.
- "The thermal dissociation of carbonyl chloride." By H. INGLESON.
- "The isomerism of the oximes. Part XXXI. The furfuraldoximes and 2-methoxy- and 4-methoxy-1-naphthaldoximes." By O. L. BRADY and R. F. GOLDSTEIN.
- "Syntheses of glucosides. Part I. The synthesis of indican." By A. ROBERTSON.
-

ADDITIONS TO THE LIBRARY.

I. *Donations.*

ASKINSON, [GEORGE WILLIAM]. *Le manuel du parfumeur*. 4th French edition. By RENÉ SORNET. Paris 1927. pp. vi + 142. ill. 18 fr. (*Recd.* 15/6/27.)

From the Publishers: MM. Gauthier Villars et Cie.

BRENCHLEY, WINIFRED ELSIE. *Inorganic plant poisons and stimulants*. 2nd edition. Cambridge 1927. pp. x + 134. ill. 10s. 6d. net. (*Recd.* 30/5/27.)

From the Author.

CAVEN, ROBERT MARTIN. *Atoms and molecules: being Part I and Chapter XII of "The foundations of chemical theory."* London 1927. pp. viii + 142. ill. 7s. net. (*Recd.* 3/6/27.)

From the Publishers: Messrs. Blackie & Son.

MARTIN, ARTHUR JOHN. *The activated sludge process*. London 1927. pp. xiv + 416. ill. 30s. net. (*Recd.* 13/6/27.)

From the Author.

SAUNDERS, VIVIAN T. *The polarimeter: a lecture on the theory and practice of polarimetry*. London [1927]. pp. 30. ill. 1s. 6d. net. (*Recd.* 24/5/27.)

From the Publishers: Messrs. Adam Hilger.

STEVENS, HENRY POTTER. *The paper mill chemist*. 3rd edition. London 1926. pp. viii + 317. ill. 10s. 6d. net. (*Recd.* 24/5/27.)

From the Author.

THOMS, HERMANN. [Editor.] *Handbuch der praktischen und wissenschaftlichen Pharmazie*. Vol. VI. Part iv. Berlin 1927. pp. 721 to 960. M. 10. (*Recd.* 8/6/27.)

From the Publishers: Herren Urban & Schwarzenberg.

TWYMAN, FRANK. *Two lectures on the development and present position of chemical analysis by emission spectra*. London [1927]. pp. 43. ill. 2s. 6d. net. (*Recd.* 24/5/27.)

From the Publishers: Messrs. Adam Hilger.

[UNITED STATES] NATIONAL RESEARCH COUNCIL. *A survey of American chemistry*. Vol. I, July 1, 1925 to July 1, 1926. Edited by WILLIAM J. HALE in co-operation with CLARENCE JAY WEST. New York 1927. pp. 258. (*Reference.*)

From the Editors.

II. *By Purchase.*

BAUD, PAUL. *Chimie industrielle. La grande industrie chimique; les métalloïdes et leur composés; les métaux et leurs sels; industries organiques*. 2nd edition. Paris 1927. pp. xii + 1022. ill. 100 fr. (*Recd.* 17/6/27.)

BELL, SIR WILLIAM JAMES. *The Sale of Food and Drugs Acts*, . . . with notes and cases. 7th edition. By CHARLES F. LLOYD and

R. A. ROBINSON. London 1923. pp. xxvi + 374 + 54. 15s. net. (*Recd.* 21/5/27.)

BLASDALE, WALTER CHARLES. Equilibria in saturated salt solutions: a summary of the results of the study of the heterogeneous equilibria which exist in aqueous solutions of electrolytes. New York 1927. pp. 198. ill. 19s. net. (*Recd.* 16/5/27.)

DAMMER, BRUNO, and TIETZE, OSKAR. Die nutzbaren Mineralien mit Ausnahme der Erze und Kohlen. 2nd edition. Vol. I. Stuttgart 1927. pp. xx + 554. ill. *M.* 35-40. (*Recd.* 21/5/27.)

FOSTER, WILLIAM. The romance of chemistry. New York 1927. pp. xvi + 468. ill. 12s. 6d. net. (*Recd.* 8/6/27.)

FRÄNKEL, SIGMUND. Die Arzneimittel-Synthese. Auf Grundlage der Beziehungen zwischen chemischem Aufbau und Wirkung. 6th edition. Berlin 1927. pp. vii + 935. *M.* 93. (*Recd.* 2/6/27.)

GOTTLOB, [KURT]. Technology of rubber. Translated from the German edition of 1925 by JOSEPH L. ROSENBAUM. London 1927. pp. xvi + 350. ill. 42s. net. (*Recd.* 18/5/27.)

HAAS, ARTHUR. Atomic theory: an elementary exposition. Translated by TERENCE VERSCHOYLE. London 1927. pp. xiv + 222. ill. 10s. 6d. net. (*Recd.* 18/5/27.)

HABER, FRITZ. Aus Leben und Beruf: Aufsätze, Reden, Vorträge. Berlin 1927. pp. vii + 173. ill. *M.* 5-70. (*Recd.* 2/6/27.)

HALL, ARCHIBALD JOHN. Textile bleaching, dyeing, printing and finishing machinery. London 1926. pp. 320. ill. 50s. net. (*Recd.* 16/5/27.)

HERZOG, REGINALD OLIVER. [Editor.] Chemische Technologie der organischen Verbindungen. 2nd edition. Heidelberg 1927. pp. xii + 997. ill. *M.* 70. (*Recd.* 21/5/27.)

HEVESY, GEORG VON. Die seltenen Erden vom Standpunkte des Atombaues. (Struktur der Materie in Einzeldarstellungen.) Berlin 1927. pp. vii + 140. ill. *M.* 10-20. (*Recd.* 2/6/27.)

HÜCKEL, WALTER. Katalyse mit kolloiden Metallen. (Kolloidforschung in Einzeldarstellungen.) Leipzig 1927. pp. viii + 86. ill. *M.* 6. (*Recd.* 18/5/27.)

HUND, FRIEDRICH. Linienspektren und periodisches System der Elemente. (Struktur der Materie in Einzeldarstellungen.) Berlin 1927. pp. vi + 221. ill. *M.* 16-20. (*Recd.* 2/6/27.)

KOLTHOFF, I. M. Konduktometrische Titrationsen. Dresden 1923. pp. vii + 94. ill. *M.* 2-75. (*Recd.* 25/5/27.)

MEYER, STEFAN, and SCHWEIDLER, EGON. Radioaktivität. 2nd edition. Leipzig 1927. pp. x + 722. ill. *M.* 36. (*Recd.* 25/5/27.)

MÖBIUS, MARTIN. Die Farbstoffe der Pflanzen. Berlin 1927. pp. vii + 200. ill. *M.* 14-50. (*Recd.* 21/5/27.)

MOOKERJI, BHUDEB. *Rasa-jala-nidhi*, or, Ocean of Indian chemistry and alchemy. Vol. I. Compiled in Sanskrit with English translation. Calcutta [1926]. pp. xxiv + 350 + vi. 15s. net. (*Recd.* 18/5/27.)

PULLIN, V. E., and WILTSHIRE, W. J. X-rays past and present. London 1927. pp. 230. ill. 12s. 6d. net. (*Recd.* 18/5/27.)

SMITH, EDGAR FAHS. Old chemistries. New York 1927. pp. xii + 90. ill. 12s. 6d. net. (*Recd.* 9/6/27.)

STRACHE, HUGO, and ULMANN, HEINRICH. *Leitfaden der Technologie der Brennstoffe*. Leipzig 1927. pp. x + 471. ill. M. 24-40. (*Recd.* 8/6/27.)

THAYSEN, AAGE CHRISTIAN and BUNKER, HENRY JAMES. The microbiology of cellulose, hemicelluloses, pectin and gums. London 1927. pp. viii + 364. ill. 25s. net. (*Recd.* 11/5/27.)

TOLMAN, RICHARD C. Statistical mechanics with applications to physics and chemistry. New York 1927. pp. 334. 29s. 6d. (*Recd.* 13/6/27.)

WORLD POWER CONFERENCE. Transactions of the Basle Sectional meeting 1926. 2 vols. Basel [1927]. pp. xxxii + 1258, xxiv + 1538. ill. (*Reference.*) £5 net.

III. Pamphlets.

BARTON, FRANCIS RICKMAN. Nickel coinage. London [1926]. pp. iv + 50. ill.

BUTLER, JOE B. Descriptive bibliography on oil and fluid flow and heat transfer in pipes. (From *Bull. Univ. Missouri School of Mines and Metallurgy, Tech. Series*, 1926, 9.)

CARPENTER, HENRY CORT HAROLD. Methods of growing large metal crystals : being the fourth Sorby Lecture, delivered on Friday, October 22nd, 1926. [Sheffield 1927.] pp. 31. ill.

COWARD, HUBERT FRANK [and others]. The explosibility of methane and natural gas. (Bulletin 30, Mining and Metallurgical Investigations.) Pittsburgh 1926. pp. viii + 42. ill.

ELWORTHY, R. T. Helium in Canada. (Canada, Department of Mines. Mines Branch No. 679.) Ottawa 1926. pp. iv + 64. ill.

HANCOCK, GEORGE CHARLES. A report on the occurrence of glass fragments in foods packed in glass containers. (*Ministry of Health Reports on Public Health and Medical Subjects*, No. 37.) London 1927. pp. iv + 36. ill.

— Report on an outbreak of illness at Poplar suspected to be due to local pollution of the water supply. (*Ministry of Health Reports on Public Health and Medical Subjects*, No. 41.) London 1927. pp. iv + 27. ill.

LASAREFF, P. Untersuchungen über die Ionentheorie der Reizung. Parts V-X. (From *Pflügers Archiv. f. d. ges. Physiol.* 1922—26, 197—214.)

MINES DEPARTMENT. *Safety in Mines Research Board*. Paper No. 33. The inflammation of coal dusts : the effect of the chemical composition of the dust. By T. N. MASON and RICHARD VERNON WHEELER. London 1927. pp. 20.

— — Paper No. 34. Safety in mines research station, Buxton. A description. London 1927. pp. 45. ill.

MINISTRY OF HEALTH. Report of the Departmental Committee on the treatment of flour with chemical substances. London 1927. pp. 24.

MONIER-WILLIAMS, GORDON WICKHAM. The determination of benzoic acid in foodstuffs. (*Ministry of Health Reports on Public Health and Medical Subjects*, No. 39.) London 1927. pp. iv + 57. ill.

— The determination of sulphur dioxide in foods. (*Ministry of Health Reports on Public Health and Medical Subjects*, No. 43.) London 1927. pp. vi + 56. ill.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN. Pharmacological Laboratories. First annual report, 1926. London [1927]. pp. 7.

ROTHAMSTED CONFERENCES. I. The growing of lucerne. Report of a conference held at Rothamsted on January 27th, 1926. London 1926. pp. 32.

— II. The culture and manuring of fodder crops. Report of a conference held at Rothamsted on March 30th, 1926. London 1926. pp. 40.

— III. Green manuring, its possibilities and limitations in practice. Report of a conference held at Rothamsted on December 10th, 1926. London 1927. pp. 39.

— IV. The culture and manuring of sugar-beet. Report of a conference held at Rothamsted on January 19th, 1927. London 1927. pp. 56.

RUSSELL, SIR EDWARD JOHN [and others]. The manuring of potatoes. (From the *J. Ministry Agric.*, 1926, 32.)

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. Co-operative industrial research : an account of the work of research associations under the Government scheme. London 1927. pp. viii + 46. ill.

— Report of the Stone Preservation Committee. London 1927. pp. iv + 33. ill.

— *Building Research*. Special Report No. 9. Limes and lime mortars. By ALFRED DENYS COWPER. London 1927. pp. vi + 81. ill.

SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. *Engineering Research*. Special Report No. 1. Properties of materials at high temperatures. I. Mechanical properties of Armco Iron, 0.17 per cent. carbon steel, and 0.24 per cent. carbon steel, with special reference to creep. By H. J. TAPSELL and W. J. CLENSHAW. London 1927. pp. viii + 60.

— *Food Investigation*. Special Report No. 30. Gas storage of fruit: the use of artificial atmospheres of regulated composition . . . for the purpose of preserving fresh fruit during overseas transport or in land stores. By FRANKLIN KIDD, CYRIL WEST, and M. N. KIDD. London 1927. pp. viii + 85. ill.

— *Fuel Research*. Technical Paper No. 16. The primary decomposition of coal. 1. The temperature of initial decomposition. By JAMES GRIEVE KING and ROBERT ERNEST WILLGESS. London 1927. pp. vi + 19. ill.

TATTERSFIELD, FREDERICK, GIMINGHAM, CONRAD THEODORE, and MORRIS, H. M. Studies on contact insecticides. Parts I to IV. (From the *Ann. Applied Biol.*, 1925–26, 12–13.)

UNION INTERNATIONALE DE LA CHIMIE PURE ET APPLIQUÉE. Rapport du Comité de Travail de Réforme de la Nomenclature de Chimie Minérale. Paris 1926. pp. 20.

WANDER, GEORG. Über das "Hesperidin" einiger Pflanzen. Bern 1925. pp. iv + 72 + 8 plates.

[WAR OFFICE.] *Research Department, Woolwich*. R.D. Report No. 67. The influence of molybdenum on medium carbon steels containing nickel and chromium. [By J. A. JONES.] London 1927. pp. 59. ill.

WEIDERPASS, N., and KOGERMAN, P. Über die Anwendbarkeit der Brennschieferöl-Phenolate zur Holzkonservierung. (From the *Sitz. Nat.-Ges. Univ. Tartu*, 1926, 33.)

WELCH, MARCUS BALDWIN, and COOMBS, FRANK ANDREW. The principal tanning materials of Australia, and their leather forming properties. (*Sydney Technological Museum Bulletin*, No. 10.) 1926. pp. 20 + 7 plates.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, October 20th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

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

	Elected.	Died.
Svante August Arrhenius (Honorary Fellow)	Jan. 20th, 1898.	Oct. 2nd, 1927.
George H. Bostock	June 16th, 1881.	August 1st, 1927.
Benjamin A. Burrell	May 4th, 1882.	July 6th, 1927.
Madanlal J. Gajjar	June 20th, 1912.	July 25th, 1926.
Cuthbert C. Gibbes	Feb. 6th, 1890.	August 25th, 1927.
Alfred J. Gregory	June 18th, 1891.	July 14th, 1927.
Archibald Liversidge	Nov. 7th, 1872.	Sept. 26th, 1927.
Wallace C. Nickels	Dec. 5th, 1889.	July 5th, 1927.
Henry R. Procter	June 15th, 1871.	August 17th, 1927.
Stanley E. Pusey	Feb. 17th, 1927.	May 23rd, 1927.
John T. Sheard	June 16th, 1887.	July 20th, 1927.
Herbert Trewby	March 15th, 1888.	Oct. 19th, 1926.

and stated that the following resolution had been passed by the Council at its Meeting held that afternoon :

The Council desires to express its deep sorrow at the death of Svante August Arrhenius, who had been a distinguished Honorary Fellow of the Society for nearly twenty years.

The Council records its sense of the irreparable loss the Science of Chemistry has sustained throughout the world, and offers to Madame Arrhenius its warmest sympathy in her bereavement.

It was announced that :

1. Sir Joseph J. Thomson, O.M., F.R.S., Master of Trinity College, Cambridge, had been proposed by the Council as an Honorary Fellow of the Society, and that a ballot for his election would be held at the next Ordinary Scientific Meeting on November 3rd.

2. The Jubilee Dinner of the Institute of Chemistry would be held on Thursday, December 15th, and the Council had decided to abandon the Ordinary Scientific Meeting arranged for that evening.

3. The following address had been sealed and would be presented on the occasion of the Marcelin Berthelot Centenary Celebrations to be held in Paris, October 23rd to 26th, 1927, and that the Society would be represented by the President, Professor H. Brereton Baker, Mr. A. Chaston Chapman, and Professor C. S. Gibson :—

The Chemical Society
to
Le Comité Marcelin Berthelot.

On the occasion of the celebration of the Centenary of the birth of Marcelin Berthelot, we, the President, Council, and Fellows of the Chemical Society, desire to join with you, his countrymen, in paying homage to the memory of the man whose name stands as a symbol for the lifelong pursuit of knowledge in the cause of truth and of civilisation.

In Berthelot we honour the man who first explained the ethereal salts and showed the rôle of Glycerin as a " triatomic " alcohol; who proved that chemical actions might proceed both directly and inversely until an equilibrium was reached; who laboured for years at thermo-chemistry to build up our science on the sure foundation of mechanical laws; who startled us by the explosion-wave; who charmed us with the origins of Alchemy.

But above all we are indebted to Berthelot as the man who first opened to us a new world of Synthetic Organic Chemistry. We are proud to remember that in 1860 our Society honoured itself and him by electing him an Honorary Fellow, and that we possess in our Journal the record of that brilliant experimental lecture in which he showed us how to " forge the first links of the extended chain of organic compounds by methods belonging purely to mineral chemistry."

We look back on Berthelot as one of the great pioneers of Science. In all his explorations he ever sought for the origins of things; he never rested until he discovered the principles underlying the chemical changes he studied.

We of a younger generation who follow his footsteps recognise the master-mind in all his researches; we deeply feel the inspiration of his genius.

Signed on behalf of the Chemical Society,

H. B. BAKER, *President.*
JOCELYN THORPE, *Treasurer.*
T. SLATER PRICE, } *Secretaries.*
C. S. GIBSON, }
F. G. DONNAN, *Foreign Secretary.*

L.S.

Sealed in Council this Seventh Day of July, One Thousand Nine Hundred and Twenty-seven.

The following were formally admitted Fellows of the Chemical Society : L. Bayley, F. A. Filby, F. G. Soper, R. P. Linstead, W. A. Berry, L. H. N. Cooper, G. C. L. Griffin, G. H. Locket.

Certificates were read for the first time in favour of :

- Stanley Birks, B.A., The Limes, High View Avenue, Grays.
 George Edward Kevin Blythe, B.Sc., Ph.D., 20, Pantygywydr Road, Uplands, Swansea.
 Charles Nightingale Clay, B.Sc., A.I.C., 81, Cromwell Road, S.W. 7.
 Philip Dalton Coppock, B.Sc., M.Sc.Tech., 50, Albany Road, Victoria Park, Manchester.
 Benjamin John Corder, Rev., B.A., The Rectory, Radnage, High Wycombe.
 Herbert England, 22, Queens Road, Harrogate.
 Robert Railton Fitzgerald, 68, Bath Row, Birmingham.
 Horace Leonard Gerry, Lyndale, Queen's Park, Chester.
 Thomas Joseph Glover, M.Sc., Ph.D., 40, Curzon Street, South Circular Road, Dublin.
 Mariam Puthenparampil Gommen, B.A., 59, Tregunter Road, West Brompton, S.W. 10.
 Charles Robert Harington, M.A., Ph.D., 2, The Greenway, Gerrard's Cross.
 Edgar Albert Hayman, 100, Doyle Gardens, Harlesden, N.W. 10.
 Herbert Richard Hussey, 31, Thornbury Avenue, Southampton.
 John William Thomas Jones, A.R.C.S., 112, Gaskarth Road, S.W. 12.
 Reginald Benjamin King, B.Sc., 52, Mostyn Road, Merton Park, S.W. 19.
 Zenjiro Kitasato, D.Sc., Chemical Department, The University, Manchester.
 Frederic Goronwy Kny-Jones, B.Sc., 1, Linley Road, Bruce Grove, N. 17.
 John McBride, Uzina Sinimbri, São Miguel de Campos, Alagôas, Brazil.
 James Younger Macdonald, B.A., 17, Learmonth Gardens, Edinburgh.
 James Eric McNeil, B.Sc., Claremont, Lake Road East, Cardiff.
 David Owen Meredith, P.O. Box AA-B, Hobart, Tasmania.
 Shinzo Murakami, Chemical Department, The University, Manchester.
 Ryuzaburo Nodzu, D.Sc., Chemical Department, The University, Manchester.
 Gordon Perrins, The Royal Infirmary, Edinburgh.
 Mata Prasad, D.Sc., Royal Institute of Science, Bombay.
 Walter Desmond Raymond, B.Sc., Chemical Laboratory, Baghdad.
 Albert Ernest Robinson, 14, Brentwood Terrace, Armley, Leeds.
 William Dallas Scott, A.R.C.S., Eldercroft, Cassio Road, Watford.
 Ian Campbell Somerville, B.Sc., Ph.D., 319, Ryers Avenue, Cheltenham, Pa., U.S.A.
 Robert Walton, The Mill House, Langford, Maldon, Essex.

Certificates have been authorised by the Council for presentation to ballot under Bye-Law I (2) :

- Paul Nicholas Leech, A.B., Sc.M., Ph.D., 1513, Asbury Avenue, Winnetka, Ill., U.S.A.
 Otto Ruff, Dr.Phil., Dr.Ing., Borsigstrasse 23, Breslau, Germany.

The following papers were read :

- “Studies of dynamic isomerism. Part XXIV. Neutral salt action in mutarotation.” By T. M. LOWRY and G. F. SMITH.
- “Studies of dynamic isomerism. Part XXV. The mechanism of catalysis by acids and bases.” By T. M. LOWRY.
- “10-Chloro-5:10-dihydrophenarsazine and its derivatives. Part V. The general method of synthesis and determination of constitution.” By C. S. GIBSON and J. D. A. JOHNSON.
- “On active nitrogen. Part IV. The independence of the afterglow and chemical properties of active nitrogen.” By E. J. B. WILLEY.

LECTURE.

Professor W. A. Bone's lecture entitled “Gaseous Combustion at High Pressures” will be delivered in the Rooms of the Society on Thursday, November 24th, 1927, at 8 p.m.

Owing to limited accommodation only Fellows will be admitted.

ANNUAL REPORTS.

The price of the Annual Reports for 1927, Volume XXIV, will be 5s. 6d. to those Fellows who apply by Christmas Day, 1927. Application should be made to the Assistant Secretary, and must be accompanied by a remittance.

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 Thursday, December 1st, 1927. Applications from Fellows will receive prior consideration.

All persons who received Grants in December, 1926, or in December of any previous year, whose accounts have not been closed by the Council, are reminded that Reports must be returned by December 1st.

ERRATUM.

Proceedings 1927, p. 70, line 8 from bottom, *for* “timorously” *read* “timeously.”

List of Papers, or Abstracts thereof, received between June 16th and October 20th, 1927. (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.)

- “Bis-semidine inversion in aromatic dihydrazo-compounds.” By P. C. GUHA and H. K. BANERJEE.
- “The composition of bleaching powder. Part I.” By E. A. O’CONNOR.
- “A contribution to the stereochemistry of tervalent nitrogen.” By J. G. JACKSON and J. KENNER.
- “The influence of alkalis on the coagulation of silica and clay suspensions.” By H. B. OAKLEY.
- “The absorption spectra of various alkaloids and their salicylates and of other derivatives of salicylic acid.” By J. E. PURVIS.
- “The halogenation of *p*-hydroxydiphenylamine. Part II.” By A. E. BRADFIELD, L. H. N. COOPER, and K. J. P. ORTON.
- “The chemistry of the glutaconic acids. Part XXII. Synthesis of Δ^2 -tetrahydroisophthalic acid.” By W. M. DUFFIN, E. H. FARMER, and H. L. RICHARDSON.
- “The active agent in aqueous bromination.” By A. W. FRANCIS.
- “A study of the anomalous rotatory dispersion of configuratively related compounds.” By C. E. WOOD and S. D. NICHOLAS.
- “Anomalous rotatory dispersion from the standpoint of the Drude equation.” By C. E. WOOD and S. D. NICHOLAS.
- “Rotatory dispersion. Intersections of dispersion curves and of temperature rotation curves.” By C. E. WOOD and S. D. NICHOLAS.
- “The rotatory dispersion of optically active co-ordination compounds.” By C. E. WOOD and S. D. NICHOLAS.
- “Some molecular compounds of copper and nickel salicylates.” By W. E. HAMER.
- “A comparison of the reaction of chromyl chloride with various substituted toluenes.” By J. B. SHOESMITH, R. J. CONNOR, and A. C. HETHERINGTON.
- “Varying valency of platinum with respect to mercaptanic radicals. Part V. Tervalency and quinquevalency of platinum.” By P. C. RAY.
- “Beryllium dialkyls.” By H. GILMAN and F. SCHULZE.
- “Hydration of cyclic compounds under pressure in presence of osmium and other catalysing agents (catalysers).” By V. S. SADIKOV and A. K. MIKHAILOV.
- “The critical temperature of boron trichloride and silicon tetrachloride.” By T. W. PARKER and P. L. ROBINSON.
- “Organic derivatives of silicon. Part XXXIII. An amorphous variety of octaphenylcyclosilicotetrane.” By F. S. KIPPING.
- “Organic derivatives of silicon. Part XXXIV. The action of sodium on diphenylphenoxysiliclyl chloride.” By F. S. KIPPING.
- “Organic derivatives of silicon. Part XXXV. The preparation of diphenylsilicon dichloride : Grignard ether and its action on silicon tetrachloride.” By F. S. KIPPING and A. G. MURRAY.
- “The dichromate reaction as a method for the quantitative estimation of certain aliphatic and aromatic substances.” By H. ARK.
- “An examination of a method of estimating the iron and sulphur in compounds of these elements.” By P. L. ROBINSON, L. A. SAYCE, and J. STEVENSON.
- “The reaction between monohydrated ferric oxide and hydrogen sulphide at 100°.” By T. G. PEARSON and P. L. ROBINSON.
- “A simple form of automatic syphon.” By D. C. HARRISON.

- “The hydrolysis of solutions of sodium palmitate as measured by extraction with *p*-xylene.” By J. W. McBAIN and R. BUCKINGHAM.
- “The effect of electrolytes upon the viscosity of solutions of sodium palmitate.” By J. W. McBAIN, H. J. WILLAVOYS, and H. HEIGHINGTON.
- “On a new series of double sulphates of the copper-magnesium group and the sulphonium bases. Part II.” By P. C. RAY and N. RAY.
- “The action of potassium cyanide upon chloral.” By F. D. CHATTAWAY.
- “The condensation of *o*-aminothiophenol with $\alpha\beta$ -unsaturated acids.” By W. H. MILLS and J. B. WHITWORTH.
- “The interaction of chloral and aryl hydrazines.” By F. D. CHATTAWAY and R. BENNETT.
- “The alkylation of α -cyano- β -alkylacrylic esters and of α -phenyl- β -alkylacrylic nitriles.” By J. A. McRAE and R. H. F. MANSKE.
- “Substitution products of 3-nitro- and 3-amino-diphenyl.” By W. BLAKEY and H. A. SCARBOROUGH.
- “The complex salts of nickel with various aliphatic diamines.” By F. G. MANN.
- “Substitution products of 4-hydroxybenzophenone and of its methyl ether.” By W. BLAKEY, W. I. JONES, and H. A. SCARBOROUGH.
- “Molecular structure in solution. Part III. The electrical conductivities of aqueous solutions of cobalt chloride and hydrochloric acid.” By O. R. HOWELL.
- “The electroendosmosis of aqueous solutions through glass diaphragms.” By H. C. HEPBURN.
- “The orienting influence of free and bound ionic charges on attached simple or conjugated unsaturated systems. Part II. The nitration of 1-benzylpiperidine and of some related substances.” By A. POLLARD and R. ROBINSON.
- “Aromatic thionyl and chlorothionyl derivatives. Part III. Some reactions of thionylalizarin.” By A. GREEN.
- “On the conjugated trialkyl sulphonium double sulphates of the copper-magnesium group.” By P. C. RAY and N. N. RAY.
- “Substituted diaryl ethers. Part II. The Friedel and Crafts reaction applied to di-*p*-tolyl ether.” By J. REILLY and P. J. DRUMM.
- “The union of benzoylacetonitrile with organic bases in the presence of salicylaldehyde. Part II.” By P. KRISHNAMURTI.
- “A note on the thermal dissociation of strontium carbonate.” By E. O. JONES and M. L. BECKER.
- “Halogenation of phenols. Part II. Iodination.” By F. G. SOPER and G. F. SMITH.
- “The orienting influence of free and bound ionic charges on attached simple or conjugated unsaturated systems. Part III. The nitration of benzyl-*m*-nitrophenylsulphone.” By B. CHATTERJEE and R. ROBINSON.
- “The orienting influence of free and bound ionic charges on attached simple or conjugated unsaturated systems. Part IV. The nitration of ω -toluenesulphonic acid and of ω -toluenesulphonyl chloride.” By A. C. BOTTOMLEY and R. ROBINSON.
- “7-Hydroxy-3-phenylcoumarin.” By W. BAKER.
- “The activity theory of reaction velocity. The interaction of *N*-chloroacetanilide and hydrochloric acid.” By F. G. SOPER and D. R. PRYDE.
- “The isomerism of the oximes. Part XXXII. Hydrosulphates.” By O. L. BRADY and A. D. WHITEHEAD.
- “A new synthesis of hydrastic acid.” By T. S. STEVENS and M. C. ROBERTSON.

- “The preparation of triacetonamine-hydrate.” By F. FRANCIS.
- “The condensation of certain β -ketonic esters with *o*-hydroxymonostyryl ketones.” By R. HILL.
- “Studies in the sterol group. Part I. The effect of heat on cholesterol and the structure of cholesterolene.” By I. M. HEILBRON and W. A. SEXTON.
- “Studies in the sterol group. Part II. The absorption spectra of some cholesterol derivatives.” By I. M. HEILBRON, R. A. MORTON, and W. A. SEXTON.
- “A simple method of finding the true shape and dimensions of a gas molecule at normal temperature and pressure.” By A. SKINNER.
- “The reactions between oxygen and coal.” By W. FRANCIS and R. V. WHEELER.
- “A note on Pregl’s universal filling applied to combustions on a macro-scale.” By W. DAVIES.
- “A comparison of the activating effect of the nitro, sulphonic acid, and carboxylic acid groups.” By W. DAVIES and E. S. WOOD.
- “The formation of organic periodic structures.” By M. COPISAROW.
- “An X-ray examination of saturated dicarboxylic acids and amides of the fatty acid series.” By E. HENDERSON.
- “A general method for the preparation of carbocyanine dyes.” By F. M. HAMER.
- “The chemical nature of precipitated basic cupric carbonate.” By J. R. I. HEPBURN.
- “Investigations on the reactivity of halogens in various types of naphthalene derivatives. Part I.” By J. B. SHOESMITH and H. RUBLI.
- “The sulphonation of glyoxalines. Part III.” By G. R. BARNES and F. L. PYMAN.
- “Quaternary salts in the benzoselenazole series.” By L. M. CLARK.
- “A double compound of chromic and hydrogen chlorides.” By J. R. PARTINGTON and S. K. TWEEDY.
- “The viscosities of chromic anhydride solutions.” By J. R. PARTINGTON and S. K. TWEEDY.
- “Some effects of the distribution of current density over an electrode.” By E. S. HEDGES.
- “Properties of conjugated compounds. Part III. The bearing of hexatriene chemistry on the reactive form of conjugated hydrocarbons.” By E. H. FARMER, B. D. LAROLA, T. M. SWITZ, and J. F. THORPE.
- “The dimorphism of 2-chloro-4-acetamidotoluene.” By M. SCHOFIELD.
- “Investigations on the reactivity of halogens in various types of naphthalene derivatives. Part II.” By J. B. SHOESMITH and H. RUBLI.
- “The mechanism of the formation of citric and oxalic acids from sugars by *Aspergillus niger*.” By T. K. WALKER, V. SUBRAMANIAM, and F. CHALLENGER.
- “The acetylation of cellulose.” By H. J. P. VENN.
- “Reduction of nitrites, nitrates, and nitric acid with magnesium amalgam—a new method of preparing hyponitrites and preparation of some new hyponitrites.” By P. NEOGI and B. L. NANDI.
- “The Reimer-Tiemann reaction with *m*-bromo- and *m*-iodo-phenol.” By H. H. HODGSON and T. A. JENKINSON.
- “The action of tolylhydrazines upon dihydroxytartaric acid.” By F. D. CHATAWAY and W. G. HUMPHREY.
- “Syntheses in the indole series. Part II. 5:6-Benzo-4-carboline and its derivatives.” By W. O. KERMAK and R. H. SLATER.

- “A new stereoisomeride (*trans*-) of hexahydrocarbazole.” By J. GURNEY, W. H. PERKIN, and S. G. P. PLANT.
- “A physico-chemical study of lactones derived from simple sugars.” By S. R. CARTER, W. N. HAWORTH, and R. A. ROBINSON.
- “The constitution of the disaccharides. Part XVI. Cellobiose.” By W. N. HAWORTH, C. W. LONG, and J. H. G. PLANT.
- “Equilibrium in the system $\text{CuSO}_4\text{-Na}_2\text{SO}_4\text{-H}_2\text{O}$ at 0° , 25° , and 37.5° . A correction.” By R. M. CAVEN and W. JOHNSTON.
- “The complex cyanides of molybdenum.” By W. R. BUCKNALL and W. WARDLAW.
- “The parachor and chemical constitution. Part VI. Some cases of supposed ring-chain tautomerism.” By F. B. GARNER and S. SUGDEN.
- “The polymerides of some diaryl- ψ -thiohydantoin and of some 2 : 4-diaryl-tetrahydro-1 : 2 : 4-thiodiazole derivatives.” By R. F. HUNTER and H. MORLAND.
- “Studies of valency. Part VIII. Extinction coefficients and molecular conductivities of Vernon’s isomeric α - and β -dimethyltelluronium salts. The molecular structure of quadrivalent tellurium compounds.” By T. M. LOWRY, R. R. GOLDSTEIN, and F. L. GILBERT.
- “The isomerism of the oximes. Part XXXIII. The oximes of opianic acid and of phthalic anhydride.” By O. L. BRADY, L. C. BAKER, R. F. GOLDSTEIN, and S. HARRIS.
- “The colouring matters of Carajura.” By E. CHAPMAN, A. G. PERKIN, and R. ROBINSON.
- “Trypanocidal action and chemical constitution. Part VII. *s*-Carbamides and arylamines of naphthylamine di- and tri-sulphonic acids with some observations on the mesomorphic state.” By I. E. BALABAN and H. KING.
- “The preparation of mono- and di-nitro-derivatives of benzil.” By F. D. CHATTAWAY and E. A. COULSON.
- “Studies in colour and constitution. Part II. Further group influences on the colours of azo-dyes.” By H. H. HODGSON and F. W. HANDLEY.

ADDITIONS TO THE LIBRARY.

I. *Donations.*

(a) *From Lady Ramsay.*

ARRHENIUS, SVANTE. *Theorien der Chemie*. Translated by ALEXIS FINKELSTEIN. Leipzig 1906. pp. vii + 177. ill.

— *Das Werden der Welten*. Translated by L. BAMBERGER. Leipzig 1907. pp. vi + 208. ill.

LE CHATELIER, HENRY. *La silice et les silicates*. Paris 1914. pp. iv + 574. ill.

MENDELÉEFF, DMITRI [IVANOVICH]. *Grundlagen der Chemie*. Translated by L. JAWEIN and A. THILLOT. St. Petersburg 1891. pp. iv + 1126. ill.

MOISSAN, HENRI. *Recherches sur l'isolment du fluor*. Paris 1887.

— *Le four électrique*. Paris 1897. pp. viii + 386. ill.

RIGHI, AUGUSTO. La moderna teoria dei fenomeni fisici (radio-attività, ioni, elettroni). 3rd edition. Bologna 1907. pp. xii + 290. ill.

(b) *From Mr. Arnold Stevenson.*

CLIFTON, E., and GRIMAUX, A. Nouveau dictionnaire Anglais-Français et Français-Anglais. New edition. By J. McLAUGHLIN. Paris [1914]—1923. pp. xxiv + 1237, xviii + 1341. (*Reference.*)

HOARE, ALFRED. An Italian dictionary. Cambridge 1925. pp. xxxii + 906. (*Reference.*)

KRAMERS' Engelsch woordenboek : Engelsch-Nederlandsch en Nederlandsch-Engelsch. 10th edition. By F. P. H. PRICK VAN WELY. Gouda 1926. pp. viii + 1260. ill. (*Reference.*)

ROSHDESTVENSKY, A. P., and SHAPIRO, A. M. Hill's modern pronouncing dictionary of the English and Russian languages. 2 vols. London 1919. pp. vi + 532, viii + 682. (*Reference.*)

(c) *Miscellaneous.*

ABDERHALDEN, EMIL. Handbuch der biologischen Arbeitsmethoden. Abt. I. Chemische Methoden, Teil 2, 1 Hälfte, Hefte iii and iv. Berlin 1927. pp. 643 to 1138. *M.* 28. (*Recd.* 9/9/27.)

—— ——— Teil 3, 1 Hälfte, Heft ii. Berlin 1927. pp. 457 to 642. *M.* 10. (*Recd.* 6/8/27.)

—— ——— Abt. XI. Chemische, physikalische und physikalisch-chemische Methoden zur Untersuchung des Bodens und der Pflanze, Teil 3, Heft vi. Berlin 1927. pp. 865 to 997. *M.* 7. (*Recd.* 13/10/27.)

From the Publishers : Herren Urban & Schwarzenberg.

ARNALL, FRANCIS, and HODGES, FRANCIS WILLIAM. Theoretical organic chemistry. Part II. London 1927. pp. x + 330. ill. 10s. 6d. net. (*Recd.* 31/8/27.)

From the Authors.

BÖHM, E., and DIETRICH, K. R. Reagenzien und Nährböden. Eine Zusammenstellung der wichtigsten und zweckmässigsten Vorschriften für die Laboratoriumspraxis. Berlin 1927. pp. vii + 375. (*Reference.*) *M.* 18.

From the Publishers : Herren Urban & Schwarzenberg.

CAVEN, ROBERT MARTIN. The foundations of chemical theory. 2nd edition. London 1926. pp. xii + 320. ill. 12s. 6d. net. (*Recd.* 15/8/27.)

From the Author.

HANDBUCH DER ANORGANISCHEN CHEMIE. Edited by RICHARD ABEGG, FRIEDRICH AUERBACH, and IWAN KOPPEL. Vol. IV. Part 1. i. pp. xii + 966. ill. (*Reference.*) *M.* 60.

From the Publisher : Herr S. Hirzel.

INSTITUTION OF PETROLEUM TECHNOLOGISTS. Journal. Decen-

nial index, Vols. I-X, 1914-1924. London 1926. pp. 116.
(Reference.) 7s. 6d. net. From the Institution.

JUGOSLOVENSКОG HEMIJSКОG DRUŠTVA. *Sekcije Zagreb*. Arhiv
za Hemiju i Farmaciju. Vol. I, etc. Zagreb 1927 +. (Reference.)
From the Society.

KAUSCH, OSCAR. Das Kieselsäuregel und die Bleicherden.
Berlin 1927. pp. iv + 292. ill. M. 29. (Recd. 15/7/27.)

From the Publisher : Herr Julius Springer.

KRUYT, HUGO RUDOLPH, and KLOOSTER, HENRY S. VAN.
Colloids : a textbook. New York 1927. pp. xii + 262. ill.
17s. 6d. net. (Recd. 8/9/27.)

From the London Publishers : Messrs. Chapman & Hall.

LEWIS, ERNEST ISAAC, and KING, GEORGE. The making of a
chemical : a guide to works practice. London 1927. pp. 288.
ill. 12s. 6d. net. (Recd. 11/7/27.)

From the Publishers : Messrs. Ernest Benn.

LOWRY, THOMAS MARTIN, and RUSSELL, SIR [EDWARD] JOHN.
The scientific work of the late Spencer Pickering, F.R.S. With a
biographical notice by ARTHUR HARDEN. London 1927. pp. x +
248. ill. 4s. net. (Recd. 2/9/27.)

From the Lawes Agricultural Trust.

MARSH, JAMES ERNEST. Stone decay and its prevention.
Oxford 1926. pp. vi + 58. ill. 3s. 6d. net. (Recd. 15/8/27.)

From the Author.

MOOKERJI, BHUDEB. Rasa-jala-nidhi, or, Ocean of Indian
chemistry and alchemy. Vol. I. Calcutta [1926]. pp. xxiv + 356.
15s. net. From the Author.

PICKERING, SPENCER. See LOWRY, THOMAS MARTIN.

SIMPKIN, NEVILLE, and SINNATT, FRANK STURDY. Coal and allied
subjects : a compendium of bulletins 10 to 16 issued by the Lan-
cashire and Cheshire Coal Research Association [1922-1925.]
London [1926]. pp. viii + [176]. ill. 15s. net. (Recd. 2/9/27.)

From the Association.

SOCIETY OF CHEMICAL INDUSTRY, JAPAN. Journal. (Kōgyō
Kwakaku Zasshi.) Supplemental binding. Vol. XXX, etc. Tokyo
1927 +.

From the Society.

SPENCER, JAMES FREDERICK. Elementary practical physical
chemistry. pp. viii + 264. ill. 5s. net. (Recd. 6/9/27.)

From the Author.

SPIELMANN, PERCY EDWIN. Chemistry. London 1927. pp. 80.
6d. net. From the Publishers : Messrs. Ernest Benn.

SULFRIAN, ALBERT. Lehrbuch der chemisch-technischen Wirt-
schaftslehre. Stuttgart 1927. pp. x + 283. M. 16.50. (Recd.
10/10/27.) From the Publisher : Herr Ferdinand Enke.

THOMS, HERMANN. [Editor.] Handbuch der praktischen und wissenschaftlichen Pharmazie. Vol. VI. Part v. Berlin 1927. pp. 961 to 1200. *M.* 10. (*Recd.* 21/9/27.)

From the Publishers : Herren Urban & Schwarzenberg.

UNIVERSITY OF MINNESOTA. Collected research papers from the Division of Agricultural Biochemistry. Vol. I, 1923—26. St. Paul 1927. (*Reference.*) From Professor R. A. Gortner.

VÈZES, MAURICE. Leçons de chimie physique. Paris 1927. pp. x + 546. ill. 50 fr. (*Recd.* 7/7/27.)

From the Publishers : Librairie Vuibert.

II. *By Purchase.*

FOOD MANUFACTURE : the journal of the food industry. Vol. I, etc. London 1927 +. ill. (*Reference.*)

HANDBUCH DER PHYSIK. Edited by HANS GEIGER and KARL SCHEEL. Vol. I. Geschichte der Physik. Vorlesungstechnik. Edited by KARL SCHEEL. Berlin 1926. pp. vii + 404. ill. *M.* 33.60. (*Recd.* 19/7/27.)

— — — Vol. II. Elementare Einheiten und ihre Messung. Edited by KARL SCHEEL. Berlin 1926. pp. viii + 522. ill. *M.* 42. (*Recd.* 19/7/27.)

— — — Vol. V. Grundlagen der Mechanik. Mechanik der Punkte und starren Körper. Edited by RICHARD GRAMMEL. Berlin 1927. pp. xiv + 623. ill. *M.* 54. (*Recd.* 2/9/27.)

— — — Vol. VII. Mechanik der flüssigen und gasförmigen Körper. Edited by RICHARD GRAMMEL. Berlin 1927. pp. xi + 413. ill. *M.* 36.60. (*Recd.* 19/7/27.)

— — — Vol. VIII. Akustik. Edited by FERDINAND TRENDELENBURG. Berlin 1927. pp. x + 712. ill. *M.* 60.90. (*Recd.* 2/9/27.)

— — — Vol. IX. Theorien der Wärme. Edited by FRITZ HENNING. Berlin 1926. pp. viii + 616. ill. *M.* 49.20. (*Recd.* 19/7/27.)

— — — Vol. XI. Anwendung der Thermodynamik. Edited by FRITZ HENNING. Berlin 1926. pp. vii + 454. ill. *M.* 37.20. (*Recd.* 19/7/27.)

— — — Vol. XIV. Elektrizitätsbewegung in Gasen. Edited by WILHELM WESTPHAL. Berlin 1927. pp. vii + 444. ill. *M.* 38.10. (*Recd.* 19/7/27.)

— — — Vol. XV. Magnetismus. Elektromagnetisches Feld. Edited by WILHELM WESTPHAL. Berlin 1927. pp. vii + 532. ill. *M.* 45.60. (*Recd.* 19/7/27.)

— — — Vol. XVI. Apparate und Messmethoden für Elek

trizität und Magnetismus. Edited by WILHELM WESTPHAL. Berlin 1927. pp. ix + 801. ill. *M.* 68.40. (*Recd.* 2/9/27.)

HANDBUCH DER PHYSIK. Vol. XVII. Elektrotechnik. Edited by WILHELM WESTPHAL. Berlin 1926. pp. vii + 392. ill. *M.* 33.60. (*Recd.* 19/7/27.)

——— Vol. XVIII. Geometrische Optik. Optische Konstante. Optische Instrumente. Edited by HEINRICH KONEN. Berlin 1927. pp. xx + 865. ill. *M.* 74.40. (*Recd.* 3/10/27.)

——— Vol. XXII. Elektronen, Atome, Moleküle. Edited by HANS GEIGER. Berlin 1926. pp. vii + 568. ill. *M.* 44.70. (*Recd.* 19/7/27.)

——— Vol. XXIII. Quanten. Edited by HANS GEIGER. Berlin 1926. pp. x + 782. ill. *M.* 59.70. (*Recd.* 19/7/27.)

——— Vol. XXIV. Negative und positive Strahlen. Zusammenhängende Materie. Edited by HANS GEIGER. Berlin 1927. pp. xi + 604. ill. *M.* 51.60. (*Recd.* 19/7/27.)

HOWE, HARRISON E., and TURNER, FRANCIS MILLS. Chemistry and the home. New York 1927. pp. xii + 356. 7s. 6d. net. (*Recd.* 22/9/27.)

LANDOLT, HANS HEINRICH, and BÖRNSTEIN, RICHARD. Physikalisch-chemische Tabellen. 5th edition. Erster Ergänzungsband. Edited by WALTHER ADOLF ROTH and KARL SCHEEL. Berlin 1927. pp. x + 919. ill. (*Reference.*) *M.* 114.

NAPHTALI, MAX. Chemie, Technologie und Analyse der Naphthensäuren. Stuttgart 1927. pp. 144. *M.* 14. (*Recd.* 30/6/27.)

PFEIFFER, PAUL. Organische Molekülverbindungen. 2nd edition. (Chemie in Einzeldarstellungen, Vol. XI.) Stuttgart 1927. pp. xvii + 470. *M.* 42.20. (*Recd.* 30/6/27.)

PHYSICAL SOCIETY OF LONDON. Report on series in line spectra. By ALFRED FOWLER. London 1922, reprinted 1927. pp. viii + 184. ill. 14s. 6d. net. (*Recd.* 14/10/27.)

REMY, HEINRICH. Die elektrolytische Wasserüberführung und ihre Bedeutung für die Theorie der wässrigen Lösungen. (Fortschritte der Chemie, Physik und physikalischen Chemie, Vol. XIX.) Berlin 1927.

UNITED STATES. *Department of Commerce.* Bureau of Standards. Standards Yearbook 1927. Washington 1927. pp. 408. ill. (*Reference.*) 5s. 6d. net.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY.

Ordinary Scientific Meeting, Thursday, November 3rd, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc., F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on October 10th, of Mr. A. C. P. Lunn, who was elected a Fellow on May 4th, 1922.

It was announced that Professor C. S. Gibson, Dr. J. T. Hewitt, Professor G. T. Morgan, and Professor J. F. Thorpe had been re-appointed by the Council to represent the Society on the Bureau of Chemical Abstracts for the year 1927—1928, and that Professor A. J. Allmand, Professor F. G. Donnan, and Dr. T. Slater Price would represent the Society on the Editorial Board of the "Journal of Physical Chemistry," together with Dr. E. K. Rideal, the representative of the Faraday Society.

The following were formally admitted Fellows of the Chemical Society : G. E. Thompson, J. Muir Smith, R. A. B. Tapley, W. L. Lee-Smith, J. Wilson, and L. V. D. Scorah.

Certificates were read for the first time in favour of :

William Ernest Cooper, 105, Park Road, Warley Woods, Birmingham.

Eustace Nevill Eccott, B.Sc., A.R.C.S., Crofton Acre, Orpington.

Barnett Levin, B.Sc., 64, Pooles Park, N. 4.

Ronald Henry Linsell, B.Sc., Bethary House School, Goudhurst.

Moolraj Mehrotra, M.Sc., 112, Gower Street, W.C. 1.

Thomas Mitchell, B.Sc., A.R.C.S., 2, Tufton Street, Silsden, Keighley.

William Emrys Pride, B.Sc., A.R.C.S., Imperial College Hostel, S. Kensington, S.W. 7.

Ralph David Satchell, B.Sc., A.R.C.S., 26, Wilson Street, S.W. 11.

Arthur Harold Stevens, B.Sc., Tower House, Wokingham Road, Reading.

Horatio Todd, Bromleigh, Sandown Road, Knock, Belfast.

Frank Louis Warren, B.Sc., A.R.C.S., 5, Maitland Park Villas, Hampstead, N.W. 3.

Marjorie Jennet Wilson-Smith, B.Sc., 90, Queen Alexandra Mansions, Judd Street, W.C. 1.

Dr. J. L. Simonsen and Dr. C. R. Young were appointed Scrutators, and a ballot for the election of Sir Joseph John Thomson, O.M., F.R.S., Master of Trinity College, Cambridge, as an Honorary Fellow was held. Sir J. J. Thomson was subsequently declared duly elected.

The following papers were read :

- “The complex salts of nickel with various aliphatic diamines.”
By F. G. MANN.
- “The mechanism of the formation of citric and oxalic acids from sugars by *Aspergillus niger*.” By T. K. WALKER, V. SUBRAMANIAM, and F. CHALLENGER.
- “The complex cyanides of molybdenum.” By W. R. BUCKNALL and W. WARDLAW.
- “The parachor and chemical constitution. Part VI. Some cases of supposed ring-chain tautomerism.” By F. B. GARNER and S. SUGDEN.
- “The colouring matters of *Carajura*.” By E. CHAPMAN, A. G. PERKIN, and R. ROBINSON.

Ordinary Scientific Meeting, Thursday, November 17th, 1927, at 8 p.m., Professor H. BRERETON BAKER, C.B.E., D.Sc. F.R.S., President, in the Chair.

The PRESIDENT referred to the loss sustained by the Society, through death on March 9th, of Professor Albert William Smith, who was elected a Fellow on May 4th, 1922.

Certificates were read for the first time in favour of :

- Jacob Davis Cohen, B.Sc., A.C.G.F.C., 24, Alconbury Road, Clapton, E. 5.
Geoffrey William Fenton, B.Sc., 7, St. John's Avenue, Newcome, Huddersfield.
James Flint, M.C., 82, Sunny Gardens, Hendon, N.W. 4.
Charles Frederick Goodeve, M.Sc., University College Hall, Ealing, W. 5.
Marion Gosset, B.Sc., A.R.C.S., 17, Queen Anne's Grove, Bedford Park, W. 4.
Leslie George Groves, B.Sc., 22, Chadway, Chadwell Heath, Essex.
Herbert Charles Gull, B.Sc., 26, Twyford Road, Ilford.
Donald Holroyde Hey, B.Sc., 14, Grosvenor Road, Sketty, Swansea.
Theodora Mary Holmes, B.Sc., A.R.C.S., 24, Clifton Gardens, W. 9.
Robert Gilbert James, B.Sc., A.I.C., 25, Staplehall Road, Northfield, Birmingham.
Alfred William Leonard, B.Sc., 72, Hatherley Gardens, East Ham, E. 6.
Arthur Bertram Edmund Lovett, B.Sc., 4, Prior Street, Greenwich, S.E. 10.
Alfred Pollard, B.Sc., Hulme Hall, Victoria Park, Manchester.
John Taylor, B.Sc., 120, Hurlingham Road, Fulham, S.W. 6.
David Matthew Williams, B.Sc., Ph.D., Cranbrooke, Bridge Street, Aberystwyth.

The following papers were read :

- “Differential potentiometric titration. Part I. Simple method.”
By B. CAVANAGH.
- “Differential potentiometric titration. Part II. Refined method.”
By B. CAVANAGH.
- “A general method for the preparation of carbocyanine dyes.” By
F. M. HAMER.
- “A comparison of analogous organic compounds of phosphorus and
arsenic.” By C. S. GIBSON and J. D. A. JOHNSON.
- “Derivatives of methyl 2 : 2-dimethylcyclopentan-3-one-1-carb-
oxylate.” By C. S. GIBSON, K. V. HARIHARAN, and J. L.
SIMONSEN.

IMPORTANT NOTICE.

Ordinary Scientific Meeting, December 15th, 1927.

It has been decided to abandon the Ordinary Scientific Meeting arranged for December 15th, 1927, in view of the Jubilee Dinner of the Institute of Chemistry being held that evening.

List of Papers, or Abstracts thereof, received between October 20th and November 17th, 1927. (This List does not include the titles of papers which have been read at a Scientific Meeting, or which have appeared in the Journal.)

- “The ternary systems : copper acetate-acetic acid-water and lead acetate-acetic acid-water at 25°.” By K. SANDVED.
- “A method of estimating traces of zinc in solution (other metals being absent).” By R. PIRRET.
- “The photochemical decomposition of nitrous oxide and nitric oxide.” By J. Y. MACDONALD.
- “Investigation of the constitution of glycerides in natural fats. A preliminary outline of two new methods.” By T. P. HILDITCH and C. H. LEA.
- “The interaction of bromine with acetic anhydride. Part III. Arrest of the reaction. A comparison with the bromination of acetone.” By H. B. WATSON.
- “Some observations on the chlorination products of $\beta\beta'$ -dichlorodiethyl sulphide.” By S. A. MUMFORD and J. W. C. PHILLIPS.
- “The oxide-ring structure of normal and γ -derivatives of mannose. Preparation and oxidation of derivatives of γ -mannonolactone and δ -mannonolactone.” By E. H. GOODYEAR and W. N. HAWORTH.

- “The effect of the constitution of a chloroamine on its hydrolysis constant.” By F. G. SOPER and G. F. SMITH.
- “The use of hydrogen peroxide in iodine and other substitutions.” By J. E. MARSH.
- “The reactivity of the double bond in coumarins and related $\alpha\beta$ -unsaturated carbonyl compounds. Part I. Addition of cyanacetamide to coumarins.” By T. R. SESHADRI.
- “The nature of the alternating effect in carbon chains. Part XXII. An attempt further to define the probable mechanism of orientation in aromatic substitution.” By C. K. INGOLD and F. R. SHAW.
- “Nitration of diacetyl-*o*-phenylenediamine.” By M. A. PHILLIPS.
- “The formation of 2-methylbenzimidazoles.” By M. A. PHILLIPS.
- “The influence of glass upon the vapour pressure.” By J. RINSE.
- “Action of cuprous hydride on diazonium salts—a combined Sandmeyer-Gattermann reaction.” By P. NEOGI and A. K. MITRA.
- “The inflammation of mixtures of (a) carbon monoxide and air, (b) hydrogen and air in a closed spherical vessel.” By G. B. MAXWELL and R. V. WHEELER.
- “On the heat of adsorption of oxygen on charcoal.” By A. F. H. WARD and E. K. RIDEAL.
- “The laws of aromatic substitution. Part VI. The constitution and substitution of phenylnitromethane and some derivatives.” By B. FLÜRSCHHEIM and E. L. HOLMES.
- “The laws of aromatic substitution. Part VII. A quantitative method for rapid determinations of isomeric nitro-derivatives of laterally substituted toluenes.” By B. FLÜRSCHHEIM and E. L. HOLMES.
- “Researches in residual affinity and co-ordination. Part XXX. Complex ethylenethiocarbamide salts of univalent and bivalent metals.” By G. T. MORGAN and F. H. BURSTALL.
- “Optical activity and the polarity of substituent groups. Part VII. *sec.*- β -Octyl esters of *o*-, *m*-, and *p*-substituted benzoic acids.” By H. G. RULE, W. HAY, A. H. NUMBERS, and T. R. PATERSON.
- “A cyclic semipinacolin.” By J. W. COOK.
- “Activation of extended conjugated systems. A reply.” By J. W. BAKER and I. S. WILSON.
- “On an auto-poisoning phenomenon shown by catalytically active copper at moderate temperatures.” By F. H. CONSTABLE.
- “The condensation of glyoxalines with formaldehyde.” By R. GRINDLEY and F. L. PYMAN.

- "Glyoxaline-4(5)-formaldehyde." By W. HUBBALL and F. L. PYMAN.
- "Orientation effects in the diphenyl series. Part V. The independence of the two nuclei in diphenyl compounds as evidenced by substitution and reactivity effects." By R. J. W. LE FÈVRE and E. E. TURNER.
- "Action of Beckmann's chromic acid mixture on some monocyclic terpenes." By T. A. HENRY and H. PAGET.
- "Applications of thallium compounds in organic chemistry. Part IV. Thallium compounds of polyhydroxy-compounds." By R. C. MENZIES and M. E. KIESER.
- "Density and refractivity of dilute manganese salt solutions." By A. N. CAMPBELL.
- "Studies of dynamic isomerism. Part XXVI. Consecutive changes in the mutarotation of galactose." By G. F. SMITH and T. M. LOWRY.
- "Triazole compounds. Part II. Methylation of some 1-hydroxy-1 : 2 : 3-benzotriazoles." By O. L. BRADY and C. V. REYNOLDS.
- "Campospermonol, a ketonic phenol from *Campospermum brevipetiolatum*." By T. G. H. JONES and F. B. SMITH.
- "Cyclic organo-metallic compounds. Part IV. Tellurylium compounds (*continued*)." By H. D. K. DREW.
- "Cyclic organo-metallic compounds. Part V. Phenoxselenine and phenoxthionine from phenoxtellurine. Selenylium and thionylium compounds." By H. D. K. DREW.
- "Stereoisomerism of disulphoxides and related substances. Part II. Derivatives of 1 : 4-dithian." By E. V. BELL and G. M. BENNETT.
- "The velocity coefficient for bimolecular reactions in solution." By R. G. W. NORRISH and F. F. P. SMITH.
- "The constitution of the disaccharides. Part XVIII. Maltose and melibiose." By W. N. HAWORTH, J. V. LOACH, and C. W. LONG.
- "The hydrogen-ion concentration of aqueous iodine solutions." By H. M. DAWSON.

CERTIFICATES OF CANDIDATES FOR ELECTION AT
THE BALLOT TO BE HELD AT THE ORDINARY
SCIENTIFIC MEETING ON THURSDAY, DECEMBER
1st, 1927.

BIRKS, STANLEY, The Limes, High View Av., Grays, Essex. British.
Science Master. 2nd Class Honours School Natural Science (Chemistry),

Oxford. Teacher of Chemistry at Palmer's School, Grays, Essex (Sept. 1922). (*Signed by*) H. J. George, D. L. Chapman, M. P. Applebey.

BLYTHE, GEORGE EDWARD KEVIN, "Ael-y-Bryn," 20, Pantygywdr Road, Uplands, Swansea. British. County Lecturer in Electrotechnics to the Glamorgan County Council. Doctor of Philosophy. B.Sc. Lecturer in Chemistry and Scholar Leeds University. Jarrow-on-Tyne Secondary School Honours Diploma, City and Guilds. Fellow Royal Astronomical Society. Fellow of Geological Society. Member Royal Institution of Great Britain. Laureate French Academy of Science. Fellow Société Astronomique de France. Associate American Institute of Electrical Engineers. Graduate Institution of Electrical Engineers (London). Graduate Institution of Structural Engineers (London). "Mineral Oil—Petroleum," "Powdered Fuel," "The Corrosion of Metals," Durham University, February, 1925. (*Signed by*) Julius B. Cohen, Edward John Jones, Arthur M. O'Brien.

CLAY, CHARLES NIGHTINGALE, 81, Cromwell Road, London, S.W. 7. British. Industrial Chemist. B.Sc. (1st Class Honours in Chemistry at University College, London). A.I.C. Wish to receive publications of the Society and to attend the meetings. (*Signed by*) F. A. Freeth, L. W. Codd, F. M. Irvine.

COOPER, WILLIAM ERNEST, 105, Park Rd., Warley Woods, Birmingham. British. Assistant Works Chemist. Five years at Messrs. Guest, Keen & Nettlefolds, Ltd., Birmingham. Studied one year at Birmingham University. Studied four years at Birmingham Municipal Technical School. Student of Inst. of Chemistry. Six years' works technical experience. (*Signed by*) J. Newton Friend, J. Cooper Duff, Wm. Wardlaw.

COPPOCK, PHILIP DALTON, 50, Albany Rd., Victoria Park, Manchester. English. Technical and Research Chemist. B.Sc. Hons. Chem. (Manchester). M.Sc.Tech. (Manchester). Assistant to T. R. Hodgson, M.A., F.I.C., Public Analyst for Blackpool, Wallasey, etc., Jan.—May, 1926, and July, 1927 to date. Evening Demonstrator in Chemistry and Bacteriology of Foodstuffs. Manchester College of Technology, Sept., 1926 to date. (*Signed by*) T. K. Walker, John K. Wood, T. R. Hodgson.

CORDER, BENJAMIN JOHN (Rev.), The Rectory, Radnage, High Wycombe. British. Clerk in Holy Orders. B.A. (Cantab.). Work on Electrochemistry. (*Signed by*) Robert Robertson, Geo. Stubbs, J. J. Fox.

ECCOTT, EUSTACE NEVILL, Crofton Acre, Orpington, Kent. British. Student (Chemistry). B.Sc. (2nd Class Honours, London). A.R.C.S. (*Signed by*) H. B. Baker, M. A. Whiteley, G. A. R. Kon.

ENGLAND, HERBERT, 22, Queen's Road, Harrogate, Yorkshire. British. Chemist Director (Taylor's Drug Co., Ltd.). Chemist and Druggist, Edinburgh. In control of the Company's Laboratory and Dispensaries. I desire to keep abreast with modern scientific literature and development. (*Signed by*) J. Langford Moore, John Rennie, H. Roberts.

FINÁLY, STEPHEN DE, Budapest, Hungary, IX. Lónyay-utca 41. Hungarian. Analytical Chemist of the Royal Hungarian Geological Survey, Budapest. Diploma of Chemical Engineering issued by the Royal Hungarian "Joseph" University of Technical Sciences, Budapest. (*Signed by*) Thos. J. Cheater, William T. Burgess, R. Sutcliffe.

FTZGERALD, ROBERT RAILTON, 68, Bath Row, Birmingham. British. Head Brewer. To keep in touch with the latest developments in Biological Chemistry. (*Signed by*) S. H. Green, William Duncan, E. C. Bennison.

GERRY, HORACE LEONARD, Lyndall, Queen's Park, Chester. British. Pharmacist. Member of the Pharmaceutical Society of Great Britain. Has worked for 12½ years on the Chemistry of Soils and Soil Sterilisation for

Horticultural purposes. Is desirous of receiving the Society's Publications and of attending its meetings. (*Signed by*) John Welsh, W. H. Saunders, George Dalrymple.

GLOVER, THOMAS JOSEPH, 40, Curzon St., South Circular Road, Dublin. Irish. Lecturer in Chemistry, Birmingham University. M.Sc. and Ph.D., National University, Ireland. Papers, with Prof. Hugh Ryan, on "Nitroderivatives of Diphenylamine" (*Proceedings of the Royal Irish Academy*) and, with Prof. G. T. Morgan, on the "Orthochlorodinitrotoluenes" *J.C.S.*, 1921, 1700; 1924, 1597. (*Signed by*) Wm. Wardlaw, W. J. Hickinbottom, H. D. K. Drew.

HARINGTON, CHARLES ROBERT, 2, The Greenway, Gerrards Cross, Bucks. British. Lecturer in Pathological Chemistry, University College Hospital Medical School, London. M.A. (Cantab.), Ph.D. (Edin.). Papers on chemical subjects in the *Biochemical Journal* (including "Constitution and Synthesis of Thyroxine"). (*Signed by*) George Barger, Ellen Stedman, C. P. Stewart.

HAYMAN, EDGAR ALBERT, "Cranleigh," 100, Doyle Gardens, Harlesden, N.W. 10. British. Chemist and Druggist. Member of Pharmaceutical Society. Desirous of attending meetings and to receive the publications of the Society. (*Signed by*) Frank B. Arnold, Percy Barrs, Alfred J. Lennane.

HUSSEY, HERBERT RICHARD, 31, Thornbury Avenue, Southampton. British. Managing Director of Randall & Wilson, Ltd., Manufacturing Chemists, Southampton. My object in being a Fellow is to attend the meetings; also to receive the *Journal* and other publications. (*Signed by*) Fred. W. Fletcher, D. R. Boyd, Herbert J. Hodges.

INGRAM, ALBERT WILLIAM KEMP, "St. Stephens," 261, High Street, Sheerness, Kent. British. B.A. Student at Emmanuel College, Camb. Entering Teaching Profession as Chemistry Master. B.A. (Cantab.). Natural Science Tripos, Part I. Reading for Camb. Univ. Diploma in Education, with special endorsement in Science. (*Signed by*) R. G. W. Norrish, F. W. Dootson, C. R. Ward.

JONES, JOHN WILLIAM THOMAS, 112, Gaskarth Road, London, S.W. 12. British. Research Student. A.R.C.S. (*Signed by*) H. B. Baker, Jocelyn Thorpe, M. A. Whiteley, G. A. R. Kon, Philip C. Bull, R. F. Hunter.

KERR, ROBERT NAPIER, 22, St. Bernard's Crescent, Edinburgh. British. University Assistant. B.Sc., Ph.D. (Edinburgh). Assistant in Chemistry, Edinburgh University, 1926-27. Carnegie Research Scholar, 1925-26. *J.C.S.*, 1926, 2796; *Phil. Mag.*, 1927, 330. (*Signed by*) James Walker, H. Gordon Rule, Ernest B. Ludlam.

KING, REGINALD BENJAMIN, Lemsford, 52, Mostyn Road, Merton Park, Surrey. British. Student. B.Sc., London (Hons. Chem.), 1925. Two years' research to 1927, King's College, London. A.I.C. (*Signed by*) Samuel Smiles, A. J. Allmand, E. W. McClelland.

KITASATO, ZENJIRO, Chemical Department, The University, Manchester. Japanese. D.Sc., University of Tokyo. Have been engaged in research-work for eight years in Japan. Am now engaged at the University of Manchester under Professor R. Robinson, F.R.S. "Beiträge zur Kenntnis der Isochinolin-Alkaloide," *Acta Phytocimica (Japan)*, Vol. III, No. 2. (*Signed by*) Robert Robinson, Arthur Lapworth, H. Raymond Ing, Ernest Wignall.

KNY-JONES, FREDERIC GORONWY, 1, Linley Road, Bruce Grove, London, N. 17. British. Training for Secondary School teaching. B.Sc. (Second Class Honours Chemistry). (*Signed by*) J. R. Partington, E. E. Turner, F. E. King.

LAWRENCE, CYRIL DUNN, 46, Juer St., Park Rd., Battersea, S.W. 11.

British. Research Student at the Imperial College of Science and Technology B.Sc., London (Honours, Chemistry). (*Signed by*) E. H. Farmer, G. A. R. Kon, Arnold Stevenson.

LEVIN, BARNETT, 64, Pooles Park, Finsbury Park, N. 4. British. Organic Research Student. B.Sc., London, 1926. (*Signed by*) Jocelyn Thorpe, G. A. R. Kon, Arnold Stevenson.

LINSELL, RONALD HENRY, Bethany House School, Goudhurst, Kent. English. Science and Mathematics Master. B.Sc., London (Hons. Chemistry). As a teacher of Chemistry, I wish to keep up to date with present research, and prepare to do research of my own for further qualifications. (*Signed by*) J. R. Partington, E. E. Turner, A. Brewin.

MCBRIDE, JOHN, Uzina Sinimbri, São Miguel de Campos, Alagôas, Brazil. British. Analytical Chemist. Seven years in Laboratory of Messrs. John Walker & Co., Sugar Refiners, Greenock; 3½ years in laboratories of C.U.C.S., Pernambuco, Brazil; now head chemist to this company. (*Signed by*) Angus Smith, John Wm. Biggart, William M. Cumming.

MACDONALD, JAMES YOUNGER, 17, Learmonth Gardens, Edinburgh. British. Lecturer in Chemistry, University of St. Andrews (from August, 1927). B.A. (Nat. Sci., Oxon.). Three years as research student. *J.C.S.*, 1925, 127, 2764. (*Signed by*) F. G. Donnan, W. E. Garner, Henry Terrey.

MCCNEIL, JAMES ERIC, "Claremont," Lake Road East, Cardiff. British. Colliery Chemist. At present Assistant to Tredegar Iron & Coal Co., Tredegar, Mon. B.Sc. (3rd Class Honours in Chemistry) in University of Wales. Long vacations of 1924 and 1925 spent in laboratory of Messrs. Treharne & Duncan, Cardiff. (*Signed by*) J. H. Duncan, A. A. Read, E. P. Perman.

MEHROTRA, MOOLRAJ, Chemistry Department, University of Allahabad, Allahabad. Indian. Demonstrator in Chemistry, University of Allahabad. B.Sc. and M.Sc. of the University of Allahabad. I have been on the staff of the University of Allahabad for four years and have contributed eight papers on Colloid Chemistry. Two of them are in the press, and the following six have been published: 1. "Adsorption von Säuren, Basen und Salzen, etc.," M. R. Mehrotra and N. R. Dhar (*Zeit. Anorg., Chemie* Band 155). 2. "Die Stabilität Kolloidaler Lösungen, Pt. II," K. C. Sen and M. R. Mehrotra (*Zeit. Anorg. Chemie*, Band 142). 3. "Peptisation of Metallic Hydroxides in Presence of Sugars," M. R. Mehrotra and K. C. Sen (*J. Ind. Chem. Soc.*, 1927, 4, 117). 4. "Simultaneous Adsorption of Ions from Solution, Pt. I, etc.," Moolraj Mehrotra and Kshitish Chandra Sen (*J. Ind. Chem. Soc.*, 1926, 3, 297). 5. "Studies in Adsorption, Pt. XV," M. R. Mehrotra and N. R. Dhar (*J. Phys. Chem.*, 1926, 30, 1185). 6. "Die peptisation von Eisen und Chromhydroxyd, etc.," M. R. Mehrotra and K. C. Sen (*Koll. Zeit.*, 1927, 42, 35). (*Signed by*) F. G. Donnan, S. Barratt, Henry Terrey.

MEREDITH, DAVID OWEN, P.O. Box AA-B, Hobart, Tasmania. Australian. General Superintendent, Electrolytic Zinc Co. of Australasia, Ltd. In charge of Electrolytic Zinc Co. of Australasia's operations at Risdon, Tasmania, formerly as Deputy General Manager and now as General Superintendent. These works cover the electrolysis of zinc and cadmium, also production of sulphuric acid, nitric acid, and superphosphate. Member Australasian Institute of Mining and Metallurgy. Member American Institute of Mining and Metallurgical Engineers. Member Institution of Engineers (Australia). Member American Chemical Society. (*Signed by*) D. Avery, Gilbert Rigg, D. Orme Masson.

MILLARD, ARTHUR HERWARD, 8, Westhall Rd., Park Lane, Bath. British. Lecturer at the Bath and West of England College of Chemistry and Pharmacy. Qualifying Examination of Pharmaceutical Soc., Jan. 5, 1925. Pharmaceuti-

cal Chemist Diploma, July 22, 1925. Three years student and 6 years as Demonstrator and Lecturer in Pharmaceutical Chemistry at The Bath and West of England College of Chemistry and Pharmacy. Desirous of keeping in touch with chemical research. (*Signed by*) David J. Williams, Arthur Marsden, P. J. Thompson.

MITCHELL, THOMAS, 2, Tufton St., Silsden, nr. Keighley, Yorks. British. Research Student. B.Sc., London (Hons.). A.R.C.S. (Hons.). (*Signed by*) G. A. R. Kon, W. E. Hugh, H. L. Riley.

MURAKAMI, SHINZO, Chemical Department, The University, Manchester. Japanese. Instructor in the Pharmaceutical College, Osaka (Japan). Have been engaged in research work for 10 years in Japan and now in the University of Manchester under Prof. R. Robinson. "On New Constituents of the *Ava* root" (*Journ. Pharm. Soc., Japan*, 1916, 1918). "On the Essential Oil of *Houttuynia cordata*, Thumb. (*ibid.*, in the press). (*Signed by*) Robert Robinson, Arthur Lapworth, H. Raymond Ing, Ernest Wignall.

NODZU, RYUZABURO, Chemical Department, The University, Manchester. Japanese. Assistant Professor of Organic Chemistry, Kyoto Imperial University, Japan. D.Sc., Kyoto Imperial University. Have engaged in research work under Prof. S. Komatsu. Joint author of the following papers: "Reaction between Aniline and Chloroacetic Acid," *Mem. Coll. Sci. Kyoto*, 1922, VI, 73; "Studies on Catalytic Action, I," *loc. cit.*, 1923, VI, 177; "On the Synthesis of Phosphoric Acid Esters, II," *loc. cit.*, 1924, VII, 377; "On the Chemistry of Japanese Plants, VII," *loc. cit.*, 1925, VIII, 223. Author of the following paper: "On the Synthesis of the Phosphoric Acid Esters, III," *J. Biochem.*, 1926, VI, 31. At present working under Prof. R. Robinson, F.R.S., at University of Manchester. (*Signed by*) Robert Robinson, Arthur Lapworth, Reginald C. Fawcett, H. Raymond Ing, Ernest Wignall.

OOMMEN, MARIAM PUTHENPARAMPIL, 59, Tregunter Road, West Brompton, London, S.W. 10. Indian. Lecturer in Chemistry, Women's Christian College, Madras, S. India. Now Research Student at Royal College of Science, London. B.A. (Hons.) Chemistry (Madras University), 1924. (*Signed by*) James C. Philip, M. A. Whiteley, B. B. Dey, Jocelyn Thorpe.

OSWALD, WILLIAM ALEXANDER HUGH, White Knights, St. George's Hill, Weybridge, Surrey. British. Technical Department, Anglo-American Oil Co., Ltd. B.A., Cambridge University, 1st Class Inorganic and Organic Chemistry, Physics, Industrial, Commercial, and Applied Chemistry. I have spent some time in the Imperial Oil Co. Refinery in Sarnia, Canada, chiefly in connection with "cracking" and vacuum distillation; also some months in the Research Laboratories of the Standard Oil Co. (N.J.) in connection with testing chemical substances for their "anti-knocking" properties when added to petrol; research on lubricating oils, fuel oils, and Diesel oils; vacuum distillation and vapour-phase "cracking." I spent a month in Dr. F. H. Garner's Laboratory at Fawley. (*Signed by*) C. I. Kelly, C. Chilvers, Walter A. Woodward.

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PERRINS, GORDON, Chemical Laboratory, Royal Infirmary, Edinburgh.

British. Chief Pharmacist to Royal Infirmary, Edinburgh. Manufacturing and Analytical Chemist, Teacher of Pharmacy. Pharmaceutical Chemist and Teacher of Chemistry. Occasional contributor to *Pharmaceutical Journal* on educational matters, in which I am particularly interested; late Secretary to Ipswich Pharmaceutical Association; Lecturer to Edinburgh Chemists' Association. (*Signed by*) Arthur W. Mann, J. F. Ward, J. Macvie Hill, D. Hughes, William Mair, H. P. Wilson.

PRASAD, MATA, Royal Institute of Science, Bombay, India. Indian. Professor in Inorganic and Physical Chemistry, Royal Institute of Science, Bombay (India). D.Sc. of Benares Hindu University. Published a number of papers in *Koll. Zeit.*, *Jour. Phys. Chem.*, *Zeit. physikal. Chem.*, and *Jour. Ind. Chem. Soc.* Working at present at Davy-Faraday Laboratory on crystal structure. Member of the Royal Institution. Published no paper in *J.C.S.* so far. (*Signed by*) W. E. Garner, Henry Terrey, L. F. Gilbert.

PRIDE, WILLIAM EMRYS, Imperial College Hostel, South Kensington, S.W. 7. British. Research Student. A.R.C.Sc., B.Sc. (Imperial College of Science and Tech., London). (*Signed by*) Jocelyn Thorpe, M. A. Whiteley, James C. Philip, R. F. Hunter.

RAO, BIJOO SANJIVA, Bangalore. Hindu. Assistant Chemist, Department of Organic Chemistry, Indian Institute of Science, Hebbal, Bangalore. B.A. (Madras); Associate Indian Institute of Science; some time Assistant Lecturer, Central College, Bangalore; then Assistant Chemist, Mysore Govt. Sandalwood Oil Factory; from 1921 Assistant Chemist, Indian Institute of Science. Published following joint papers in the *Jour. Ind. Inst. Sci.*, "West Australian Sandalwood Oil," 1922, V, pt. 12; "Kochi Grass Oil," 1925, VIII, pt. 2; "Essential Oil of *Cyperus Rotundus*," 1925, VIII, pt. 4; "Notes on Indian Essential Oils," 1925, VIII, pt. 10; "Occurrence of Sylvestrene," 1925, VIII, pt. 14; "Essential Oils from *Kaempferia galanga*, *Curcuma aromatica*, and *Erythroxylon monogynum*," 1926, IX, pt. 6. "The Occurrence of Sylvestrene," *J.C.S.*, 1925, 127, 2494. (*Signed by*) J. L. Simonsen, Roland V. Norris, M. O. Forster.

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SATCHELL, RALPH DAVID, 26, Wilson St., London, S.W. 11. British. Student, Organic Research at Imperial College of Science and Technology. A.R.C.S., B.Sc. (Hons.). (*Signed by*) G. A. R. Kon, W. E. Hugh, J. C. Bardhan.

SCOTT, WILLIAM DALLAS, Eldercroft, Cassio Rd., Watford, Herts. British. Student. Diploma of the Associateship of the Royal College of Science and proceeding to higher degrees. (*Signed by*) G. A. R. Kon, Arnold Stevenson, M. A. Whiteley.

SOMERVILLE, IAN CAMPBELL, 319, Ryers Avenue, Cheltenham, Pa., U.S.A. British. Research Chemist. Graduated from Edinburgh University, B.Sc., 1st Class Hons. Chem., 1923. Assistant in Physical Chemistry in Edinburgh University, 1923-25. Thesis accepted for Ph.D., July, 1926. Jointly with Dr. J. D. M. Ross, *J.C.S.*, 1926, 2770. "Melting-point Curves of Optical Isomerides in the Camphor Series." (*Signed by*) James Walker, John D. M. Ross, Alex. McKenzie.

STEVENS, ARTHUR HAROLD, Tower House, Wokingham Road, Reading (Berks.). British. Chartered Patent Agent. B.Sc. (in Chemistry, Physics, and Maths. at London University). Passed Final Exam. for Assoc. Mem. Inst. C.E., taking Metallurgy as one subject. Have obtained patents on many chemical inventions for clients, including 155092 (water softening); 120381 (arsenical compounds); 249172 (rubber substitutes); 249526 (azo-dyes); 217391 (lead refining); 273017 (pigments); 275328 (yeast). (*Signed by*) H. Harris, S. Judd Lewis, J. N. Goldsmith.

TODD, HORATIO, Bromleigh, Sandown Road, Knock, Belfast. British. Pharmaceutical Chemist. President Pharmaceutical Soc., Northern Ireland. Licentiate and Member Pharmaceutical Society of Ireland. Member, ex-Committee, British Pharmaceutical Conference. Ex-President North Irish Pharmacists Assoc. (2 years). Desirous of admission to the Society in order to keep in touch with current advances in chemistry, particularly in relation to pharmacy and medicine. No published papers in Journals of Chemistry. (*Signed by*) Henry Wren, Theo. Harper, Chas. J. Still, William Macartney.

WALTON, ROBERT, The Mill House, Langford, Malden, Essex. British. Chemist to Southend Waterworks Co. Student of Chemistry desirous of using the library and receiving the Journal. (*Signed by*) P. C. L. Thorne, E. de Barry Barnett, J. W. Cook.

WARREN, FRANK LOUIS, 5, Maitland Park Villas, Haverstock Hill, Hampstead, N.W. 3. British. Research Student. B.Sc. (Imperial College of Science and Technology, London), A.R.C.S. (*Signed by*) Jocelyn Thorpe, M. A. Whiteley, James C. Philip.

WILSON-SMITH, MARJORIE JENNET, 90, Queen Alexandra Mansions, Judd Street, London, W.C. 1. British. Research Student, Organic Chemistry Dept., Imperial College of Science and Technology. B.Sc. (London), Royal Holloway College, Englefield Green, Surrey. 1. Lindley Studentship in Physiology, London University, 1922-23. 2. Demonstrator in Chemistry, London School of Medicine for Women, 1921-22 and 1923-25. (*Signed by*) M. A. Whiteley, Jocelyn Thorpe, E. H. Farmer, G. A. R. Kon.

The following Certificates have been authorised by the Council for presentation to ballot under Bye-Law I (2) :

LEECH, PAUL NICHOLAS, American Medical Association, 535, N. Dearborn St., Chicago, Ill., U.S.A. Born in U.S.A. Director Chemical Laboratory, Amer. Med. Assoc. A.B. Miami Univ.; Sc.M. Univ. of Chicago; Ph.D. Univ. of Chicago. Various articles in Chemical and Medical Literature since 1913. Articles have been published in *J. Am. Chem. Soc.* (with J. Stieglitz), *Industrial and Engineering Chemistry*, *J. Am. Pharm. Assoc.*, and *J. Am. Med. Assoc.* Have also written many unsigned articles and editorials principally in *J. Am. Med. Assoc.* Chairman Chicago Section of the American

Chem. Soc., 1926-27. Assoc. Fellow American Med. Assoc. (*Signed by*)
A. H. Clark.

RUFF, OTTO, Dr.phil., Dr.Ing.Eh., Breslau (Germany), Borsigstrasse 23.
German. Direktor des anorganisch chemischen Instituts der technischen
Hochschule. Dr.phil. (Berlin, Universit.); Dr.Ing.ehrenheilber (Dresden,
technische Hochschule). Berichte der Deutschen Chem. Ges.; Zeits. f.
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SCIENTIFIC AND INDUSTRIAL RESEARCH, Department of. *Building Research*. Special Report No. 8. Fire-resistant construction. By REGINALD EDWARD STRADLING and FRANK LAWRENCE BRADY. London 1927. pp. vi + 57. ill.

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