

January, 1948

THE CHEMICAL SOCIETY

ANNIVERSARY MEETING

The 107th Annual General Meeting of the Chemical Society will be held in Oxford, on March 18th, 1948. The following is a summary of the programme :

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| 12 Noon | Business meeting at the Physical Chemistry Laboratory. |
| 1.15 p.m. | Luncheons. |
| 3 p.m. | Presidential Address, Some Aspects of the Chemistry of Hydrocarbons , at the Physical Chemistry Laboratory. |
| 4.30 p.m. | Reception by the Vice-Chancellor in the Hall of Christ Church. |

Full particulars are being circulated to Fellows.

SCIENTIFIC MEETINGS DURING MARCH, 1948

LONDON.

Thursday, March 4th, 1948, at 7.30 p.m.

Hugo Müller Lecture, **The Occurrence and Significance of the Pentose Sugars in Nature, and their Relationship to the Hexoses**, by Professor E. L. Hirst, M.A., D.Sc., F.R.S.

ABERDEEN.

Thursday, March 18th, 1948, at 7.30 p.m.

Lecture, **Infra-red Spectroscopy**, by Dr. H. W. Thompson, M.A., F.R.S.

Joint meeting with the local sections of the Royal Institute of Chemistry and Society of Chemical Industry to be held at Marischal College.

Wednesday, March 24th, 1948, at 7.30 p.m.

Lecture, **Some Stereochemical Problems**, by Professor E. E. Turner, M.A., D.Sc., F.R.S.

Joint meeting with the local sections of the Royal Institute of Chemistry and Society of Chemical Industry to be held at Marischal College.

BIRMINGHAM.

Monday, March 1st, 1948, at 4.30 p.m.

Lecture, **Steric Hindrance**, by Professor C. K. Ingold, M.A., D.Sc., F.R.S.

To be held in the Chemical Lecture Theatre of the University, Edgbaston.

EIRE.

Tuesday, March 2nd, 1948, at 7.30 p.m.

Pedler Lecture and Official Meeting of the Society, **Recent Developments in the Vitamin A Field**, by Sir Ian Heilbron, D.S.O., D.Sc., LL.D., F.R.S.

To be held in the Department of Chemistry, University College, Dublin.

Wednesday, March 3rd, 1948, at 3.30 p.m.

Lecture, **Recent Researches in the Azole Field**, by Sir Ian Heilbron, D.S.O., D.Sc., LL.D., F.R.S.

Joint meeting with the Werner Society to be held in the Department of Chemistry, Trinity College, Dublin.

GLASGOW.

Friday, March 12th, 1948, at 7.15 p.m.

Lecture, **Some Problems in the Chemistry of Starch and Glycogen**, by Professor E. L. Hirst, M.A., D.Sc., F.R.S.

To be held in the Chemistry Lecture Theatre of the University.

LEEDS.

Tuesday, March 2nd, 1948, at 5 p.m.

Display of Scientific Films followed by a Lecture at 6.30 p.m. **The Protein Molecule and its Degradation by Enzymes**, by Dr. J. A. V. Butler.

Joint meeting with the Leeds University Chemical Society in the Chemistry Lecture Theatre of the University.

LIVERPOOL.

Thursday, March 4th, 1948, at 4.30 p.m.

Tilden Lecture, **Crystallographic Technique and its Chemical Significance**, by Professor E. G. Cox, D.Sc.

To be held in the Chemistry Lecture Theatre of the University.

NEWCASTLE AND DURHAM.

Friday, March 5th, 1948, at 5 p.m.

Meeting for the reading of original papers.

To be held in the Chemistry Department, King's College, Newcastle-upon-Tyne, 2.

NORTHERN IRELAND.

Thursday, March 4th, 1948, at 7.30 p.m.

Pedler Lecture, **Recent Developments in the Vitamin A Field**, by Sir Ian Heilbron D.S.O., D.Sc., LL.D., F.R.S.

To be held in the Chemical Lecture Theatre, Queen's University, Belfast.

NOTTINGHAM.

Thursday, March 4th, 1948, at 7 p.m.

Meeting for the reading of original papers.

To be held in the Chemistry Lecture Theatre of University College.

SOUTHAMPTON.

Friday, March 12th, 1948, at 5 p.m.

Lecture, **Some Aspects of Infra-red Spectroscopy**, by Dr. G. B. B. M. Sutherland, M.A.

Joint meeting with the University College Physical Society to be held in the Physics Lecture Theatre of University College.

SOUTH WALES.

Friday, March 5th, 1948, at 6 p.m.

Lecture, **The Antibacterial Compound, Aspergillie Acid**, by Professor F. S. Spring, D.Sc., Ph.D.

Joint meeting with the University College of Swansea Students' Chemical Society to be held at University College, Swansea.

Friday, March 12th, 1948, at 7 p.m.

Lecture, **The Contribution of the Organic Chemist to Medical Research**, by Professor C. R. Harington, M.A., F.R.S.

To be held in University College, Cathays Park, Cardiff.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, Piccadilly, W. 1, on Thursday, January 8th, 1948, at 7.30 p.m.

The President, PROFESSOR C. N. HINSELWOOD, M.A., Sc.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held on Thursday, December 18th, 1947, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : John L. Prosser, Kenneth R. Lawrence, R. Longworth, T. Waldmeyer, J. C. Tholen, D. G. Thomas, A. F. Sherwood, D. Noel Raine.

LECTURE.

The President called upon Professor T. P. Hilditch to deliver the lecture entitled, **Structural Relationships in the Natural Unsaturated Higher Fatty Acids.**

At the conclusion of the lecture a vote of thanks to Professor Hilditch proposed by Dr. E. H. Farmer was carried with acclamation.

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, Piccadilly, W. 1, on Thursday, January 22nd, 1948, at 7.30 p.m.

The President, PROFESSOR C. N. HINSELWOOD, M.A., Sc.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held on Thursday, January 8th, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : Joyce A. Duffield, Kenneth E. Weale, John E. H. Hancock, B. L. Hampson, Eric Lloyd, J. C. Cotterill, F. Weg.

SCIENTIFIC COMMUNICATIONS.

The following papers were read and discussed :

“Solution and Diffusion of Gases in Polystyrene at High Pressures.” By D. M. Newitt and K. E. Weale.

“Physical Properties and Chemical Constitution.” Parts X to XV by A. I. Vogel. Parts XVI and XVII by G. H. Jeffery and A. I. Vogel.

OFFICIAL ANNOUNCEMENTS

DEATHS.

The Council regret to announce the death on December 17th, 1947, of Johannes Nicolaus Brønsted who was elected an Honorary Fellow of the Society on December 5th, 1935, and at their meeting on January 8th, 1948, passed the following resolution :

“ The President, Officers and Council have learned with profound regret of the death of Johannes Nicolaus Brønsted an Honorary Fellow of the Chemical Society.

“ They record their high appreciation of the services he has rendered to the Science of Chemistry and mourn the loss of a distinguished colleague.”

The deaths of the following Fellows are announced with regret :

	Elected.	Died.
Edward Charles Cyril Baly (Wendover) ...	Dec. 5th, 1891.	Dec. 17th, 1947.
William Henry Barker (Kingston Hill) ...	Feb. 20th, 1896.	Nov. 18th, 1947.
Edgar Marsh Chapman (Scarborough).....	Dec. 7th, 1899.	April 16th, 1947.
Arthur Edward Coverdale (Worcester).....	May 7th, 1908.	Nov. 10th, 1947.

CONGRATULATIONS.

The Congratulations of the Council have been conveyed to the following Fellows whose names appear in the New Year Honours List :

K.B.E.

Sir James Colquhoun Irvine.

C.B.

George Macdonald Bennett.

C.B.E.

Louis Arnold Jordan.

Robert O'Field Oakley.

Gilbert Wooding Robinson.

ELECTION OF NEW FELLOWS.

The following Candidates were elected Fellows of the Society on January 8th, 1948 :

Maurice Allen.	John Edward Herbert Hancock.
Benjamin Harry Arnold.	Brian Selby Hartley.
Finn Hoel Baastad.	Huibert Willem Hartog.
Frank Patrick Bannister.	Derrick Cansfield Hobson.
John Christopher Beckitt.	Ian Douglas Holland.
Leon James Brooks.	Emlyn Jones.
John Desmond Bu'lock.	Adolf Krebsner.
Alexander Robert Maclaren Clarke.	Eric Lloyd.
Nicholas Emmanuel Cocchinaras.	Alan McCririck
Donald Richard Coote.	Mary Elspeth McPhail.
Elsa Mary Cordes.	Sardar Begum Mahboob.
Joseph Charles Cotterill.	George Edward Mapstone.
Amar Nath Davey.	Khaja Syed Mohamad.
Peter Maurice Davison.	Richard Derek Mulley.
Alan Marchant Downes.	Jean Northcott.
Joyce Alice Duffield.	Jaroslav Nosek.
James Betley Duthie.	John Francis Oughton.
Geoffrey Eglington.	Baron John Oscar Palmen.
Thomas Arthur Elliott.	Peter George Philpott.
William George Enos.	Huw Owen Pritchard.
Mary Agnes Fagan.	Maurice Redman.
Edgar Fajans.	George Frederick Reynolds.
Michael Christopher Ford.	Ian Gordon Ross.
Raymond Ganday.	Joseph Rudinger.
Henry John Gardner.	John Frederick Salmon.
Naida Sugden Gill.	Richard Seyfarth Schreiber.
John Desmond Spencer Goulden.	Charles Edmund Searle.
Leo James Guay.	Winifred Marston Stanier.
John Kenneth Hall.	Dora Ruth Steiner.

Henry Booth Tench.
 Claude Turner.
 Eric Stanmore Waight.
 Tsan-Huan Wang.
 Fritz Gerhard Weg.
 Harold Kirkland Welsh.

Eric Whittle.
 Ernest Raymond Willott.
 Peter Newman Wilson.
 Edward Albert Woods.
 Arthur Hedley Wragg.

MEETING OF COUNCIL.

A meeting of Council was held on Thursday, January 8th, 1948.

The Report of the meeting of the Publication Committee held on December 4th, 1947, was adopted.

It was announced that Sir John Lennard-Jones had agreed to deliver a lecture entitled "Molecular Orbital Theory of Valency" on May 6th, 1948, and that Professor J. D. Bernal and Mr. R. P. Bell had agreed to deliver the Victor Moritz Goldschmidt and Johannes Nicolaus Brønsted Memorial Lectures respectively.

Council noted with pleasure that gifts had been received from Sir Ian Heilbron and Mr. W. Collingwood Williams.

It was reported that Sir Wallace Akers had agreed to act as Deputy Treasurer until the next Annual General Meeting, and he was unanimously co-opted a member of Council under Bye-Law 19.

It was noted that Professor H. W. Melville had accepted the invitation of Council to act as the Society's representative at the Rubber Technology Conference to be held in London from 23rd to 25th June, 1948.

Certain items of a formal and financial nature were also dealt with.

THE CENTENARY FUND.

As at January 22nd, 1948, contributions paid, or promised under Deed of Covenant, to the Centenary Fund amounted to £31,704. The objects of the fund are as follows :

(a) Defraying the expenses of distinguished chemists from overseas invited by the Society to this country for the purpose of lecturing to the Society or otherwise taking part in its scientific meetings.

(b) Defraying the expenses of sending Fellows to participate in scientific meetings overseas.

(c) Defraying expenses incurred in such actions to further the object of the Fund as may be determined, from time to time, by the Council of the Society.

The following contributions are gratefully acknowledged :

Contributions from Industrial and Other Organisations.

	£	s.	d.
*Imperial Chemical Industries, Ltd.	10,000	0	0
Richard Clay & Co., Ltd.	1,093	6	1
†Glaxo Laboratories, Ltd.	1,050	0	0
Aspro, Ltd.	1,000	0	0
‡British Celanese, Ltd.	700	0	0
†The British Drug Houses, Ltd.	700	0	0
†The Clayton Aniline Co., Ltd.	700	0	0
†The Distillers Co., Ltd.	700	0	0
†The Geigy Co., Ltd.	700	0	0
†B. Laporte, Ltd.	700	0	0
†Monsanto Chemicals, Ltd.	700	0	0
†Sandoz Products, Ltd.	700	0	0
Courtaulds, Ltd.	500	0	0
Genatosan, Ltd.	500	0	0
§Lever Brothers & Unilever, Ltd.	500	0	0
†Manchester Oil Refinery, Ltd.	367	10	0
†Anglo-Saxon Petroleum Co., Ltd.	350	0	0
†The Burmah Oil Co., Ltd.	350	0	0
‡Dunlop Rubber Co., Ltd.	350	0	0
*The Associated Portland Cement Manufacturers, Ltd.	250	0	0

Carried Forward

21,910 16 1

	£	s.	d.
Brought forward	21,910	16	1
Boots Pure Drug Co., Ltd.	250	0	0
†The Gas, Light & Coke Co.	250	0	0
The Wellcome Foundation, Ltd.	250	0	0
Roche Products, Ltd.	200	0	0
†Whitbread & Co., Ltd.	175	0	0
†Goodlass Wall & Lead Industries, Ltd.	175	0	0
Mr. Cecil Clay	150	0	0
Peter Spence & Sons, Ltd.	150	0	0
†British Titan Products Co., Ltd.	132	6	0
William Blythe & Co., Ltd.	105	0	0
British Aluminium Co., Ltd.	105	0	0
British Industrial Plastics, Ltd.	105	0	0
British Insulated Callender's Cables, Ltd.	105	0	0
The British Oxygen Co., Ltd.	105	0	0
Brotherton & Co., Ltd.	105	0	0
Evans Medical Supplies, Ltd.	105	0	0
Johnson, Matthey & Co., Ltd.	105	0	0
Imperial Smelting Corporation, Ltd.	105	0	0
†The Yorkshire Dyeware & Chemical Co., Ltd.	105	0	0
Tootal Broadhurst Lee Co., Ltd.	105	0	0
Whiffen & Sons, Ltd.	105	0	0
Albright & Wilson, Ltd.	100	0	0
A. Boake, Roberts & Co., Ltd.	100	0	0
J. & P. Coats, Ltd.	100	0	0
The Crookes Laboratories, Ltd.	100	0	0
The Forestal Land, Timber & Railways Co., Ltd.	100	0	0
†Arthur Guinness, Son & Co., Ltd.	100	0	0
L. B. Holliday & Co., Ltd.	100	0	0
Kodak, Ltd.	100	0	0
May & Baker, Ltd.	100	0	0
Reckitt & Colman, Ltd.	100	0	0
The Staveley Coal & Iron Co., Ltd.	100	0	0
The United Steel Companies, Ltd.	100	0	0
†Hickson & Welch, Ltd.	98	0	0
†The Southern Oil Co., Ltd.	73	10	0
Allied Bakeries, Ltd.	52	10	0
Cadbury Bros., Ltd.	52	10	0
Cerebos, Ltd.	52	10	0
The International Paint & Compositions Co., Ltd.	52	10	0
Huntley & Palmers, Ltd.	52	10	0
John Riley & Sons, Ltd.	52	10	0
Rowntree & Co., Ltd.	52	10	0
Williams (Hounslow), Ltd.	52	10	0
Beatties Bakeries, Ltd.	50	0	0
J. Bibby & Sons, Ltd.	50	0	0
Borax Consolidated, Ltd.	50	0	0
Cambridge Instrument Co., Ltd.	50	0	0
W. Canning & Co., Ltd.	50	0	0
The General Electric Co., Ltd.	50	0	0
Hardman & Holden, Ltd.	50	0	0
Ilford, Ltd.	50	0	0
†The Midland Tar Distillers, Ltd.	50	0	0
Newton Chambers & Co., Ltd.	50	0	0
Siebe, Gorman & Co., Ltd.	50	0	0
J. W. & T. A. Smith, Ltd., & Associated Houses	50	0	0
The United Dairies, Ltd.	50	0	0
New Zealand Firms	42	1	7
Kemphorne Prosser & Co's New Zealand Drug Co., Ltd.	37	10	0
†Brown & Polson, Ltd.	35	0	0
†Prodorite, Ltd.	35	0	0
T. Tyrer & Co., Ltd.	35	0	0
Allen & Hanbury's, Ltd.	26	5	0
Alfred Bird & Sons, Ltd.	26	5	0
Carless, Capel & Leonard	26	5	0
J. Ferguson & Sons, Ltd.	26	5	0
High Speed Steel Alloys, Ltd.	26	5	0
Carried forward	27,660	8	8

	£	s.	d.
Brought forward	27,660	8	8
Howards & Sons, Ltd.	26	5	0
Pinchin, Johnson & Co., Ltd.	26	5	0
J. Terry & Sons, Ltd.	26	5	0
Benger's, Ltd.	25	0	0
F. W. Berk & Co., Ltd.	25	0	0
Birmingham Small Arms Co., Ltd.	25	0	0
British Alkaloids, Ltd.	25	0	0
The British Thomson Houston Co., Ltd.	25	0	0
W. J. Bush & Co., Ltd.	25	0	0
Wm. Butler & Co. (Bristol), Ltd.	25	0	0
Chiswick Products, Ltd.	25	0	0
The Chloride Electrical Storage Co., Ltd.	25	0	0
Decca Record Co., Ltd.	25	0	0
L. Dennis & Co., Ltd.	25	0	0
Dorman Long & Co., Ltd.	25	0	0
The Fullers Earth Union, Ltd.	25	0	0
Griffin & Tatlock, Ltd.	25	0	0
Lancashire Tar Distillers, Ltd.	25	0	0
J. Lucas, Ltd.	25	0	0
National Benzole Co., Ltd.	25	0	0
The Rio Tinto Co., Ltd.	25	0	0
James Robinson & Co., Ltd.	25	0	0
Savory & Moore, Ltd.	25	0	0
Spencer, Chapman & Messel, Ltd.	25	0	0
Stevenson & Howell, Ltd.	25	0	0
Viaduct Alum Co., Ltd.	25	0	0
White, Tomkins & Courage	25	0	0
Yorkshire Tar Distillers, Ltd.	25	0	0
The B. B. Chemical Co., Ltd.	21	0	0
Murphy & Son, Ltd.	21	0	0
North British Rayon, Ltd.	21	0	0
British Sugar Corporation, Ltd.	20	0	0
W. H. Cowburn & Cowpar, Ltd.	20	0	0
Dairy Products, Ltd.	20	0	0
Scottish Tar Distillers, Ltd.	20	0	0
Tate & Lyle, Ltd.	20	0	0
Venesta, Ltd.	20	0	0
Herts. Pharmaceuticals, Ltd.	15	15	0
Linoleum Manufacturing Co., Ltd.	15	15	0
Trinidad Petroleum Development Co., Ltd.	15	15	0
The United Molasses Co., Ltd.	15	15	0
£10 10s. 0d.			
Alcock (Peroxide), Ltd.; Birmingham Chemical Co., Ltd.; Fredk. Boehm, Ltd.; Victor Blagden & Co., Ltd.; T. Bolton & Sons, Ltd.; British Cellulose Lacquers, Ltd.; Brown, Bayley's Steel Works, Ltd.; Chemi-Synthetics, Ltd., J. M. Collett & Co., Ltd.; Dickinson & Son, Alexander Duckham & Co., Ltd.; Firth-Vickers Stainless Steels, Ltd.; A. B. Fleming & Co., Ltd.; Sir Alexander Gibb & Partners; Graesser Salicylates, Ltd.; Hemingway & Co., Ltd.; Richard Hodgson & Sons, Ltd.; Hopkin & Williams, Ltd.; Jenson & Nicholson, Ltd.; The Liverpool Borax Co., Ltd.; McKechnie Bros., Ltd.; C. W. Martin & Sons, Ltd.; T. Morson & Son, Ltd.; The Permutit Co., Ltd.; Potter & Clarke, Ltd.; The Prince Regent Tar Co., Ltd.; J. & E. Sturge, Ltd.; Robinson Bros., Ltd.; Thorium, Ltd.; Vitamins, Ltd.; A. Wander, Ltd.; J. & J. White, Ltd.	336	0	0
£10 0s. 0d.			
Algate Industries, Ltd.; Stafford Allen & Sons, Ltd.; The British Arkady Co., Ltd.; Scribbans-Kemp, Ltd.	40	0	0
H. C. Urlwin, Ltd.	8	0	0
£5 5s. 0d.			
Ashe Laboratories, Ltd.; Betts & Co., Ltd.; Brand & Co., Ltd.; British Fermentation Products, Ltd.; Burts & Harvey, Ltd.; Chivers & Sons, Ltd.; Commonwealth Fertilisers & Chemicals, Ltd.; Cooper, McDougall & Robertson, Ltd.; Evered & Co., Ltd.; Extractors (Hull), Ltd.;			
Carried forward	28,994	3	8

	<i>£</i>	<i>s.</i>	<i>d.</i>
Brought forward	28,994	3	8
Glendermid, Ltd.; Grindley & Co., Ltd.; Harbens (Viscose Silk Manufacturers), Ltd.; Harrington Bros., Ltd.; C. & T. Harris (Calne), Ltd.; Jeyes' Sanitary Compounds Co., Ltd.; J. F. Macfarlan & Co.; The Marmite Food Extract Co., Ltd.; A. Moray & Co., Ltd.; Thomas Ness, Ltd.; The Newcastle-upon-Tyne & Gateshead Gas Co.; Ocean Products (Pty), Ltd.; Paine & Co., Ltd.; The Premier Waterproof & Rubber Co., Ltd.; W. Ransom & Son, Ltd.; Sadler & Co., Ltd.; The Sheffield Chemical Co., Ltd.; The Southern Cocoa Mills, Ltd.; The South Yorkshire Chemical Works, Ltd.; Stermol, Ltd.; The Swan Mill Paper Co., Ltd.; Virol, Ltd.; C. C. Wakefield & Co., Ltd.; Winsor & Newton, Ltd.		178	10 0
<i>£5 0s. 0d.</i>			
Drake Law Laboratories; Dussek Bitumen & Taroleum, Ltd.; The Eaglescliffe Chemical Co., Ltd.; Norman Evans & Rais, Ltd.; L. Light & Co., Ltd.; Oswald M'Cardell & Co., Ltd.; O-Cedar, Ltd.; Foster D. Snell, Inc.; Yardley & Co., Ltd.		45	0 0
<i>£3 3s. 0d.</i>			
The Newcastle Breweries, Ltd.; Pancreol, Ltd.; William Pearson, Ltd.; The Walterisation Co., Ltd.		12	12 0
<i>£2 2s. 0d.</i>			
George Angus & Co., Ltd.; The Chemical & Insulating Co., Ltd.; Kaylene, Ltd.; R. P. Lawson & Sons, Ltd.; The Silberrad Research Laboratories, Voxsan, Ltd.		12	12 0
Thos. Goldsworthy & Sons, Ltd.		1	1 0
John Oakey & Sons, Ltd.		1	1 0
Rapax, Ltd.		1	0 0
	<u>£29,245</u>	<u>19</u>	<u>8</u>
Donations from Individuals.			
Emile Mond Bequest		100	0 0
Mr. F. P. Dunn		100	0 0
Professor T. S. Reichstein		100	0 0
Mr. W. A. Dickie		50	0 0
Professor C. N. Hinshelwood		50	0 0
Viscount Leverhulme		50	0 0
Sir Robert and Lady Robinson		50	0 0
Professor F. G. Donnan		25	0 0
Dr. G. M. Dyson		25	0 0
Professor P. Karrer		25	0 0
Dr. G. M. Bennett		21	0 0
Sir Wallace Akers		20	0 0
Mr. G. D. Birla		18	12 8
Dr. F. M. Hamer		15	15 0
‡ Professor W. Baker		15	8 0
† Mr. J. Davidson Pratt		14	14 0
<i>£10 10s. 0d.</i>			
Dr. W. Bradley, Mr. H. W. Cremer, Dr. C. J. T. Cronshaw, Mr. E. J. Dobbs, Dr. H. Graham, Professor D. H. Hey, Mr. G. S. W. Marlow, Dr. W. H. Mills, Mr. S. J. Pentecost, Dr. E. A. Pokorny, Mr. H. V. Potter		115	10 0
<i>£10 0s. 0d.</i>			
Professor M. Delépine, Sir Wyndham R. Dunstan, Mr. W. W. Macfarlane, Dr. H. E. Stapleton, Dr. H. J. Strausz, Professor W. Wardlaw, Dr. F. L. Warren		70	0 0
<i>£9 9s. 0d.</i>			
Mr. R. Bienaimé, Dr. V. Deulofeu		18	18 0
Professor W. D. McFarlane		6	0 0
Carried forward	<u>890</u>	<u>17</u>	<u>8</u>

Brought forward

£	s.	d.
890	17	8

£5 5s. 0d.

Dr. J. Bruce, Dr. H. G. Colman, Professor J. W. Cook, Dr. H. E. Cox, Mr. R. Duncalfe, Dr. B. Dyer, Mr. W. Gilbert, Professor J. M. Gulland, Mr. J. A. Halsby, Mr. F. C. Harwood, Dr. W. G. Hiscock, Professor E. D. Hughes, Professor C. K. Ingold, Sir Harry Jephcott, Dr. D. S. Jerdan, Dr. W. I. Jones, Dr. L. Levy and Mr. D. W. West, Mr. J. C. Mann, Dr. R. C. Menzies, Professor W. Pugh, Mr. J. A. Reavell, Dr. E. F. Richardson, Professor H. L. Riley, Mr. K. H. Saunders, Mr. F. Sproxton, Mr. G. Taylor, Professor W. E. S. Turner, Dr. W. A. Waters, Sir William Wayland, Mr. J. Wilson, Professor W. P. Wynne	162	15	0
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£5 0s. 0d.

Mr. C. A. Buckmaster, Mr. S. E. Carr, Dr. C. H. Desch, Sir Alfred Egerton, Mr. L. Eynon, Major F. A. Freeth, Professor W. E. Garner, Dr. K. A. Hamied, Mr. V. Harbord, Professor E. L. Hirst, Mr. E. H. T. Jukes, Mr. D. R. Lawson, Mr. D. McDonald, Dr. D. C. Mandeville, Dr. D. C. Martin, Miss G. L. Nassim, Mr. G. Randall, Mr. R. Raw, Mr. J. J. Scanlan, Dr. W. Tadros, Dr. N. Uri, Professor Gwyn Williams, Mr. R. M. Winter, Mr. F. J. Zimmermann	120	0	0
Dr. H. D. Dakin	4	17	7
Dr. R. P. Linstead	4	4	0
Mr. M. A. Arnold	4	0	0
Dr. G. W. Ferguson	4	0	0
Dr. F. Panzner	3	10	0

£3 3s. 0d.

Professor J. Heyrovsky, Mr. E. K. Holden, Dr. E. Hope, Dr. E. R. H. Jones, Miss E. G. Turner	15	15	0
Mr. F. Highley	3	0	0

£2 2s. 0d.

Dr. J. N. Aldington, Mr. J. P. Allchin, Mr. H. G. A. Anderson, Dr. W. Rogie Angus, Dr. H. Baines, Dr. M. P. Balfe, Mr. A. H. Bennett, Dr. F. M. Brewer, Mr. R. Brightman, Mr. R. W. Brooke, Dr. L. E. Campbell, Dr. K. H. Coward, Professor E. G. Cox, Miss M. Cunningham, Mr. A. H. Dunhill, Dr. H. J. T. Ellingham, Professor G. I. Finch, Mr. J. M. C. Fox, Mr. S. L. Goodchild, Mr. F. A. Greene, Dr. H. Greene, Professor A. Haddon, Mr. W. Haining, Mr. R. P. Harrison, Captain R. S. Haskew, Mr. H. Hayhurst, Dr. F. W. Kay, Professor J. Kendall, Dr. C. A. Kerr, Dr. F. H. Kroch, Mr. R. H. Linsell, Dr. P. Low-Beer, Dr. A. McGoekin, Dr. J. K. Marsh, Mr. W. R. Monk, Mr. R. G. Munson, Professor H. B. Nisbett, Mr. C. C. Ogleshorpe, Mr. E. T. Osborne, Professor D. H. Peacock, Professor P. P. Phillips, Mr. A. Potter, Mr. W. Potter-Mackenrot, Mr. D. R. Rexworthy, Mr. F. A. Robinson, Dr. F. Roffey, Mrs. E. S. Sampson, Mr. W. T. Shaw, Mr. A. F. E. Snashall, Mr. R. B. Southall, Dr. M. Taylor, Mr. E. Thompson, Dr. A. Turnbull, Dr. E. E. Walker, Professor T. S. Wheeler, Colonel R. W. Wren	117	12	0
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- *Sington, John Claude**. British. Buckles, Epsom Downs. Student. *Signed by* : F. E. King, J. A. Bartrop, Harry Irving.
- Skelton, George Francis**, B.Sc. (Lond.), A.R.I.C. British. 18, Coronation Avenue, Huyton, Liverpool, 14. Chemical Engineer. *Signed by* : H. Bassett, S. Wilson, J. H. Harwood.
- *Smith, Duncan Tennyson**, B.Sc. (Lond.), A.R.I.C. British. 281, Spring Bank West, Hull. Assistant Works Chemist. *Signed by* : A. P. Backshell, Harry Thompson, Brynmor Jones.
- Smith, William**, A.R.T.C., F.R.I.C. British. Miirren, Abbotsgrange Road, Grangemouth. Research Chemist. *Signed by* : R. J. Loveluck, D. Mercer, J. K. Thomson.
- Sperling, Reuben**, B.Sc. (Lond.). British. 16, Kirkstall Road, Urmston, nr. Manchester. Research Chemist. *Signed by* : H. K. Whalley, J. R. Holker, H. S. Boyd Barrett.
- Soul, David Child**, B.Sc. (Lond.), A.R.C.S., A.R.I.C. British. 24, Salisbury Road, Hove. Research Chemist. *Signed by* : Erik Miller, A. A. Eldridge, L. S. Theobald.
- Steele, Samuel Douthart**, B.Sc. (Glas.), A.R.T.C., F.R.I.C. British. 53, Courthill Avenue, Cathcart, Glasgow, S. 4. Chief of Chemical Laboratories, Research Department, Babcock & Wilcox Ltd. *Signed by* : A. B. Crawford, I. Vance Hopper, H. G. A. Anderson.
- Strain, Robert Noel Claude**, B.Sc.Hons. and M.Sc. (Q.U.B.), Ph.D. (Reading), A.R.I.C. British. 14, Fowler Road, Farnborough. Research Chemist, Royal Aircraft Establishment, Farnborough. *Signed by* : G. A. Earwicker, T. P. Hughes, W. G. S. Parker.
- *Trewick, Ronald Frederick George**. British. 40, Wellesley Road, Walthamstow, E. 7. Laboratory Assistant. *Signed by* : M. R. Porter, B. D. Pate, G. Mattock.
- Wales, Albert Eric**, M.Sc. (Leeds), F.R.I.C., Diploma in Education. British Municipal College, Burnley. Head of Science Department. *Signed by* : F. Dearnley, M. G. Evans, J. Colvin.
- *Walpole, Rex Edward**. British. 49, Windermere Road, Ealing, W. 5. Research Chemist. *Signed by* : W. Davey, G. J. L. Griffin, A. G. Long.
- *Ward, Stanley**, B.Sc.Hons. and M.Sc. (Manc.). British. 26, Brantwood Road, Salford, 7. Industrial Chemist, I.C.I. Ltd. *Signed by* : Colin Campbell, A. E. Gillam, J. G. M. Bremner.
- Ward, Victor John**, B.Sc.Hons. (Lond.), A.R.I.C., A.R.C.S. British. 1, Moreton Place, Harpenden. Research Chemist. *Signed by* : L. M. Miall, Peter W. Sykes, Frank Wesley.
- *Watson, John Howard**, B.A. (Cantab.), B.Sc. (Lond.), A.R.I.C. British. 162, Lea Road, Wolverhampton. Lecturer in Chemistry, Wolverhampton Technical College. *Signed by* : J. Ratcliffe, C. G. Smith, R. E. Stanton.
- Webb, John Ivor**, B.Sc. and Ph.D. (Birm.), F.R.I.C. British. c/o A. Guinness Son & Co., Ltd., Park Royal, N.W. 10. Research Chemist. *Signed by* : J. W. Tullo, C. J. Virden, J. Todd.

Wolf, Elisabeth. British. Aycliffe Trading Estate, 10 C 3A, Darlington. Research Chemist. *Signed by* : W. M. Wolf, Ernest A. Pokorny, G. M. Karsten.

UNDER SPECIAL PROVISION APPERTAINING TO CANDIDATES RESIDENT ABROAD

Carmack, Marvin, A.B. (Illinois), M.S. and Ph.D. (Michigan). American. Department of Chemistry, University of Pennsylvania, 34th and Spruce Streets, Philadelphia 4, Pennsylvania, U.S.A. Associate Professor of Chemistry. *Signed by* : Marjorie G. Horning.

Chalnoky, Laszlo, Doctor of Chemistry and Pharmacy at the University, Budapest. Hungarian. Rakoczy ut 80, Pecs, Hungary. Professor of Chemistry, University of Pecs. *Signed by* : V. Bruckner, G. Fodor.

Downey, Paul Milton, B.S. (Worcester Polytechnic Institute), M.S. (Univ. of New Hampshire). American. P.O. Box 652, Nitro, West Virginia, U.S.A. Research Chemist, Rubber Service Department, Monsanto Chemical Co., Nitro. *Signed by* : J. W. Barrett.

Lederer, Edgar, Dr.Phil. (Vienna), D.es.Sc. (Sorbonne). French. Institut de Biologie Physico-Chimique, 13, rue Pierre Curie, Paris 5eme, France. Maitre de Recherches au Centre National de la Recherche Scientifique. *Signed by* : M. Stacey, L. L. Bircumshaw.

Shalash, Zakaria. Egyptian. 15, Green Street, Moharrem Bey, Alexandria, Egypt. Student, Institute of Chemical Technology, Farouk I University, Alexandria. *Signed by* : Nazim Fakhoury, G. Soliman.

Sprague, James Maurice, B.A. (Franklin College), Ph.D. (Wisconsin). American. Sharp and Dohme Inc., Medical Research Division, Glenolden, Pennsylvania, U.S.A. Director of Organic Chemical Research. *Signed by* : Homer Adkins, B. M. McElvain.

Szabo, Zoltan, Ph.D. (Budapest). Hungarian. Institute for Physical Chemistry, The University, Dom-ter 2, Szeged, Hungary. Professor of Physical Chemistry, University of Szeged. *Signed by* : V. Bruckner, G. Fodor.

Vargha, Laszlo, D.Phil. (Budapest). Hungarian. Cluj-Kolozsvar, Str. Arany Janos 11, Roumania. Professor of Organic Chemistry, Bolyai University, Hungarian University of Roumania. *Signed by* : V. Bruckner, G. Fodor.

Watkins, Thomas Frederick, M.Sc. (Wales), F.R.I.C. British. Defence Research Chemical Laboratories, John and Sussex Streets, Ottawa, Ontario, Canada. Senior Scientific Officer, Ministry of Supply. *Signed by* : H. John Hadow.

* Reduced Annual Subscription.

PAPERS RECEIVED

List of papers received between December 4th, 1947, and January 12th, 1948. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

"Quantitative analysis of mixtures of sugars by the method of partition chromatography. Part I. Standardisation of procedure." By A. E. FLOOD, E. L. HIRST, and J. K. N. JONES.

"Symmetrically disubstituted formamidines. Formation by Raney nickel reduction of thioureas." By R. DEBRATH ASHWORTH.

"Physical properties and chemical constitution. Part XVIII. Three-membered and four-membered carbon rings." By G. H. JEFFREY and A. I. VOGEL.

"Physical properties and chemical constitution. Part XIX. Five-membered and six-membered carbon rings." By A. I. VOGEL.

"Physical properties and chemical constitution. Part XX. Aliphatic alcohols and acids." By A. I. VOGEL.

"Physical properties and chemical constitution. Part XXI. Aliphatic thiols, sulphides, and disulphides." By A. I. VOGEL.

"Physical properties and chemical constitution. Part XXII. Some primary, secondary, and tertiary amines." By A. I. VOGEL.

"Physical properties and chemical constitution. Part XXIII. Miscellaneous compounds. Investigation of the so-called co-ordinate or dative link in esters of oxy-acids and in nitro-paraffins by molecular refractivity determinations. Atomic, structural, and group parachors and refractivities." By A. I. VOGEL.

"Toxic organic compounds containing the C-F link. Part I. Methyl fluoroacetate and related compounds." By B. C. SAUNDERS and G. J. STACEY.

- " Anthraquinone series. Part II. Nitro- and amino-2-*tert.*-butyl- and -*n*-butyl-anthraquinones, and derived blue acid dyes." By R. J. MOUALIM and A. T. PETERS.
- " Structure of acorn starch." By E. L. HIRST, J. K. N. JONES, and A. J. ROUDIER.
- " The hydroxymethyl derivative of 2-mercaptobenzthiazole." By W. A. SEXTON and A. SPINKS.
- " Relationships between certain dissociation constants." By J. C. MCGOWAN.
- " An X-ray investigation of the carbonisation of coal-tar pitch." By S. P. GHOSH and H. L. RILEY.
- " Kationoid reactivity of aromatic compounds. Part VIII. The action of fused potassium hydroxide on 4 : 4'-*dimeso*benzanthronyl, and a note on the properties of 4- and 5-chloro*meso*benzanthrones." By W. BRADLEY and G. V. JADHAV.
- " Studies in the sterol group. Part XLVII. A new route to 7-dehydrocholesterol (provitamin D₃) and its derivatives." By A. E. BIDE, H. B. HENBEST, E. R. H. JONES, R. W. PEEVERS, and P. A. WILKINSON.
- " Studies in the sterol group. Part XLVIII. 7-Substituted cholesterol derivatives and their stereochemistry (Part I). 7-Halogeno-derivatives." By A. E. BIDE, H. B. HENBEST, E. R. H. JONES, and P. A. WILKINSON.
- " Studies in the sterol group. Part XLIX. 7-Substituted cholesterol derivatives and their stereochemistry (Part II). Esters of the epimeric 7-hydroxycholesterols." By H. B. HENBEST and E. R. H. JONES.
- " Studies in the sterol group. Part L. 7-Substituted cholesterol derivatives and their stereochemistry (Part III). 7-Alkoxycholesterol derivatives." By H. B. HENBEST and E. R. H. JONES.
- " The constitution of evodione." By S. E. WRIGHT.
- " A study of bituminous coal by (a) exhaustive solvent extraction and (b) X-ray diffraction." By H. E. BLAYDEN, J. GIBSON, and H. L. RILEY.
- " The preparation of some branched chain fatty acids." By A. D. CAMPBELL, C. L. CARTER, and S. N. SLATER.
- " The solubility of zinc soaps in organic solvents." By (Miss) E. P. MARTIN and R. C. PINK.
- " The chemistry of simple heterocyclic systems. Part II. Condensations of 6- and 7-nitro-4-chloroquinazoline with amines." By J. S. MORLEY and J. C. E. SIMPSON.
- " Cinnolines. Part XIX. The preparation and reactions of some 8-nitro-4-hydroxy- and 4-hydroxy-*Bz*-methyl-cinnolines." By J. R. KENEFORD, J. S. MORLEY, and J. C. E. SIMPSON.
- " Derivatives of 4-chloro- and 6-nitro-quinoline." By J. C. E. SIMPSON and P. H. WRIGHT.
- " Derivatives of 2 : 4-dinitrophenylacetone." By J. S. MORLEY, J. C. E. SIMPSON, and O. STEPHENSON.
- " Some trinuclear cyanine dyes. Part II. Neocyanines with dissimilar nuclei." By F. M. HAMER, R. J. RATHBONE, and B. S. WINTON.
- " The action of nitrosyl chloride on some metals and their compounds." By J. R. PARTINGTON and A. L. WHYNES.
- " The growth of titanium nitride on hot filaments." By F. H. POLLARD and P. WOODWARD.
- " Note on the symmetry between electron and proton transfers." By R. S. BRADLEY.
- " Ethylidene derivatives of sorbitol." By E. J. BOURNE and L. F. WIGGINS.
- " Synthetic antimalarials. Part XXXI. 2-*p*-Chloroanilino-4- β -diethylaminoethylaminoquinazolines containing various substituents in the quinazoline nucleus." By F. H. S. CURD, J. K. LANDQUIST, and F. L. ROSE.
- " Synthetic antimalarials. Part XXXII. Some 4-arylamino- and 4-arylthio-2-aminoalkylaminoquinazolines, and 2-arylthio-4-aminoalkylaminoquinazolines." By F. H. S. CURD, E. HOGGARTH, J. K. LANDQUIST, and F. L. ROSE.
- " The dimerisation of acenaphthylene." By V. A. CRAWFORD and C. A. COULSON.
- " Polycyclic aromatic amines. Part I." By G. M. BADGER.
- " The action of hydrochloric acid on 5 : 5-dichloro-6-hydroxy-6-methyl-5 : 6-dihydrouracil." By J. W. CORNFORTH and H. T. HUANG.
- " ' Dibenзамидодioxýtetrol.' " By J. W. CORNFORTH and H. T. HUANG.

- "Further studies of oxazoles and iminazoles." By J. W. CORNFORTH and H. T. HUANG.
- "Experiments on a synthesis of penicillin." By J. W. CORNFORTH and H. T. HUANG.
- "Synthesis of a 4-cyano-oxazole." By J. W. CORNFORTH and H. T. HUANG.
- "A novel oxazole synthesis." By J. W. CORNFORTH and H. T. HUANG.
- "The application of infra-red spectroscopy to structural problems in the anthraquinone field." By M. ST. C. FLETT.
- "Pyrazine derivatives. Part V. A general method for the synthesis of aminopyrazine derivatives." By G. T. NEWBOLD, F. S. SPRING, and W. SWEENY.
- "Pyrazine derivatives. Part VI. The oxidation of 2-ethoxy- and 2-chloro-pyrazine derivatives with hydrogen peroxide." By R. A. BAXTER, G. T. NEWBOLD, and F. S. SPRING.
- "Pyrazine derivatives. Part VII. The preparation of hydroxypyrazine derivatives by the Gastaldi method." By W. SHARP and F. S. SPRING.
- "Hydroxamic acids. Part I. Cyclic hydroxamic acids derived from pyridine and quinoline." By G. T. NEWBOLD and F. S. SPRING.
- "Short-chain polymerisation of styrene in presence of stannic chloride and hydrogen chloride." By G. WILLIAMS and (MISS) H. THOMAS.
- "Cyanine dyes from dihydro- β -quinindene." By A. B. LAL and V. PETROW.
- "Photochemical reactions. Part XIII. (a) Photochemical reactions of ethylenes with phenanthraquinone and with 1 : 2 : 3-triketones. (b) Dimerisation reactions in sunlight." By A. SCHÖNBERG, A. MUSTAFA, M. Z. BARAKAT, N. LATIF, R. MOUBASHER, and A. MUSTAFA (MRS. SAID).
- "The action of amines upon esters. Part II." By H. IRVING and H. I. FULLER.
- "Diterpenes. Part I. The identity of kaurene with podocarprene." By L. H. BRIGGS and R. W. CAWLEY.
- "Sophora alkaloids. Part V. The alkaloids of the seeds of a possibly new species from Anawhata, New Zealand." By L. H. BRIGGS and J. L. MANGAN.
- "Alkaloids of New Zealand senecio species. Part I. The alkaloid from *Senecio Kirklii*." By L. H. BRIGGS, J. L. MANGAN, and W. E. RUSSELL.

1948

- "The thermal decomposition of lead oxalate." By L. L. BIRCUMSHAW and I. HARRIS.
- "The dipole moments of benzocinnoline and benzocinnoline oxide in relation to those of *cis*-azo- and -azoxy-benzenes." By K. E. CALDERBANK and R. J. W. LE FÈVRE.
- "The condensation of benzoïn with quinol or resorcinol." By R. J. W. LE FÈVRE, C. R. TAYLOR, and R. N. WHITEM.
- "Studies in the detoxication of catalyst poisons. Part VIII. Thionaphthen and the thiophthens." By E. B. MAXTED and A. G. WALKER.
- "The condensation of 2 : 4 : 5-triamino-6-hydroxypyrimidine with glucose and fructose." By H. S. FORREST and J. WALKER.
- "Acidity functions. Part I. Dissociation of hydrogen chloride in, and proton affinities of, some oxygen-containing solvents." By E. A. BRAUDE.
- "Acidity functions. Part II. The nature of hydrogen-ion in some aqueous and non-aqueous solvents. The exceptional solvating properties of water." By E. A. BRAUDE and E. S. STERN.
- "The kinetics of anionotropic rearrangement. Part VIII. Medium composition. Acidity function and reaction rate." By E. A. BRAUDE and E. S. STERN.
- "The mechanism of the reaction of aryl *isocyanates* with alcohols and amines. Part II. The base-catalysed reaction of phenyl *isocyanate* with alcohols." By J. W. BAKER and J. GAUNT.
- "The mechanism of the reaction of aryl *isocyanates* with alcohols and amines. Part III. The 'spontaneous' reaction of phenyl *isocyanate* with various alcohols. Further evidence relating to the anomalous effect of dialkylanilines in the base-catalysed reaction." By J. W. BAKER and J. GAUNT.

- “ The mechanism of the reaction of aryl *isocyanates* with alcohols and amines. Part IV. The evidence of infra-red absorption spectra regarding alcohol-amine association in the base-catalysed reaction of phenyl *isocyanate* with alcohols.” By J. W. BAKER, M. M. DAVIES, and J. GAUNT.
- “ The mechanism of the reaction of aryl *isocyanates* with alcohols and amines. Part V. Kinetic investigations of the reaction between phenyl *isocyanate* and methyl and ethyl alcohols in benzene solution.” By J. W. BAKER and J. GAUNT.
- “ Structure and antimalarial activity. Part III. Some benzimidazoles.” By D. MURIEL HALL and E. E. TURNER.
- “ The synthesis of 7-amino-alloxazines and *-isalloxazines*.” By F. E. KING, R. M. ACHESON, and (in part) A. B. YORKE-LONG.

March, 1948

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING MAY, 1948

LONDON.

Thursday, May 6th, 1948, at 7.30 p.m.

Lecture, **The Molecular Orbital Theory of Valency**, by Sir John Lennard-Jones, K.B.E., D.Sc., F.R.S.

To be held in the Lecture Theatre of The Royal Institution, Albemarle Street, W. 1.

Thursday, May 20th, 1948, at 7.30 p.m.

Victor Moritz Goldschmidt Memorial Lecture, by Professor J. D. Bernal, M.A., F.R.S.

EIRE.

Friday, May 28th, 1948, at 7.45 p.m.

Lecture, **Absorption Spectra as Chemical Tools**, by Dr. A. E. Gillam, F.R.I.C.

Joint meeting with the Werner Society to be held in the Department of Chemistry, Trinity College, Dublin.

EXETER.

Friday, May 28th, 1948, at 4.30 p.m.

Lecture, **Advances in Immunochemistry**, by Professor M. Stacey, D.Sc., F.R.I.C.

To be held in the Washington Singer Laboratories, Prince of Wales Road.

HULL.

Thursday, May 20th, at 6 p.m.

Lecture, **Kinetics of Some Organic Halogenation Reactions**, by R. P. Bell, Esq., M.A., F.R.S.

Joint meeting with the University College Scientific Society to be held in the University College.

LEEDS.

Monday, May 3rd, 1948, at 6.30 p.m.

Lecture, **The Valence of Metals and the Structure of Intermetallic Compounds**, by Professor L. C. Pauling, D.Sc., Ph.D., For. Mem. R.S.

To be held in the Chemistry Department of the University.

NEWCASTLE AND DURHAM.

Friday, May 21st, 1948, at 5 p.m.

Bedson Club Lecture, **Modern Theories of the Mechanism of Drug Action**, by Professor A. R. Todd, D.Sc., F.R.S.

To be held at King's College, Newcastle-upon-Tyne, 1. All Fellows are invited.

SOUTHAMPTON.

Thursday, May 20th, 1948, at 5 p.m.

Lecture, **Intermolecular Forces and Biological Specificity**, by Professor L. C. Pauling,
D.Sc., Ph.D., For. Mem. R.S.

Joint meeting with the Chemical and the Physical Society of University College, Southampton,
to be held in the Physics Department, University College.

ADJOURNED ANNUAL GENERAL MEETING

Notice is hereby given that the adjourned 107th Annual General Meeting will be held in the rooms of the Society, Burlington House, Piccadilly, London, W. 1, at 5.15 p.m. on Thursday, June 3rd, 1948, to receive the audited accounts for the year ended December 31st, 1947.

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PROCEEDINGS
OF THE
CHEMICAL SOCIETY

**Minutes of a
SCIENTIFIC MEETING**

held in the Department of Chemistry, University College, Dublin, on Tuesday, March 2nd, 1948, at 7.30 p.m.

SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., Vice-President, was in the Chair.

After conveying the apologies of the President, who was unable to be present, Sir Ian Heilbron expressed his pleasure at opening the first Official Meeting of the Chemical Society ever to be held in Ireland, and his thanks to the Fellows in Dublin for their hospitality.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society :

James E. Gowan, J. Andrews, J. W. Parkes, J. W. Tullo, J. M. Veale, George Bernfeld, T. N. Richardson, A. G. G. Leonard, Donal T. Flood, Vincent C. Barry, Anthony Werner, Patrick T. Moore, Thos. Dillon, Diarmuid O'Tuama, John Kearns, W. V. Griffiths, N. V. Nowlan, Thomas G. Brady, W. J. Stringer, Brian E. Cross, T. S. Wheeler.

PEDLER LECTURE.

At the conclusion of the formal business Professor T. S. Wheeler, D.Sc., F.R.I.C., Local Representative of the Society for Eire, took the Chair and called on Sir Ian to deliver his Pedler Lecture entitled "Recent Developments in the Vitamin A Field."

At the conclusion of the lecture a vote of thanks, proposed by Professor Wesley Cocker and seconded by Dr. V. C. Barry, was carried with acclamation.

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, Piccadilly, W. 1, on Thursday, March 4th, 1948, at 7.30 p.m.

The President, PROFESSOR C. N. HINSELWOOD, M.A., D.Sc., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held on February 19th, 1948, were read and were confirmed and signed.

VACANCIES ON COUNCIL, 1948—1949.

The list of nominations for vacant places on the Council which were due to be filled at the Annual General Meeting on March 18th, 1948, were read.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society :

E. D. Eustice, Brian S. Cane, P. W. Sykes, G. M. Thomas, D. J. Halliday, P. P. Jennings, J. H. Ottaway.

HUGO MÜLLER LECTURE.

The President called upon Professor E. L. Hirst, M.A., D.Sc., F.R.S., to deliver the Hugo Müller Lecture entitled "The Occurrence and Significance of the Pentose Sugars in Nature, and their Relationship to the Hexoses." At the conclusion of the lecture a vote of thanks to Professor Hirst, proposed by Dr. C. W. Shoppee, was carried with acclamation.

107th ANNUAL GENERAL MEETING, 1947.

A full report of the 107th Annual General Meeting held at Oxford on March 18th, 1948, will appear in the *Journal*.

OFFICIAL ANNOUNCEMENTS**DEATHS.**

The Council regret to announce the deaths of the following Fellows :

	Elected.	Died.
Vinayak Keshav Bhagwat (Bombay)	June 21st, 1923	July 5th, 1947
Bernard Shirley Dyer (N.W. 3)..... (C. 1893—1897, 1904—1908)	Dec. 16th, 1875	Feb. 12th, 1948
George McGowan (W. 5)	Aug. 3rd, 1887	Feb. 7th, 1948
Albert Henry Mitchell (Tiverton)	Apr. 21st, 1898	Feb. 14th, 1948

ELECTION OF NEW FELLOWS.

The following 109 candidates were elected Fellows of the Society on March 4th, 1948 :

Alexander Andrew.	Peter John Dyne.
Kenneth John Maynard Andrews.	John Kenneth Eaton.
Cynthia June Arlidge.	Jean Ivan Auguste Effront.
Francis Sidney Aston.	Roland Leslie David Ellis.
Ernest Edgar Aynsley.	Donald Anthony Elvidge.
James Roy Backhouse.	Verney Evans.
Shanti Lal Bafna.	James Lionel Everett.
Howard Henry Bagnall.	Peter Falcon Uff.
Frank William Bampton.	Frederick Arnold Fidler.
John Greig Bannochie.	Magnus St. Clair Flett.
Arthur Heathcote Barker.	George Joseph Foley.
Michael Peter Barnett.	Leslie Fowden.
George Frederick Beecroft.	Arnold Montague Freedman.
David Muir Bellis.	Charles Trevor Greenwood.
Ronald Blunt.	Evrard Peter Hart.
Albert Rene Emile Boidin.	Ernest Halfpenny.
Kenneth Briscoe.	Jeffrey Barry Harborne.
Hubert Greenslade Britton.	James Gordon Hay.
Leslie Frank Brown.	Neil Heron.
James Arthur Bulley.	John Alexander Dick Healey.
Alfred Campbell.	Derek Stuart Hoare.
Marvin Carmack.	William Ronald Penrose Hodgson.
Dennis Geoffrey Chisman.	William Hopkin.
Laszlo Cholnoky.	Michael Augustus Howard.
Geoffrey George Coker.	Ronald Erle Illingworth.
Charles Donald Cook.	John Dewi Jones.
Cyril Lloyd Cook.	Derek Roy Kelham.
James Oliver Crane.	Yvonne Larthe.
John Robert Craven.	Leonard Lavender.
David Douglas Curr.	Edgar Lederer.
Paul Milton Downey.	William David Mansfield Lutyens.
Robert Arthur Durie.	Mrs. Kathleen Mackay.

Hugh Michael Macturk.
 William Peter McKinney.
 Leslie William Marrison.
 Ivor Clifford Herbert May.
 Christopher Ian Meyrick.
 Stang Mongkolsuk.
 Peter Alan Moore.
 Thomas Henry Morton.
 John Syme Nairn.
 Nicholas Norman.
 Patrick Augustine Ongley.
 David Pearson.
 William John Mander Philpott.
 Neville Mowbray Potter.
 John Garrick Priest.
 Evans Burton Reid.
 Jaffrey Rowland.
 Stanley Rowland.
 James Hallewell St. Johnston.
 James Saunders.
 Rowland Whincup Saville.
 Gunter Arthur Schmeidler.
 Eric Herbert Brodie Sellwood.

Zakaria Shalash.
 Alma Beryl Simmonds.
 John Claude Sington.
 George Francis Skelton.
 Duncan Tennyson Smith.
 William Smith.
 Reuben Sperling.
 James Maurice Sprague.
 David Child Soul.
 Samuel Douthart Steele.
 Robert Noel Claude Strain.
 Zoltan Szabo.
 Ronald Frederick George Trewick.
 Laszlo Vargha.
 Albert Eric Wales.
 Rex Edward Walpole.
 Stanley Ward.
 Victor John Ward.
 Thomas Frederick Watkins.
 John Howard Waton.
 John Ivor Webb.
 Elisabeth Wolf.

MEETING OF COUNCIL.

A Meeting of Council was held on Thursday, March 4th, 1948.

The Report of the Publication Committee (February 5th, 1948), which included a recommendation to discontinue publication of the formula index of the *Journal*, was adopted. A recommendation that reports on Crystallography should not be included in the section dealing with General and Physical Chemistry in the *Annual Reports on the Progress of Chemistry*, but should be published biennially as a separate section, beginning with the *Annual Reports* for 1949, was agreed.

It was reported that Professor L. C. Pauling had accepted the invitation of Council to deliver the Liversidge Lecture on June 3rd next. Preliminary consideration was given to the appointment of Tilden Lecturers for 1948—1949.

The thanks of the Council were expressed to Messrs. F. W. Barwick, W. R. Bulcraig, A. F. Campbell, and A. P. Mieras, who had sent gifts of the Society's publications.

As no valid nomination had been received by February 14th, 1948, for the vacancy on Council for Constituency IV due to be filled at the Annual General Meeting on March 18th, 1948, Professor G. R. Clemo was invited to fill the vacancy.

Council appointed Dr. W. A. Waters as Local Representative for Oxford in succession to Professor F. E. King, who had tendered his resignation on his transfer to Nottingham as from March 31st, 1948.

An invitation from the Institute of Metals to be associated with the Institute in the organisation of a symposium on "Metallurgical Applications of the Electron Microscope" was accepted.

Certain formal and financial items were also dealt with.

VAN 'T HOFF FUND.

The Committee of the Van 't Hoff Fund for the endowment of investigations in the field of Pure and Applied Chemistry invites applications for grants from the Fund. Grants can be used to cover the expenses of a stay in Holland for scientific purposes, the cost of travel to and from Holland being borne by the applicant.

The amount available for 1949 is about 1400 Dutch Guilders, and applications should be sent by registered post to "Het Bestuur der Koninklijke Nederlandsche Academie van Wetenschappen, bestemd voor de Commissie van het 'Van 't Hoff-Fonds,' Trippenhuis, Kloveniersburgwal, Amsterdam," before November 1st, 1948. They must contain a list of the laboratories to be visited, and the field of chemical research in which applicants are particularly interested should be indicated.

MEETINGS OUTSIDE LONDON

EDINBURGH.

“Proton Transfer and Analogous Reactions,” by Professor W. F. K. Wynne Jones, D.Sc.

A joint meeting with the Edinburgh University Chemical Society and the local sections of the Royal Institute of Chemistry and Society of Chemical Industry was held in the Biochemistry Department, Teviot Place, on February 24th, 1948, with Mr. E. B. McCall in the Chair.

Professor Wynne Jones gave a stimulating address, in which he took the opportunity to pay the highest possible tribute to the work of the late Professor Brønsted in a review in which special attention was paid to acid-base catalysis and to Brønsted's theory of acids and bases. Professor Kendall contributed some personal impressions of Arrhenius, and a vote of thanks to the lecturer, proposed by Dr. N. Campbell, was carried with enthusiasm.

“Practical Aspects of Wetting and Detergency,” by Dr. E. S. Paice.

A joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the North British Station Hotel, on March 11th, 1948. Dr. Ames was in the Chair.

Dr. Paice delivered a most informative lecture in which he reviewed the main types of compounds used and their application in many industries. The lecture was followed by an interesting discussion, and a hearty vote of thanks was accorded on the motion of Dr. D. M. Wilson.

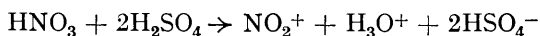
EIRE.

“Aromatic Nitration,” by Professor C. K. Ingold, D.Sc., F.R.S.

A joint meeting with the College Chemical Society was held in the Chemistry Lecture Theatre, University College, Dublin, on February 27th, 1948, with Mr. Cormac O'Briain, M.Sc., President of the College Chemical Society, in the Chair.

Professor Ingold pointed out that the main facts concerning the kinetics of nitration are that in sulphuric acid it is of the second order, in nitric acid it is of the first order, and in organic solvents with nitric acid in excess it is still of the first order if the aromatic compound is unreactive, but of zeroth order if it is reactive. These results, except the last, can be accommodated to many theories, but the last is sharply diagnostic—having the same importance for aromatic nitration as the observation of corresponding kinetics in the hydrolysis of *t*-butyl chloride had for nucleophilic substitution. It means that a preliminary fission of the nitric acid can become rate-determining; and, since nitration is an electrophilic substitution, the reactive fission product can be nothing else than the nitronium ion NO_2^+ . Apart from instantaneous proton-transfers, the two cases are parallel, except that, because of the opposite polar characters of the substitutions, the functions of the organic and inorganic reactants become interchanged: $\text{NO}_2 \cdot \text{O} \cdot \text{H} \rightarrow \text{NO}_2^+ + \text{OH}^-$; $t\text{-BuCl} \rightarrow t\text{-Bu}^+ + \text{Cl}^-$. In organic solvents the nitronium is formed slowly, though in nitric and sulphuric acids it is produced rapidly, and in excess of sulphuric acid completely.

The complete production of this ion in sulphuric acid is proved by a four-fold depression of the freezing-point of sulphuric acid, in accordance with the equation :



The ion can be detected in solutions, and in crystals, by its line of frequency 1400 cm.^{-1} , which can be proved by its spectroscopic characteristics to arise from a linear, centrosymmetric molecule of no more than three atoms, *i.e.*, $\text{O}=\overset{+}{\text{N}}=\text{O}$. A series of salts of the nitronium ion have been prepared and the presence in them of the ion has been established by their Raman spectra, and in one case (the perchlorate) by crystal analysis (Cox).

The lecture was greatly appreciated by a large audience, and a vote of thanks to the lecturer, which was proposed by Dr. A. E. Werner and seconded by Professor T. S. Wheeler, was carried with acclamation.

“Recent Researches in the Azole Field,” by Sir Ian Heilbron, D.S.O., D.Sc., LL.D., F.R.S.

A joint meeting with the Werner Society was held in the Chemistry Lecture Theatre, Trinity College, Dublin, on March 3rd, 1948, with Professor Wesley Cocker in the Chair.

Sir Ian Heilbron described research work in the azole field carried out in his laboratory. The vote of thanks to Sir Ian for his stimulating lecture, proposed by Professor E. A. Werner and seconded by Professor William Fearon, was carried with acclamation.

EXETER.

“Surface Films,” by Professor N. K. Adam, M.A., Sc.D., F.R.S.

A meeting was held at the Washington Singer Laboratories on February 27th, 1948, with Professor H. T. S. Britton in the Chair.

Professor Adam delivered a most interesting lecture, and, after describing the various states of aggregation to be found amongst films on water, he went on to explain the relevance of surface films and surface-film technique to other fields of work; in particular, the application of the technique to the elucidation of molecule structure was most intriguing.

At the conclusion of the lecture a hearty vote of thanks was proposed by Dr. R. I. Razouk and seconded by Dr. A. Marsden.

GLASGOW.

“Some Problems in the Chemistry of Starch and Glycogen,” by Professor E. L. Hirst, M.A., D.Sc., F.R.S.

A joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the University on March 12th, 1948.

In a fascinating account of present knowledge and uncertainty in the chemistry of starch, Professor Hirst surveyed the structural problem of amylose and amylopectin and the relation of these compounds to different starches. He discussed the results of enzymatic degradation and synthesis, and indicated some of the more speculative aspects of the subject. A vote of thanks proposed by Professor F. S. Spring was most warmly accorded.

LIVERPOOL.

Tilden Lecture, “Crystallographic technique and its Chemical Significance,” by Professor E. G. Cox, D.Sc.

A meeting was held in the University Chemistry Department on March 4th, 1948. Professor W. C. McC. Lewis, F.R.S., introduced the lecturer and welcomed a visiting party of staff and students from University College, Bangor.

A stimulating lecture, illustrated by many slides, was followed by a discussion. A vote of thanks, proposed by Dr. A. K. Holliday and seconded by Mr. R. Quayle, was carried with acclamation.

NORTH WALES.

“Some Aspects of Solid Reactions,” by Professor W. E. Garner, C.B.E., D.Sc., F.R.S.

A joint meeting with the University College of North Wales Chemical Society was held on February 13th, 1948, Mr. J. Rodney Quayle being in the Chair.

Professor Garner dealt mainly with reactions in which the end products are a solid and a gas, and referred to the decomposition of azides and salt hydrates. A brief discussion on reactions between two solids was also included. After a short discussion a

vote of thanks, proposed by Professor E. D. Hughes and seconded by Mr. Ivor Owen, was enthusiastically accorded to the lecturer.

NORTHERN IRELAND.

Pedler Lecture, "Recent Developments in the Vitamin A Field," by Sir Ian Heilbron, D.S.O., D.Sc., LL.D., F.R.S.

A meeting, preceded by a reception, was held in the Chemical Lecture Theatre of the University, Belfast, on March 4th, 1948. Professor Ubbelohde was in the Chair.

Sir Ian dealt with the work done in the last five or six years. At the conclusion of the lecture a very warm vote of thanks was proposed by Professor Wren and seconded by Dr. Mayne Reid. This was enthusiastically supported by the large audience.

SHEFFIELD.

"Stereochemical Regularities in Catalytic Reactions," by Dr. R. P. Linstead, C.B.E., F.R.S.

A joint meeting with the University Chemical Society was held in the Chemistry Lecture Theatre of the University on January 29th, 1948, with Professor R. D. Haworth, D.Sc., F.R.S., in the Chair.

Dr. Linstead dealt with his investigations in the field of hydrogenation. The isolation and characterisation of the six possible perhydrodiphenic acids was described, and the lecturer proceeded to show how these reference compounds were used in ascertaining the mode of interaction of phenanthrene compounds and hydrogenation catalysts.

A vote of thanks, proposed by Dr. D. H. Peacock and seconded by Mr. D. P. Dodgson, was accorded heartily by the meeting.

"The Factors influencing Radical Reactions in Solution," by Professor M. G. Evans, D.Sc., F.R.S.

A joint meeting with the University Chemical Society was held in the Chemistry Lecture Theatre of the University on February 12th, 1948, with Professor R. D. Haworth, D.Sc., F.R.S., in the Chair.

Professor Evans dealt with the initiation, propagation, and termination of polymer chains, showing the close analogy between these events and the birth, growth, and death of individuals in studies of population. Chain reactions, leading to polymerisation, did not differ fundamentally from simpler chemical processes, and both were dependent upon the energy associated with the formation and rupture of valency bonds.

A vote of thanks, proposed by Mr. H. J. V. Tyrrell and seconded by Mr. D. Caunt, was accorded heartily by the meeting.

SOUTH WALES.

"The Anti-bacterial Compound, Aspergillilic Acid," by Professor F. S. Spring, D.Sc., F.R.I.C.

A joint meeting with the University College of Swansea Chemical Society was held in the Chemistry Lecture Theatre, University College, Swansea, on March 5th, 1948.

After stressing the great advances in organic chemistry that had been achieved through the development of the new techniques and especially of micro-methods, Professor Spring outlined his researches on the constitution of aspergillilic acid, the anti-bacterial but toxic compound that is produced when the mould *Aspergillus flavus* grows in a medium that contains amino-acids. Detailing the evidence for a cyclic hydroxamic acid group with the second nitrogen atom included to give a hydroxypyrazine nucleus, he showed that the remaining atoms would form two alkyl side-chains, the simplest possibility being two *isobutyl* groups (in view of the presence of *isoleucine* in the casein hydrolysate usually employed to furnish the amino-acids). *Diisobutylhydroxypyrazine* had been synthesised by three methods, but whilst its chemical properties agreed with those of deoxyaspergillilic acid, the reduction product of aspergillilic acid, differences in

physical properties indicated that the acids did not contain *isobutyl* groups. With the isolation of acetone as an oxidation product, the side-chains were now thought to be *isopropyl* and active amyl groups, and this possibility was now being examined.

After a discussion a cordial vote of thanks to the lecturer was proposed by Dr. Hinkel, seconded by Mr. Summers, and carried with acclamation.

LIST OF APPLICATIONS FOR FELLOWSHIP

(*Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the Journal for March, 1948. Such objections will be treated as confidential. The forms of application are available in the Library.*)

- ***Adey, Kenneth Armstrong.** British. 98, Bexley Grove, West Bromwich. Industrial Chemist. *Signed by* : E. N. White, Fred G. Broughall, Paul Arnall.
- Alcock, Arthur,** A.M.C.T., A.R.I.C. British. Flat No. 1, 24, Manchester Road, Chorlton-cum-Hardy, Manchester, 19. Deputy Public Analyst and Official Agricultural Analyst to Cities of Leeds and Wakefield. *Signed by* : Norman Blakebrough, F. H. Montgomery, T. K. Walker.
- Allen, Frank John,** A.R.I.C. British. 5, Jeremy Grove, Shelden, Birmingham, 26. Research Chemist. *Signed by* : T. T. Jones, R. F. Hunter, E. G. K. Pritchett.
- Alway, Herbert Henry Thomas,** B.Sc.Hons. and M.Sc. (Bristol), A.R.I.C. British. 2, Tresco Mansions, Highbury Road, Weston-super-Mare. Chief Chemist, E. S. and A. Robinson, Ltd. *Signed by* : T. Malkin, F. H. Pollard, C. E. H. Bawn.
- Angyal, Stephen John,** Ph.D. (Budapest). British. Chemistry Department, University of Sydney, Sydney, N.S.W., Australia. Lecturer in Chemistry. *Signed by* : R. J. W. Le Fèvre, T. Iredale, Eleanor W. Leake.
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- ***Austin, James.** British. King's College Hall, The Platanes, Champion Hill, S.E. 5. Student. *Signed by* : S. H. Harper, John Honeyman, D. H. Hey.
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- Gibson, Peter Robert Scafe,** B.Sc.Hons. (Lond.), A.R.I.C. British. Oak Lodge, Oaklands, Welwyn. Technical Manager, Rubber Improvement, Ltd., N.W. 10. *Signed by* : A. J. Allmand, Joseph M. J. Estevez, H. J. T. Ellingham.
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- Hughes, Ann,** A.R.I.C. British. 26, Moat Avenue, Ellesmere Port, Wirral. Assistant Chemist. *Signed by* : R. S. Aird, M. A. Birch, B. J. Donevan.
- ***Humphrey, Crosby Walker.** British. 1, Park Lea Road, Roker, Sunderland. Student, Sunderland Technical College. *Signed by* : J. H. Wilkinson, J. W. Boyd, Joseph Gibson.
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- Nunn, Arthur John**. British. 36, Buckerell Avenue, Exeter. Student, University College of the South-West, Exeter. *Signed by* : S. J. Gregg, K. Schofield, K. S. W. Sing.
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- Parr, Charles William**. British. 129, West Way, Bournemouth. Student, London University. *Signed by* : C. G. Smith, W. Gerrard, H. J. S. King.
- Priestman, Benjamin Theodore**. British. c/o Reckitt & Colman, Ltd., Damson Lane, Hull. Director. *Signed by* : G. Colman Green, Brynmor Jones, R. R. Baldwin.
- ***Saxton, John Edwin**. British. 63, Rockcliffe Road, Rawmarsh, nr. Rotherham. Student. Oxford University. *Signed by* : F. E. King, J. C. Smith, D. H. Everett.
- Sharp, Harold Gregory**, F.I.A. British. Northfield, Balerno. Retired Manager and Actuary, The Scottish Widow's Fund and Life Assurance Society. *Signed by* : John H. Ramsay, Jas. W. Teesdale, Donald C. Wilson.
- ***Simmons, Robert Frank**. British. 14, Western Road, Mitcham. Student, University College, Hull. *Signed by* : Brynmor Jones, R. R. Baldwin, G. W. Gray.
- Smith, Robert James**, A.R.I.C. British. c/o Research Laboratory, Aspro Ltd., Slough. Technical Development Manager. *Signed by* : A. A. Evans, J. A. Emlyn, Alex B. Jansen.
- ***Stacey, Kenneth Arthur**. British. 3, Mighell Street, Brighton, 7. Student, Queen Mary College, London University. *Signed by* : C. M. French, W. J. Hickinbottom, J. R. Partington.
- ***Stinson, William Gordon**. British. 6, Wyberton West Road, Boston. Student, University College, Hull. *Signed by* : Brynmor Jones, R. R. Baldwin, G. W. Gray.
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- ***Towers, Roy**. British. 1, Ettington Road, Anfield, Liverpool, 4. Student, Liverpool University. *Signed by* : W. B. Whalley, R. J. S. Beer, A. McGookin.
- ***Turner, Godfrey Alan**. British. 128, The Philog, Whitchurch, Cardiff. Student. *Signed by* : H. B. Watson, J. Ormston, W. D. Williams.
- Vale, Corwyn Philip**, M.A. (Cantab.), A.R.I.C. British. 63, Mallin Street, Smethwick. Research Chemist, British Industries Plastics Ltd. *Signed by* : J. Hofton, W. Blakey, R. D. Taylor.
- Watt, James Alastair Crichton**, B.Sc.Hons. (Glas.), A.R.I.C. British. 64, Easterly Road, Leeds, 8. Research Chemist, British Hat and Allied Feltmakers Research Association. *Signed by* : Gordon McLeavy, James D. Loudon, C. Buchanan.
- ***Whitehead, Thomas Patterson**, A.R.I.C. British. 35, Hertford Road, Hoddesdon. Research Chemist, Medical Research Council. *Signed by* : D. W. Kent-Jones, A. J. Amos, Norman Evers.
- Williams, Russell Henry**. British. 189, Walsall Road, Aldridge. Metallurgical and Works Analyst. *Signed by* : Pat. D. Richie, J. Cooper Duff, J. R. W. Cheatle.

- Wray, Percival Reynolds**, M.Sc. (Dunelm), A.R.I.C. British. 32, Sanderson's Croft, Leigh. Chemistry Master, Leigh Grammar School. *Signed by* : W. N. Haworth, J. C. Withers, F. O. Howitt.
- Wright, James Matson**, B.Sc. and Ph.D. (Lond.), D.I.C., A.R.C.S., F.R.I.C. British. The Haven, Saxon Road, Salisbury. Scientific Officer, Ministry of Supply. *Signed by* : R. Owens, L. T. D. Williams, E. A. Perren.

UNDER SPECIAL PROVISION APPERTAINING TO CANDIDATES RESIDENT ABROAD.

- Halliburton, Gavin Jack**, M.Sc. (New Zealand). British. 180, Knowles Street, St. Albans, Christchurch, New Zealand. *Signed by* : J. Packer, R. J. McIlroy.
- Heilbronner, Edgar**, Dipl.ing.chem. (Zurich). Stateless. Culmannstrasse 1, Zurich, 6, Switzerland. Research Assistant of Professor L. Ruzicka. *Signed by* : L. Ruzicka, V. Prelog.
- Klein, Fitz Shalom**, M.Sc., Ph.D. Palestinian. Hebrew University, Jerusalem. Assistant, Department of Inorganic Chemistry. *Signed by* : A. Glasner, M. Avramoff.
- ***Krishnamani, Vettakorumakankav Bhaskarier**, B.Sc. (Madras). Indian. Swargam House, Chalapuram P.O., Calicut, Madras Province, India. Soap Chemist, Vegetable Soap Works, Calicut. *Signed by* : A. K. Menon.
- Leatherland, Lawrence Campbell**, M.S. (Virginia). American. Institute of Textile Technology, P.O. Box 391, Charlottesville, Virginia, U.S.A. Head, Chemical Engineering Division, Institute of Textile Technology, Charlottesville, Virginia. *Signed by* : Garnett Ryland, Foster Dee Snell.
- Meltzer, Emmanuel**, B.Sc. (Cape Town), A.R.I.C. British. P.O. Box 1288, Salisbury, S. Rhodesia. Industrial Chemist. *Signed by* : H. J. T. Ellingham, R. Leslie Collett.
- Sakal, Emile H.**, B.Sc. and Ph.D. (L'pool). American. 580, East 17 Street, Brooklyn 26, New York, U.S.A. Senior Research Chemist, Warner Institute for Therapeutic Research, 113, West 18th Street, New York, 11. *Signed by* : John A. King.
- Vinkler, Elemér**, Ph.D. (Szeged). Hungarian. Révay-u 6/b, Szeged, Hungary. Senior Lecturer in Organic Chemistry, University, Szeged. *Signed by* : V. Bruckner, G. Fodor.

* Reduced Annual Subscription.

PAPERS RECEIVED

List of papers received between February 11th and March 4th, 1948.

- "Reactions of ethylene oxides. Part II. Reactions with R·SH compounds." By C. C. J. CULVENOR, W. DAVIES, and N. S. HEATH.
- "The preparation and reactions of aliphatic ethylene sulphides." By C. C. J. CULVENOR, W. DAVIES, and N. S. HEATH.
- "The measurement of gas solubilities." By T. J. MORRISON and F. BILLETT.
- "Infra-red spectroscopic measurements of substituted pyrimidines. Part I. The presence of hydrogen bonding in 4-triacetyl-D-xylosidaminopyrimidines." By I. A. BROWNLIE, G. B. B. M. SUTHERLAND, and A. R. TODD.
- "The infra-red spectra of mixtures of aldehydes and alcohols." By A. ASHDOWN and T. A. KLETZ.
- "Note on the intensity of the double-bond valence vibration in octenes." By T. A. KLETZ and A. SUMNER.
- "Syntheses and reactions of mordenite." By R. M. BARRER.
- "The chemistry of ribose and its derivatives. Part I. Methyl-D-ribofuranoside, and the characterisation of trimethyl D-ribofuranose." By G. R. BARKER.
- "Colour reactions and adsorption of some aluminosilicates." By H. WEIL-MALHERBE and J. WEISS.
- "A synthesis of 3-acyl- and 3-aroyle-mesobenzanthrones." By F. IRVING and A. W. JOHNSON.
- "The reaction of bromine trifluoride and iodine pentafluoride with carbon tetrachloride, tetrabromide, and tetraiodide, and with tetraiodoethylene." By A. A. BANKS, H. J. EMELÉUS, R. N. HASZELDINE, and V. KERRIGAN.
- "The conversion of sucrose into pyridazine derivatives. Part III. Constitutional studies on the products of chlorination of 2:6-dimethyl-3-pyridazone." By R. F. HOMER, H. GREGORY, and L. F. WIGGINS.
- "The conversion of sucrose into pyridazine derivatives. Part IV. Further sulphanilamides derived from the 6-methyl-3-pyridazone." By R. F. HOMER, H. GREGORY, W. G. OVEREND, and L. F. WIGGINS.

- "The conversion of sucrose into pyridazine derivatives. Part V. Experiments on the synthesis of 3-amino-6-methylpyridazine and of its sulphanilamido-derivative." By H. GREGORY, W. G. OVEREND, and L. F. WIGGINS.
- "Anhydrides of polyhydric alcohols. Part XI. On the action of phosphorus tribromide on 1:4-3:6-dianhydro-mannitol and -sorbitol. Some new chloro-derivatives of 1:4-3:6-dianhydrosorbitol." By W. G. OVEREND, R. MONTGOMERY, and L. F. WIGGINS.
- "Anhydrides of polyhydric alcohols. Part XII. The reaction between mannitol and hydrochloric acid." By R. MONTGOMERY and L. F. WIGGINS.
- "Products of nitration of some derivatives of dimethylaniline: auramine and crystal-violet." By S. GALINOWSKI and T. URBAŃSKI.
- "The formation of ketones from semicarbazones by the action of nitrous acid." By D. H. HEY and D. S. MORRIS.
- "Synthetic antimalarials. Part XXXV. Further arylaminodialkylaminoalkylaminoquinoline derivatives." By G. M. BENNETT, P. C. CROFTS, and D. H. HEY.
- "Union of aryl nuclei. Part VII. Reactions with acyl peroxides." By D. H. HEY and E. W. WALKER.
- "The thermal decomposition of normal hexane." By R. G. PARTINGTON and C. J. DANBY.
- "The dipole moments of *N*- and *C*-substituted sydnones." By J. C. EARL, E. M. W. LEAKE, and R. J. W. LE FÈVRE.
- "Alkaloids of *Daphnandra* species. Part I. Repandine." By I. R. C. BICK and A. R. TODD.
- "The autoxidation of methyl oleate and linoleate, and the decomposition of the oxidation products: a theoretical discussion." By G. P. GIBSON.
- "Amines containing 2-halogenoethyl groups." By A. F. CHILDS, L. J. GOLDSWORTHY, G. F. HARDING, F. E. KING, A. W. NINEHAM, W. L. NORRIS, S. G. P. PLANT, B. SELTON, and A. L. L. TOMPSETT.
- "Some sulphides containing the 2-chloroethyl group." By L. J. GOLDSWORTHY, G. F. HARDING, W. L. NORRIS, S. G. P. PLANT, and B. SELTON.
- "The preparation of certain urethanes and their conversion into *N*-nitroso-derivatives." By A. F. CHILDS, L. J. GOLDSWORTHY, G. F. HARDING, S. G. P. PLANT, and G. A. WEEKS.
- "Compounds containing the 3-chloroallyl group." By A. F. CHILDS, S. G. P. PLANT, A. L. L. TOMPSETT, and G. A. WEEKS.
- "The chemical constitution of wattle (*mimosa*) tannin. Part I. A survey of the methods of study." By A. M. STEPHEN.
- "Substitution in the γ -pyrone nucleus. Derivatives of pyromeconic acid." By E. L. SHIMMIN and F. CHALLENGER.
- "The propagation of reaction chains in the polymerisation of styrene." By J. W. MENARY, A. R. UBBELOHDE, and M. J. WRIGHT.
- "The strength of heterocyclic bases." By A. ALBERT, R. GOLDACRE, and J. PHILLIPS.
- "The condensation of chloral with aromatic nitriles." By R. F. BATT and D. WOODCOCK.
- "The interaction of *N*-chloroacetanilide with phenols. The rate of formation of hypochlorous acid from *N*-chloroacetanilide by hydrolysis." By (Miss) F. B. HURST and F. G. SOPER.
- "The formation of kojic acid from ethyl alcohol by *Aspergillus oryzae*, and the action of this mould on some carbohydrate derivatives." By D. BARNARD and F. CHALLENGER.
- "The catechins of green tea. Part II." By A. E. BRADFIELD and (Miss) M. PENNEY.
- "Pectic substances. Part VIII. The araban component of sugar-beet pectin." By E. L. HIRST and J. K. N. JONES.
- "The absorption of antibacterial substances (2:8-diaminoacridine and methylene-blue) by cells of *Bact. lactis aerogenes*." By A. R. PEACOCKE and C. N. HINSHELWOOD.
- "The Elbs persulphate oxidation of phenols, and its adaptation to the preparation of monoalkyl ethers of quinol." By W. BAKER and N. C. BROWN.
- "Synthetic antimalarials. Part XXXIV. Physical-chemical studies on the diguanides." By J. C. GAGE.

LOCAL REPRESENTATIVES OF THE CHEMICAL SOCIETY.

- Aberdeen.* J. M. C. Thompson, M.A., D.Phil., A.R.I.C., Chemistry Department, Marischal College, The University, Aberdeen.
- Australia.* T. Iredale, B.Sc., F.R.I.C., The University, Sydney, Australia.
- Birmingham.* L. L. Bircumshaw, M.A., D.Sc., Department of Chemistry, The University, Edgbaston, Birmingham, 15.
- Bristol.* C. E. H. Bawn, Ph.D., Chemistry Department, The University, Woodland Road, Bristol.
- Cambridge.* B. Lythgoe, Ph.D., Organic Chemistry Department, The University, Cambridge.
- Canada.* W. D. McFarlane, M.A., Ph.D., The Laboratories, The Canadian Breweries Ltd., 496, Queen Street East, Toronto, 2.
- Edinburgh.* E. G. V. Percival, D.Sc., Ph.D., F.R.I.C., Chemistry Department, King's Buildings, West Mains Road, Edinburgh.
- Eire.* Professor T. S. Wheeler, D.Sc., Ph.D., F.R.I.C., Chemical Department, University College, Upper Merrion Street, Dublin.
- Exeter.* S. J. Gregg, Ph.D., A.R.C.S., A.R.I.C., Department of Chemistry, Washington Singer Laboratories, Prince of Wales' Road, Exeter.
- Glasgow.* J. D. Loudon, Ph.D., D.Sc., A.R.I.C., Chemistry Department, The University, Glasgow, W. 2.
- Hull.* Professor Brynmor Jones, B.Sc., Ph.D., F.R.I.C., University College, Hull.
- India.* Sir Shanti S. Bhatnagar, O.B.E., D.Sc., F.R.S., The University, Lahore, Punjab, India.
- Leeds.* F. R. Goss, D.Sc., Ph.D., F.R.I.C., The University, Leeds, 2.
- Liverpool.* W. B. Whalley, B.Sc., Ph.D., F.R.I.C., Organic Chemistry Department, The University, Liverpool.
- „ L. A. Haddock, M.Sc., F.R.I.C., I.C.I., Ltd. (General Chemicals Division), Research Department, Widnes Laboratory, Widnes.
- Manchester.* G. Baddeley, M.Sc., Ph.D., The College of Technology, Manchester.
- „ J. C. Withers, Ph.D., A.R.I.C., Shirley Institute, Didsbury, Manchester.
- Newcastle and Durham.* P. L. Robinson, D.Sc., F.R.I.C., Chemistry Department, King's College, Newcastle-on-Tyne.
- New Zealand.* Professor F. G. Soper, D.Sc., Ph.D., F.R.I.C., University of Otago, Dunedin, New Zealand.
- Northern Ireland.* H. Graham, D.Sc., A.R.I.C., 26, Malone Hill Park, Belfast.
- North Wales.* W. Rogie Angus, M.A., D.Sc., Ph.D., F.R.I.C., Department of Chemistry, University College of North Wales, Bangor.
- Nottingham.* D. O. Jordan, Ph.D., M.Sc., A.R.I.C., University College, University Park, Nottingham.
- Oxford.* W. A. Waters, M.A., Sc.D., Ph.D., F.R.I.C., Balliol College, Oxford.
- St. Andrews and Dundee.* J. D. M. Ross, M.B.E., M.A., D.Sc., Chemistry Department, University College, Dundee.
- Sheffield.* A. H. Lamberton, B.Sc., Ph.D., Chemistry Department, The University, Sheffield, 10.
- South Africa.* Professor W. Pugh, Ph.D., B.Sc., F.R.I.C., Chemistry Department, University of Cape Town, Rondebosch, S. Africa.
- Southampton.* K. R. Webb, B.Sc., Ph.D., University College, Southampton.
- South Wales.* Professor J. E. Coates, O.B.E., D.Sc., F.R.I.C., University College, Singleton Park, Swansea.

April, 1948.

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING JUNE, 1948

LONDON.

Thursday, June 3rd, 1948, at 7.30 p.m.

Liversidge Lecture, **The Modern Theory of Valency**, by Professor L. C. Pauling, D.Sc., Ph.D., For.Mem.R.S.

To be held in the Lecture Theatre of the Royal Institution, Albemarle Street, London, W. 1. Admission by ticket, obtainable from the General Secretary.

OXFORD.

Monday, June 7th, 1948, at 8.15 p.m.

Alembic Club (Senior Section) Lecture, **Exchange Reactions and Electrolytic Dissociation**, by Professor S. Sugden, D.Sc., F.R.S.

To be held in the Physical Chemistry Laboratory, South Parks Road, Oxford. Fellows are invited.

ADJOURNED ANNUAL GENERAL MEETING

Fellows are reminded that the adjourned 107th Annual General Meeting will be held in the rooms of the Society, Burlington House, Piccadilly, London, W. 1, at 5.15 p.m., on Thursday, June 3rd, 1948, to receive the audited accounts for the year ended December 31st, 1947.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY

Minutes of a
SCIENTIFIC MEETING
held at Burlington House, Piccadilly, W. 1, on Thursday, April 22nd, 1948,
at 7.30 p.m.

DR. R. P. LINSTEAD, C.B.E., F.R.S., Vice-President, was in the Chair.

MINUTES.

The Minutes of the Scientific Meetings held on March 2nd at University College, Dublin, and on March 4th, at Burlington House, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : P. Oxley, L. J. Brooks, J. Rundo, David M. Bellis, E. H. B. Sellwood, F. A. Fidler, Harold J. Rodda, I. R. C. Bick, D. E. A. Rivett.

SCIENTIFIC COMMUNICATIONS.

The following papers were read and discussed :

“Curare alkaloids. Constitution of *dextro*-tubocurarine chloride and its botanical origin.” By H. King.

“New methods for the preparation of amidines.” By P. Oxley, M. W. Partridge, D. A. Peak, T. D. Robson and W. F. Short.

OFFICIAL ANNOUNCEMENTS

ROYAL PHOTOGRAPHIC SOCIETY.

The Council of the Royal Photographic Society have decided that Fellows of the Chemical Society may attend meetings of the Scientific and Technical Group of the Royal Photographic Society on payment of an annual subscription of 5s. Fellows wishing to avail themselves of this invitation should write direct to the Honorary Secretary of the Scientific and Technical Group, Royal Photographic Society, 16, Princes Gate, S.W. 7.

BRITISH STANDARDS INSTITUTION.

The following drafts of British Standards Specifications have been received for technical comment :—

- (a) CJ(PVC)5273—Draft Revision of British Standard 391—Tung Oil.
- (b) CJ(CHE)5479—Draft British Standard for Silver Anodes and Silver Salts for use in Electroplating.

These have been placed in the Library and Fellows wishing to make technical comment are requested to do so before July 2nd and 13th, respectively, to the British Standards Institution, 28, Victoria Street, London, S.W. 1.

XXI^{ème} CONGRÈS INTERNATIONAL DE CHIMIE INDUSTRIELLE.

The XXI^{ème} Congrès International de Chimie Industrielle, arranged by the Société de Chimie Industrielle, will be held in Brussels from September 11th to 19th next. Fellows wishing to participate should apply to the Société de Chimie Industrielle, 28, Rue Saint-Dominique, Paris VII.

INTERNATIONAL RHEOLOGICAL CONGRESS, HOLLAND, 1948.

The International Rheological Congress will be held at Scheveningen from September 21st to 24th, 1948. Fellows wishing to attend should write direct to the Congress at Postbox 66, Julianalaan 134, Delft.

MEETINGS OUTSIDE LONDON*EDINBURGH.*

"The Valency of Metals," by Professor L. C. Pauling, D.Sc., Ph.D., For.Mem.R.S.

A meeting was held on April 20th, 1948, in the Chemistry Department, The University, King's Buildings, with Dr. E. G. V. Percival in the Chair.

After welcoming the visitors, the Chairman introduced Professor Linus Pauling who gave a most stimulating lecture. A brief discussion followed and a vote of thanks proposed by Professor Kendall was carried with great enthusiasm.

LEEDS.

"The Protein Molecule and its Degradation by Enzymes," by Dr. J. A. V. Butler.

A joint meeting with the Leeds University Chemical Society was held in the Chemistry Department, University of Leeds, on March 2nd, 1948, with Mr. J. H. Baxendale in the Chair.

Dr. Butler described the methods used in the diagnosis of the structure of insulin, showing that physical, organic, and biological methods all play their part in helping to solve this problem. The subsequent discussion dealt with details of the laboratory methods employed, and a vote of thanks was proposed by Dr. J. W. Baker.

The lecture was preceded by films entitled "Through the Mill" and "Pluto," dealing with the manufacture of steel and some war-time applications of steel tubing.

"Rheology in the Textile Industries."

A joint conference with the British Rheologists Club in association with other scientific societies was held in the Department of Textile Industries, University of Leeds, on March 19th and 20th, 1948.

LIVERPOOL.

"The Valency of Metals and the Structure of Intermetallic Compounds," by Professor L. C. Pauling, D.Sc., Ph.D., For.Mem.R.S.

A meeting was held in the Lecture Theatre of the Chemistry Department of the University on March 16th, 1948, with Professor W. C. McC. Lewis, F.R.S., in the Chair.

The large audience gave the lecturer a very warm welcome, his discourse being received with great enthusiasm, and a vote of thanks was proposed by Dr. R. O. Griffiths and seconded by Professor T. P. Hilditch. The meeting was followed by a dinner at the University Club, Mount Pleasant, at which the pro-Vice-Chancellor, Professor Sir James Chadwick, F.R.S., presided.

SOUTHAMPTON.

"Some Aspects of Infra-red Spectroscopy," by Dr. G. B. B. M. Sutherland, M.A.

A joint meeting with the Physical Society and the Chemical Society of University College was held in the Physics Department, University College, on March 12th, 1948, Mr. G. Cockett presiding.

Dr. Sutherland outlined in a general manner the mechanism of infra-red absorption, discussed its use in routine analysis, and showed, in selected cases, how studies of infra-red absorption spectra have helped in deciding the structures of molecules. The lecturer finally gave a valuable practical summary of the techniques employed. The lecture was illustrated by many slides and was followed by a vigorous discussion.

Dr. N. B. Chapman proposed a vote of thanks which was carried with enthusiasm by the large audience.

SOUTH WALES.

"The Contribution of the Organic Chemist to Medical Research," by Dr. C. R. Harington, M.A., F.R.S.

A meeting was held at University College, Cardiff, on March 12th, 1948, with Dr. H. B. Watson in the Chair.

After a review of the history of the association of chemistry with medicine, Dr. Harington discussed in some detail the modern developments which have accompanied the rise of biochemistry, and illustrated his theme by examples taken from the fields of endocrinology, nutrition, immunology, and chemotherapy. He concluded by indicating some directions in which further developments of chemistry in relation to medicine might be expected.

After Dr. Harington had answered a number of questions a cordial vote of thanks was proposed by Dr. J. Pryde, seconded by Dr. N. M. Cullinane, and carried enthusiastically.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the "Journal" for April, 1948. Such objections will be treated as confidential. The forms of application are displayed in the Library.)

Burgoyne, John Henry, Ph.D. and D.Sc. (Lond.), A.R.C.S., D.I.C. British. 2, Elmwood Crescent, Luton. Lecturer, Imperial College. *Signed by* : A. C. Egerton, D. M. Newitt, D. T. A. Townend.

Carson, Alexander Selwood, M.Sc. (Q.U.B.), A.R.I.C. British. Hulme Hall, Victoria Park, Manchester, 14. Assistant Lecturer, Manchester University. *Signed by* : P. H. Plesch, E. L. Williams, H. D. Springall.

Dickie, Henry, B.Sc. (Edin.). British. 24, Cranston Street, Penicuik. Chemist. *Signed by* : C. Diamond, Ernest N. Johnson, L. G. D. Sheldrake.

***Fulton, George Robert**. British. 86, Wren Street, Stockton-on-Tees. Student, King's College, Newcastle-upon-Tyne. *Signed by* : G. R. Clemo, P. L. Robinson, G. A. Swan.

Glass, Harold Marks, M.Sc. and Ph.D. (Dunelm), F.R.I.C. British. 72, Blyth Road, Worksop. Manager, Research Department, General Refractories, Ltd. *Signed by* : G. R. Clemo, R. Raper, W. M. Madgin.

Harris, Clifford Gwilym, M.A.Hons. (Oxon.). British. Fieldfare, Hillside Drive, Woolton, Liverpool. Deputy Research Manager, I.C.I. General Chemicals, Ltd. *Signed by* : L. A. Haddock, A. G. Jones, L. J. Burrage.

Haywood, Laurence John Arthur. British. 53, Steade Road, Sheffield, 7. Chief Chemist, Catton & Co., Ltd., Yorkshire Steel Foundry, Leeds, 10. *Signed by* : Alex. H. Lamberton, Basil Skinner, T. S. Stevens.

Howarth, Arthur James, Ph.C., M.P.S. British. Calderdale, Portfield Bar, Whalley. Analytical Chemist. *Signed by* : Frederick J. Hall, S. K. Tweedy, J. Strickland.

***Jackman, Lloyd Miles**, B.Sc.Hons. (Adelaide). British. 6, Cremorne Street, Fullarton, Adelaide, South Australia. Research Student and Lecturer. *Signed by* : John A. Mills, F. L. Winzor, K. H. Pausacker.

***Jones, Eric Lloyd**, B.Sc. (Wales), A.R.T.C., A.R.I.C. British. Technical Chemistry Department, The Royal Technical College, Glasgow, C 1. Research Student. *Signed by* : John R. Campbell, G. E. Edwards, I. A. Brownlie.

- Kinsman, Roy Granville**, B.Sc. (Lond.). British. 313, Willow Road, Enfield. Chemist, B. Winstone & Sons, E.C. 2. *Signed by* : D. H. Hey, R. F. Bowles, Francis W. Stoyle.
- Kirton, Harry Morrison**, B.Sc. (Aberd.). British. 7, Downside, Chilton, nr. Didcot. Senior Scientific Officer, A.E.R.E., Harwell. *Signed by* : R. Spence, A. S. White, J. V. Houghton.
- Lloyd, Caradoc**. British. c/o The Trent Yeast Extract Co., Ltd., Shobnall Road, Burton-on-Trent. Research Chemist's Assistant. *Signed by* : A. G. Catchpole, H. B. Franklin, A. E. Lilly.
- Loewenstein, Klaus Leopold**, B.Sc.Hons. (Lond.), A.R.I.C. British. River House, 33, St. Catharine's Road, Broxbourne. Glass chemist. *Signed by* : W. Gerrard, W. A. Smeaton, Keith Ebbutt.
- Lyons, Fergus Barry**, M.Sc. (N.U.I.). Irish. 414, North Circular Road, Dublin. Works Chemist. *Signed by* : T. S. Wheeler, A. G. G. Leonard, N. V. Nowlan.
- Michalski, Jan Jozef**, M.Phil. (Cracow). Polish. University Chemical Laboratory, Cambridge. Research Student. *Signed by* : O. Achmatowicz, A. R. Todd, I. D. Morton.
- ***Mitchell, Alan Thomas Smith**, B.Sc. (St. Andrews). British. 14, Kenilworth Avenue, Taybank. Research Student, University of St. Andrews. *Signed by* : James Y. Macdonald, John Read, John Dewar.
- ***Mitchell, Kenneth McLean**, B.Sc. (St. Andrews). British. 14, Kenilworth Avenue. Research Student, University of St. Andrews. *Signed by* : James Y. Macdonald, John Read, John Dewar.
- Monk, Cecil Bertie**, B.Sc. and Ph.D. (Lond.). British. Rosalia, Penglaise Road, Aberystwyth. Lecturer, University College of Wales. *Signed by* : C. W. Davies, L. J. Hudleston, Mansel Davies.
- Nash, Thomas**, M.A. (Cantab.), B.Sc.Hons. (Lond.) British. 46, Lowman Road, N. 7. Physical Chemist under the Medical Research Council. *Signed by* : E. G. Baxter, J. H. L. Royal, A. J. Allmand.
- ***Notley, Norman Thomas**. British. 37, Arley Hill, Redland, Bristol, 6. Student, University of Bristol. *Signed by* : C. E. H. Bawn, T. Malkin, F. H. Pollard.
- Parkin, Thomas Noel**, B.Sc. (Lond.), A.R.I.C. British. Dingleton, Old Hadlow Road, Tonbridge. Chemist. *Signed by* : W. A. Dickie, J. C. Everett, N. A. C. Friend.
- Pollok, Frederick Joseph**, Dr. Tech. Sci., Chem. Eng. (Vienna), A.M.I.Chem.E., F.R.I.C. British. 23, Titchfield Road, Troon. Chemist with I.C.I., Ltd. *Signed by* : J. W. McDavid, W. J. Jenkins, A. G. White.
- ***Robertson, William Godfrey Pitcher**, B.Sc. (Adelaide). British. 50, Kennaway Street, Tasmore, Adelaide, South Australia. Research Student and Demonstrator. *Signed by* : John A. Mills, F. L. Winzor, Kenneth H. Pausacker.
- Robinson, John**, B.Sc. (Lond.), A.R.I.C. British. 861, Spring Bank West, Hull. Research Student, University College, Hull. *Signed by* : Brynmor Jones, J. P. Sleight, Norman S. Corney.
- Sharp, Sidney**, B.Sc.Hons. (Lond.), A.R.I.C. British. 12, Kingsley Avenue, Holderness Road, Hull. Industrial Paint Chemist. *Signed by* : Francis Schollick, S. H. Bell, L. A. Jordan.
- Shaw, Geoffrey**, B.Pharm. (Lond.), Ph.C. British. Skier's Hall, Elsecar, Barnsley. Student. *Signed by* : M. I. Gillibrand, T. S. Stevens, R. D. Haworth.
- Simeons, Charles Fitzmaurice Creighton**, B.A. (Cantab.). British. 284, Stockingstone Road, Luton. Gelatine Manufacturer, British Gelatine Works, Ltd., Luton. *Signed by* : G. W. Kenner, B. Lythgoe, Harold J. Rodda.
- Skelton, Leonard Walter**, B.Sc.Hons. (Sydney). British. 24, Salisbury Road, Rose Bay, N.S.W., Australia. Research Chemist, Jones Brothers, Pty. Ltd., Sunny Hills, N.S.W. *Signed by* : R. J. W. Le Fèvre, T. Iredale, L. E. Lyons.
- ***Smith, Peter William George**. British. 67, Links Road, Ashtead. Student. *Signed by* : A. A. Eldridge, Philip C. Bull, R. Swayne.
- Thakur, Babue Lal**, M.Sc. (Patna), A.R.I.C. Indian. Chemical Engineering Department, The University, Birmingham. Research Student. *Signed by* : John D. Thornton, C. R. Porter, S. J. Green.
- ***Thomas, Gordon Haydn**, B.Sc. (Lond.). British. 81, Western Avenue, East Acton, W. 3. Research Student, Imperial College, S.W. 7. *Signed by* : A. H. Cook, A. L. Levy, G. Harris.
- Warburton, Granville Hudson**. British 9, Richmond Park Road, Sheffield, 9. Student, Rotherham Technical College. *Signed by* : T. S. Stevens, P. L. Pauson, Alex H. Lambertson.
- Waters, Frederick Charles**. British. 12, Corwen Crescent, Hilary Avenue, Liverpool, 14. Assistant Chemist, Alfred Smetham, Liverpool, 5. *Signed by* : F. Robertson Dodd, John Rae, Charles Loudon.
- Way, George Allen**, M.A. (Cantab.). British. 139, Bradbourne Park Road, Sevenoaks. Science Master, Dulwich College, S.E. 21. *Signed by* : K. E. Russell, I. G. E. Wilding, R. G. W. Norrish.
- Woodhead, Albert Harry**, B.Sc.Hons. (Lond.), A.R.I.C. British. 60, Watford Road, Sudbury, Wembley. Industrial Chemist. *Signed by* : P. M. Fisk, H. J. T. Ellingham, R. Leslie Collett.

UNDER SPECIAL PROVISIONS APPERTAINING TO CANDIDATES RESIDENT ABROAD.

- Bognar, Rezső, Dr. Ing.**, Chem. Eng. (Budapest). Hungarian. Vaskapu-u. 6/b, Budapest IX, Hungary. Assistant Professor, Department of Organic Chemistry, The University of Technical Sciences, Budapest. *Signed by* : V. Bruckner, Gabor Fodor.
- Bourne, Charles Lancelot Cleveland**, A.R.I.C. British. Essex House, Blairmont Plantation, W. B. Berbice, British Guiana. Agricultural Research Chemist, S. Davson & Co., Ltd., Berbice. *Signed by* : L. S. Davis.

- Chambers, Robert Rood**, A.B. (Nebraska), Ph.D. (Illinois). American. Research and Development Department, Sinclair Refining Co., Harvey, Illinois. Industrial Research Chemist. *Signed by* : Roger Adams.
- Christiansen, Jens Anton**, Dr.Chem. (Copenhagen). Danish. Blegdamsvej, 19, Copenhagen. Professor of Chemistry, The University of Copenhagen and The Technical University of Denmark. *Signed by* : R. P. Bell.
- Connor, Ralph Alexander**, B.S. (Illinois), Ph.D. (Wisconsin). American. Rohm & Haas Company, 5000 Richmond Street, Philadelphia, 37, Associate Director of Research of Rohm & Haas Company. *Signed by* : Ian C. Somerville, Ralph L. Evans.
- Detar, DeLos Fletcher**, B.S. (Illinois), M.S. and Ph.D. (Pennsylvania). American. Department of Chemistry, Cornell University, Ithaca, N.Y., U.S.A. Instructor in Chemistry. *Signed by* : John R. Johnson.
- Haque, Mohammad Anwar-Ul**, M.Sc.Hons. and Ph.D. (Punjab), D.Sc. (Western Univ.), M.S. (Utah). Muslim. 57a, Ferozepur Road, Lahore, Pakistan. In service of the Government of Pakistan. *Signed by* : Eric K. Rideal.
- Harris, Guy Hendrickson**, B.S. (Berkeley), A.M. and Ph.D. (Stanford). American. 1618 Burbeck Avenue, Richmond, California. Research Chemist, Great Western Division, The Dow Chemical Co., Pittsburg. *Signed by* : James W. McBain.
- Mason, Howard Stanley**, S.M. and Ph.D. (Massachusetts Institute of Technology). American. National Institute of Health, Bethesda, Maryland. Organic and biochemical research. *Signed by* : Hewitt G. Fletcher.
- Mousa, Abdel Aziz Aly**, B.Sc.Hons., M.Sc. and Ph.D. (Cairo). Egyptian. 409, Sharia Malika Nazli, Abbassia, Cairo. Lecturer Faculty of Science, Abbassia, Cairo. *Signed by* : A. Riad Tourky.
- Ness, Arthur Thomas**, B.S. and Ph.D. (Washington). American. National Institute of Health, Bethesda, 14, Maryland. Organic Chemist, Pathology Laboratory. *Signed by* : Hewitt G. Fletcher, Jr., Erich Mosettig.
- van der Lande, Johannes Antonius Lebuinus**. Dutch. Brink 13, Postbox 10, Deventer, Netherlands. Director General of the Koninklijke Industriële Maatschappij v/h Noury and van der Lande N.V., Deventer, Netherlands. *Signed by* : H. J. Backer.

PAPERS RECEIVED

(List of Papers received between March 5th, 1948, and April 16th, 1948.)

- "Pyrazine derivatives. Part VIII. Synthesis of acylaminopyrazines from aminomethyl ketones." By G. T. NEWBOLD, F. S. SPRING, and W. SWEENEY.
- "Application of the Hofmann reaction to the synthesis of heterocyclic compounds. Part VI. Experiments on the synthesis of purine nucleosides. Part XX. A synthesis of xanthosine." By G. A. HOWARD, A. C. MCLEAN, G. T. NEWBOLD, F. S. SPRING, and A. R. TODD.
- "N-2-Haloethylarylamines." By W. C. J. ROSS.
- "Terpene compounds. Part IV. A synthesis of *cis*- and *trans-dl*-isofenchocamphoric acid." By R. SWAMINATHAN, (MISS) D. MUKHERJI, and J. C. BARDHAN.
- "Synthetic antimalarials. Part XXXIII. An alternative route to *N*¹-aryl-*N*⁵-alkyl-diguanides and related compounds: the condensation of guanides and cyanamides." By A. D. AINLEY, F. H. S. CURD, and F. L. ROSE.
- "2-Amino-1 : 3 : 4-indotriazine. The reaction between isatin and aminoguanidine." By H. KING and J. WRIGHT.
- "Furano-compounds. Part IX. The synthesis of kellin and related compounds." By J. R. CLARKE and A. ROBERTSON.
- "The chemistry of fungi. Part I. The synthesis of 3-hydroxy-5 : 6-dimethoxyphthalic acid." By J. B. D. MACKENZIE and A. ROBERTSON.
- "Some unsymmetrical pentamethincyanine dyes and their tetramethin intermediates." By F. M. HAMER.
- "A theoretical discussion of *o* : *p* ratios and orientation in benzene substitution." By M. J. S. DEWAR.
- "The absorption spectra of organic compounds containing nitrogen. Part II. Benzylidene derivatives of hydantoin and thiohydantoin." By R. E. STUCKEY.
- "Compounds related to penicillic acid. Part IV. Synthesis of a phenyl analogue." By A. W. NINEHAM and R. A. RAPHAEL.

- “Some synthetic experiments leading to formation of methyl-1 : 2-benzanthraquinones.”
By D. E. A. RIVETT, G. SWAIN, and A. R. TODD.
- “The decomposition of diazo-compounds in neutral solution. Part II. *p*-Nitrobenzene-diazonium sulphate.” By H. H. HODGSON and W. H. N. NORRIS.
- “Terpene compounds. Part V. A synthesis of *dl*- β -fenchocamphorone.” By (Miss) D. MUKHERJI and J. C. BARDHAN.
- “The condensation of fluorene with acetone. Part V. Contrasting reactions of magnesium 9-fluorenyl bromide and of lithium 9-fluorenyl with $\alpha\beta$ -unsaturated ketones.” By S. H. TUCKER and (Miss) M. WHALLEY.
- “Terpene compounds. Part VI. A synthesis of *dl*-isofenchone.” By (Miss) D. MUKHERJI and J. C. BARDHAN.
- “Bond lengths in some inorganic molecules and complex ions.” By A. F. WELLS.
- “The effect of moisture on the hydrogen bond in carboxylic and sulphinic acids.” By (Mrs.) W. G. WRIGHT.
- “Molecular weight and structure of the acid potassium compounds of α - and β -naphthalene-sulphinic acids.” By (Mrs.) W. G. WRIGHT.
- “The cyano-ethylation of amines and arsines.” By R. C. COOKSON and F. G. MANN.
- “On the synthesis of β -phenylserines.” By C. E. DALGLIESH.
- “Experiments with diazomethane and its derivatives. Part I. Action of diazomethane and of diphenyldiazomethane on nitroanils.” By A. MUSTAFA.
- “Aliphatic nitro-compounds. Part XIX. Friedel-Crafts reactions with α - and β -nitro-olefins.” By A. LAMBERT and B. C. L. WEEDON.
- “Alkenesulphonic acids : preparation and reactions.” By A. LAMBERT and J. D. ROSE.
- “Experiments in the chemistry of benzthiazole.” By W. A. BOGGUST and W. COCKER.
- “The nitration of 4-hydroxyquinoline.” By A. ADAMS and D. H. HEY.
- “The intervalency angles of O and S in dioxan, dithian, trioxymethylene, and trithioformaldehyde.” By K. E. CALDERBANK and R. J. W. LE FÈVRE.
- “Cyclic meso-ionic compounds. Part I. The structure of the sydnones and related compounds.” By W. BAKER, W. D. OLLIS, and V. D. POOLE.
- “Infra-red spectra of compounds of high molecular weight. Part IV. Silicones and related compounds.” By R. E. RICHARDS and H. W. THOMPSON.
- “The structure of pyrethrolone and related compounds. Part VI.” By E. BAER and T. F. WEST.
- “Alicyclic glycols. Part I. Tosyl and mesyl derivatives of *cyclohexane*-1 : 2-diol.” By M. F. CLARKE and L. N. OWEN.
- “Alicyclic glycols. Part II. Derivatives of *cyclohexane*-1 : 4-diol.” By L. N. OWEN and P. A. ROBINS.
- “Alicyclic glycols. Part III. 4-Hydroxymethyl*cyclohexanol*.” By L. N. OWEN and P. A. ROBINS.
- “Action of aromatic nitroso-compounds on 1 : 3-diphenylisobenzfuran.” By A. MUSTAFA.
- “An X-ray and thermal examination of the glycerides. Part X. Symmetrical mono-oleyl and mono-elaidyl disaturated triglycerides.” By T. MALKIN and B. R. WILSON.
- “Molar refraction in some organic compounds of mercury.” By W. K. WILDE.
- “Some perhydrophenanthrenecarboxylic acid derivatives.” By R. A. BAXTER, W. L. NORRIS, and (in part) D. S. MORRIS.
- “The synthesis of derivatives of 5 : 6-dihydroxyindole. Part I. 5 : 6-Methylenedioxyindole and its 2-methyl derivative.” By H. BURTON and (Miss) J. A. DUFFIELD.
- “The determination of magnetic susceptibility by the Gouy method.” By F. M. BADDAR, O. M. M. HILAL, and S. SUGDEN.
- “Studies in the rare earths. Part I. The purification of yttrium.” By O. M. M. HILAL and S. SUGDEN.
- “The magnetic susceptibilities of the rare-earth elements. Part II. Samarium.” By S. SUGDEN and S. R. TAILBY.
- “The magnetic susceptibilities of the rare-earth elements. Part III. Gadolinium.” By S. SUGDEN and S. R. TAILBY.

- “The magnetic susceptibilities of the rare-earth elements. Part IV. Thulium.” By S. SUGDEN and S. R. TAILBY.
- “The hemicellulose of *Phormium tenax* (N.Z. flax). Part II. The constitution of the aldotrionic acid.” By R. J. MCILROY.
- “The kinetics of the dehydrochlorination of substituted hydrocarbons. Part I. Induced dehydrochlorination and the ‘inverse peroxide effect.’” By D. H. R. BARTON.
- “The kinetics of the dehydrochlorination of substituted hydrocarbons. Part II. The mechanism of the thermal decomposition of 1:2-dichloroethane.” By D. H. R. BARTON and K. E. HOWLETT.
- “The kinetics of the dehydrochlorination of substituted hydrocarbons. Part III. The mechanism of the thermal decompositions of ethyl chloride and of 1:1-dichloroethane.” By D. H. R. BARTON and K. E. HOWLETT.
- “Organic sulphur compounds. Part XXXI. The action of triphenylphosphine on disulphides.” By A. SCHÖNBERG and M. Z. BARAKAT.
- “Organic sulphur compounds. Part XXXII. Action of heat on some free radicals with special reference to the free phenylthiyl radical.” By A. SCHÖNBERG and A. MUSTAFA.
- “Studies on indene derivatives. Part IV. Synthesis of bis-1:3-diketoindenylidene and experiments with ninhydrine.” By A. SCHÖNBERG and R. MOUBASHER.
- “The configurations of α - and β -naphthalenediazocyanides and other unsubstituted hydrocarbon diazocyanides.” By R. J. W. LE FÈVRE and (MISS) J. NORTHCOTT.
- “Cyclic conjugated polyenes. Part I. 1:2-Benzazulene.” By J. R. NUNN and W. S. RAPSON.
- “Isomerisation reactions. Part I.” By G. M. BADGER, W. CARRUTHERS, J. W. COOK, and (MISS) R. SCHOENTAL.

CORRECTION.

Proceedings 1948, p. 21—Deaths, for “Edward George Justinian Hartley” read “Ernald George Justinian Hartley.”

May, 1948

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING JULY, 1948

EIRE.

Thursday, July 1st, 1948, at 7.45 p.m.

Lecture, **The Chemical and Biochemical Oxidation of Polycyclic Hydrocarbons**, by
Professor J. W. Cook, D.Sc., F.R.S.

Joint meeting with the Werner Society to be held in the Department of Chemistry, Trinity
College, Dublin.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY

**Minutes of a
SCIENTIFIC MEETING**

held at the Royal Institution, Albemarle Street, W. 1, on Thursday, May 6th, 1948,
at 7.30 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held at Burlington House on Thursday, April 22nd, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : A. S. Joy, J. A. Gilby, J. T. Young, S. B. Mahboob, G. J. Foley, W. F. Wyss, R. N. Beale, E. B. Fuller, J. M. Creeth, B. Vickery.

LECTURE.

The President called upon Sir John Lennard-Jones to deliver a lecture entitled, "The Molecular Orbital Theory of Valency." At the conclusion of the lecture a vote of thanks to Sir John Lennard-Jones, proposed by Professor H. J. Emeléus, was carried with acclamation.

**Minutes of a
SCIENTIFIC MEETING**

held at Burlington House, Piccadilly, W. 1, on Thursday, May 20th, 1948, at 7.30 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair, and welcomed Professor L. C. Pauling and Professor K. Fajans who were present.

MINUTES.

The Minutes of the Scientific Meeting held at the Royal Institution, Albemarle Street, W. 1, on May 6th, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : D. R. Steiner, A. T. Austin, P. G. Owston, R. F. Rackham.

VICTOR MORITZ GOLDSCHMIDT MEMORIAL LECTURE.

The President called upon Professor J. D. Bernal to deliver the Victor Moritz Goldschmidt Memorial Lecture. At the conclusion of the lecture a vote of thanks to Professor J. D. Bernal, proposed by Dr. K. Lonsdale, was carried with acclamation.

OFFICIAL ANNOUNCEMENTS

DEATHS.

The Council regret to announce the deaths of the following Fellows :

	Elected.	Died.
Louis Pierre Bosman (Cape Town, South Africa)	Dec. 5th, 1918.	Nov. 26th, 1947.
Giuseppe Bruni (Milan)	May 2nd, 1918.	1940—1944.
Andrew James Dixon (Sydney, N.S.W.) ...	Dec. 2nd, 1897.	1941.
John Don (Maybole, Ayrshire)	Dec. 6th, 1917.	Jan. 2nd, 1947.
Archie Willoughby Henzell (Dayton, Ohio)	Dec. 1st, 1904.	Nov. 5th, 1946.
Donald Helmsley Hewitt (E. 9)	May 18th, 1944.	Aug. 25th, 1947.
William Hill (Glasgow)	Apr. 29th, 1897.	Jan. 9th, 1947.
Moinuddin Shaffiuddin Kazi (Hyderabad) ...	May 7th, 1931.	July 13th, 1947.
Walter George Leach (S.E. 25)	Mar. 27th, 1941.	Mar. 31st, 1948.
Dacre Cheales Leicester (Bushey)	Feb. 20th, 1941.	Mar. 3rd, 1948.
George Stanley Withers Marlow (Sydenham)	May 1st, 1919.	Mar. 5th, 1948.
Luigi Mascarelli (Turin)	Feb. 19th, 1931.	1940—1944.
Percy William Weston (Manchester)	Dec. 5th, 1918.	Jan. 21st, 1944.

CONGRATULATIONS.

(a) *Fifty Years of Fellowship.*

Congratulations of the Society have been conveyed to the following Fellows who have completed fifty years of Fellowship.

	Elected.
Joseph Brierley (Manchester)	April 21st, 1898.
John Arnold Fleming (Helensburgh)	" "
Lawrence Hislop (Edinburgh)	" "
Alfred James Parker (Auckland)	" "

(b) *Fellows of the Royal Society.*

Congratulations have also been conveyed to the following Fellows who have been elected Fellows of the Royal Society :

Frank Philip Bowden.
Ernest Harold Farmer.
Stanley Peat.
Gilbert Wooding Robinson.
Edgar William Richard Steacie.

LONGSTAFF MEDAL 1948.

The Longstaff Medal for 1948 has been awarded to Professor C. N. Hinshelwood, M.A., Sc.D., D.Sc., F.R.S.

ELECTION OF NEW FELLOWS.

The following 203 candidates were elected Fellows of the Society on May 6th, 1948 :

John Russell Abbott.	Douglas Herbert Bell.
Kenneth Armstrong-Adey.	James Gabriel Belton.
Peter Joseph Agius.	S. K. Bhattacharyya.
Ragna Aicher.	William Polson Binnie.
Arthur Alcock.	Hugh Kenneth Black.
Frank John Allen.	John Alexander Blair.
Herbert Henry Thomas Alway.	William Victor Blakey.
Stephen John Angyal.	Erich Boehm.
Edmund George Ansell.	Joseph Maud Bolton.
Martin Frederick Ansell.	Jitendra Kumar Bose.
Frank Jesse Armson.	John Boulton.
Cyril Attwood.	Lawrence Bridge.
James Austin.	John Briggs.
John Dennis Ball.	Patrick Ivor Briggs.
Douglas Barnard.	Jack Eldred Brimley.
John Allan Barnard.	Alden Hartzler Burkholder.
Charles Edward Bartsch.	George Alfred Butcher.
Peter Thomas Beecham.	Kingsley Edward Calderbank.

Adrien Cambron.
 Austin Thomas Carpenter.
 Eric George Hamphill Carter.
 Fred William Chambers.
 B. R. Chinmayanandam.
 Ian Miles Clifford.
 Robert Haddon Common.
 Henry Edward Coomber.
 Alan Howard Cooper.
 John Bridgeford Maxwell Coppock.
 Robert Edward Corbett.
 Frank William Cornish.
 William Alan Cowell.
 Henry Peter Crocker.
 Antony Crossley.
 Solomon Crystal.
 Lilo M. Czigler.
 Derek Alfred Davenport.
 Fred Hibbins Dews.
 James Russell Doggart.
 Alan Michael Dominey.
 James Dow.
 Alfred Walter Doyle.
 Robert Ian Heriot Duncan.
 Ulrika Maria Barbara Eisner.
 Cyril Harry Evans.
 John Stafford Fawcett.
 Henry Fine.
 George Edwin Gale.
 James Ernest Garside.
 Peter Robert Scaife Gibson.
 Anthony Grayson Goodchild.
 Douglas Peter Graddon.
 Samuel Hugh Graham.
 John Gumb.
 John William Hadgraft.
 Edward Hirman Hall.
 Gavin Jack Halliburton.
 Denis Charles Hardwick.
 James Charles Harral.
 Dudley Arthur Harris.
 Sheila Margaret Harrison.
 James Bernard Hartley.
 William Bernard Hawes.
 Graham Richard Hawkes.
 John Arthur Hawkes.
 Edgar Heilbronner.
 Hans Heymann.
 Peter John Hillson.
 Peter Norman Hobson.
 Ronald Frederick Homer.
 Ann Hughes.
 Austin Adolphus Hukins.
 Crosby Walker Humphrey.
 Justus Ernest Humpoletz.
 Gordon Denis Hunter.
 Lucille Jackson.
 Donald Harold James.
 William Boffey Jamieson.
 Carl Gustav Harry Johnson.
 Ronald Johnson.
 Kenneth Jones.
 Arthur Stanley Joy.
 Elvin Abraham Kabat.
 Albert Kayser.
 Elizabeth Joyce King.
 Frederick Walter Desmond King.
 John Jervis Kipling.
 Fitz Shalom Klein.

Heinrich Julius Koch.
 Vettakorumakankav Bhaskarier Krishnamani.
 Richard Lant.
 John Eric Larson.
 George Sanderson Learmonth.
 Lawrence Campbell Leatherland.
 Harry Rowland Leech.
 Ivor Carlton Lemit.
 Robert Edward Leslie.
 James Ephraim Lovelock.
 Paul Anthony Lucking.
 Alec Hector Macself.
 Edgar Arthur John Mahler.
 Gordon Keith Maliphant.
 Robert Pattison Marshall.
 Frederick Charles Martin.
 George Denis Meakins.
 Emmanuel Meltzer.
 George Robert Milne.
 Charles Howard Mitson.
 Ormsby Willington Molony.
 Fanny Moran.
 Alfred Rupert Morcom.
 James Douglas Morrison.
 Arnold Harry Munro, Jnr.
 Keith Gordon Neill.
 John Everett Newell.
 Barry Hilton Newman.
 William Alfred Newton.
 Arthur John Nunn.
 John Henry Nutland.
 Leo Francis Oliver.
 Oliver Ormrod.
 Donaca Joseph O'Sullivan.
 Robert George Otter.
 Geoffrey Albert Owen.
 Charles William Parr.
 Benjamin Pocock.
 Victor David Poole.
 Ronald James Powell.
 Benjamin Theodore Priestman.
 John Rodney Quayle.
 Sydney Bruce Rawlinson.
 Oswald Victor Richards.
 Michael Roberts.
 Robert Rolles Rolles.
 Jacques-Rafael Roques.
 Alexander Ross.
 Jack Rowbottom.
 Emile H. Sakal.
 John Edwin Saxton.
 Thillyampalam Selvaratnam.
 George Renton Ferguson Sharp.
 Harold Gregory Sharp.
 John Sharp.
 Gordon Shaw.
 Robert John Shennan.
 Robert Samuel Shennan.
 Robert Frank Simmons.
 John Joseph Sleightholme.
 George Eric Smith.
 Robert James Smith.
 Terence Pearson Smith.
 Katherine Nicholas Speyer.
 Kenneth Arthur Stacey.
 William Gordon Stinson.
 Irene Mary Stock.
 Clarence George Strain.
 Patricia May Stubbin.

Leonard Thomas Suffolk.
 Keith Leonard Sutherland.
 Albert John Swallow.
 Charles William Taylor.
 William Titterington.
 John Bernard Toogood.
 Samuel Tovey.
 Roy Towers.
 Trevor Clement Tranter.
 Godfrey Alan Turner.
 Corwyn Philip Vale.
 Elemer Vinkler.
 Ernest Walker.
 Arthur William Hamilton Wardrop.
 James Alastair Crichton Watt.

Harry Watts.
 Robert William Charlton Wheatley.
 Thomas Patterson Whitehead.
 Frederick William Whiting.
 Russell Henry Williams.
 Deirdre Kathleen Wilson.
 William Harold Wilson.
 Hamish Christopher Swan Wood.
 Jack Wood.
 Stanley Arthur Wood.
 Percival Reynolds Wray.
 James Matson Wright.
 Joe Lyon Wurwand.
 Stanley Edward Young.

DATES OF SCIENTIFIC MEETINGS IN LONDON DURING THE SESSION 1948/1949.

The following are the dates on which Scientific Meetings of the Society will be held in London during the next Session :

1948.	1949.
Thursday, 14th October.	Thursday, 20th January.
" 28th "	" 3rd February.
" 11th November.	" 17th "
" 25th "	" 3rd March.
" 9th December.	" 17th
	" 31st " (ANNUAL GENERAL MEETING.)
	" 28th April.
	" 12th May.
	" 26th "
	" 2nd June.

TILDEN LECTURERS FOR THE SESSION 1948/1949.

Professor C. E. H. Bawn and Professor F. E. King have accepted the invitation of the Council to deliver Tilden Lectures during the Session 1948/1949.

CENTENARY FUND.

Further donations to the Centenary Fund have been received as follows :

	£	s.	d.
Union Glue & Gelatine Co., Ltd.	5	5	0
Dr. T. F. West	3	3	0

LIBRARY.

From July 16th until September 30th the Library will be open from 10 a.m. to 5 p.m. daily except during the fortnight August 2nd to August 14th inclusive, when it will be entirely closed for revision and cleaning.

MEETING OF COUNCIL.

A Meeting of Council was held on Thursday, May 6th, 1948.

The Report of the Publication Committee (March 4th, 1948) was received.

The programme of meetings in London for the session 1948/1949 was under consideration.

Consideration was also given to Official Meetings and Endowed Lectures to be held outside London during the next Session and it was decided that Official Meetings should be held in Birmingham and Exeter and that Official Meetings, combined with Tilden Lectures, should be held at Glasgow and Newcastle.

The Report of the Meeting of the Joint Library Committee (March 31st, 1948) was received and a recommendation that the list of books added to the Library be published in the "Proceedings" was approved.

It was reported that the late Mr. George McGowan had left £100 to the Society in his will, that Dr. S. Horwood Tucker had sent a donation to the Society's General Fund, and

that Messrs. A. E. Bailey, H. H. Hughes, R. Raper, W. B. Saville, and G. S. Ward had sent gifts of the Society's publications.

It was decided to invite Dr. F. S. Dainton to fill the vacancy on Council in Constituency I, caused by the retirement of Professor F. E. King under Bye-Law 56, until the next Annual General Meeting.

The Report of the Meeting of Local Representatives (March 17th, 1948) was received.

It was reported that Dr. G. M. Bennett had agreed to represent the Society on the Royal Society Scientific Information Conference to be held in London from June 23rd to July 2nd, 1948.

Certain formal and financial items were also dealt with.

QUARTERLY REVIEWS 1947—TITLE PAGE.

Fellows wishing to bind their copies of Quarterly Reviews for 1947 can obtain the Title Page and List of Contents free of charge on application to the General Secretary.

BRITISH STANDARDS INSTITUTION.

The following draft of British Standards Specification has been received for technical comment :

CJ(LBC) 5953—Fourth Draft British Standard for Micro-Nitrometers.

This has been placed in the Library, and Fellows wishing to make technical comment are requested to do so before July 30th, 1948, to the British Standards Institution, 28, Victoria Street, London, S.W. 1.

MEETINGS OUTSIDE LONDON

BIRMINGHAM.

“Steric Hindrance,” by Professor C. K. Ingold, D.Sc., F.R.S.

A joint meeting with the University Chemical Society was held in the University, Edgbaston, on March 1st, 1948, with Sir Norman Haworth, D.Sc., F.R.S., in the Chair.

Professor Ingold observed that owing to its early inception the classical theory of steric hindrance is detached, rudimentary, and vague, and that reconsideration is needed in order to put it into its setting as part of the general theory of organic chemistry and also to give it physical precision. He outlined such a revision of the theory in a form suitable for quantitative development. A knowledge of reaction mechanism formed the starting point of a consideration of the geometry and dynamics of the initial and transition states. Effects due to the peculiar geometry of certain transition states were pointed out, and experimental data in systems simple enough to be suitable for the control of prototype calculations were cited.

A vote of thanks to the lecturer, proposed by Professor M. Stacey, was carried enthusiastically by a large audience.

“Electron Transfer Reactions,” by Professor M. G. Evans, D.Sc., F.R.S.

A joint meeting with the University Chemical Society was held in the Chemistry Lecture Theatre of the University, Edgbaston, on April 26th, 1948, with Sir Norman Haworth, D.Sc., F.R.S., in the Chair.

Professor Evans reviewed some physico-chemical investigations on the aerobic oxidation of certain quinols. He considered the ferrous-ferric oxidation system with hydrogen peroxide and indicated how the redox system could be used to determine the effect of substituents in the reactivity of double bonds. He concluded with a brief discussion of the effect of change of substituents on resonance energies. A vote of thanks, proposed by Mr. J. E. B. Randles, was carried with acclamation.

LEEDS.

"The Valence of Metals and the Structure of Intermetallic Compounds," by Professor L. C. Pauling, D.Sc., Ph.D.

A meeting was held in the Chemistry Department of the University on May 3rd, 1948, with Professor M. G. Evans in the Chair.

A large audience heard the account given by Professor Pauling of the relation between the valence of metals and bond length. After a discussion, the vote of thanks, proposed by Professor F. Challenger, was carried with acclamation.

LIST OF APPLICATIONS FOR FELLOWSHIP

(*Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the "Journal" for May, 1948. Such objections will be treated as confidential. The forms of application are available in the Library.*)

- Banfield, Francis Harold**, M.Sc. and Ph.D. (Lond.), F.R.I.C. British. 15, Beechdale, Winchmore Hill N. 21. Assistant Director of Research, British Food Manufacturing Industries Research Association. *Signed by* : C. L. Hinton, H. G. Harvey, L. E. Campbell.
- Bebbington, Norman Sidney John**, A.R.I.C. British. c/o Marmite Food Extract Co., Ltd., Cross Street, Burton-on-Trent. Works Chemist. *Signed by* : J. H. St. Johnston, R. Leslie Collett, H. J. T. Ellingham.
- *Brooks, Charles Joseph William**, A.R.C.S. British. 62, Glennie Road, West Norwood, S.E. 27. Research student at Imperial College. *Signed by* : J. D. Cox, E. Miller, K. E. Howlett.
- Clare, Kenneth Ernest**, B.Sc. (Lond.), A.R.I.C. British. 9, Sunray Avenue, West Drayton. Experimental Officer, Road Research Laboratory, D.S.I.R. *Signed by* : F. Kurzer, E. J. Dickinson, E. H. Green.
- *Cox, Stewart Francis**, B.Sc. (Sydney). British. Imperial College Hostel, South Kensington, S.W. 7. Research student, Department of Organic Chemistry, Royal College of Science. *Signed by* : A. L. Levy, D. J. Brown, T. H. Farmer.
- Dennis, Peter Owen**, B.Sc. (Lond.), A.R.I.C. British. 39, Lancaster Park, Richmond. Research chemist, Oxo Ltd., London. *Signed by* : Henry G. Rees, Eric C. Wood, L. C. Dutton.
- Dimond, Clifford Roy**, M.P.S. British. 59, Station Street, Barry. Pharmacist, Mid-Glamorgan County Hospital, Bridgend. *Signed by* : J. Ormston, Kenneth MacDonald, H. B. Watson.
- Gerson, Frederick**, B.A.Sc.Hons. (Toronto). Canadian. Grosvenor House, 55, Hagley Road, Birmingham. In charge of Research and Development Department, Almex Ltd., Birmingham. *Signed by* : P. H. Plesch, Francis J. Griffin, R. J. Doyle.
- Harris, Edward Cecil**, B.Sc.Hons. and M.Sc. (Wales), A.R.I.C. British. Laboratory, No. 2 Supply Reserve Depot, Barry. Senior Experimental Officer, Department of Government Chemist. *Signed by* : A. J. Parsons, H. G. Smith, F. R. Ennos, R. H. Settle.
- Hatfield, James George**. British. 517, Devon Mansions, Dockhead, S.E. 1. Research chemist, Dae-Health Laboratories, Ltd., Fleet. *Signed by* : Peter Bailes, H. B. Stevens, C. T. Bennett.
- Holland, Harold Graham**. British. 11, Kingsway East, Kingsgrove, N.S.W. Student, University of Sydney. *Signed by* : R. J. W. Le Fevre, T. Iredale, L. E. Lyons.
- *James, Kenneth Bruce**. British. 11, Simla Road, West Ryde, N.S.W. Student, University of Sydney. *Signed by* : R. J. W. Le Fevre, T. Iredale, L. E. Lyons.
- *Knowles, Charles Barry**, B.Sc. (Manc.). British. 11, Lindleywood Road, Manchester 14. Research student. *Signed by* : A. E. Gillam, T. G. Halsall, H. D. Springall.
- Lawson, S. Frank**. British. 117, High Street, Willoughby, Sydney. Student, University of Sydney. *Signed by* : R. J. W. Le Fevre, T. Iredale, L. E. Lyons.
- Longworth, Wilfred Roy**. British. 114, Folds Road, Bolton. Student. *Signed by* : P. H. Plesch, H. D. Springall, G. N. Burkhardt.
- McCombie, Trevor Frank**. British. 1, Lytton Road, Leytonstone, E. 11. Student. *Signed by* : W. Gerrard, I. L. Finar, Alan T. Mabbitt.
- *Morris, William Owen**. British. 15, Castlereagh Street, Concord, N.S.W. Student, University of Sydney. *Signed by* : R. J. W. Le Fevre, T. Iredale, L. E. Lyons.
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- Odams, Ronald Charlie**, M.A. (Cantab.). British. 32, Pinn Way, Ruislip. Chemist, Development Department (Overseas), I.C.I. Ltd., W. 1. *Signed by* : F. G. Mann, F. B. Kipping, J. Harley-Mason.
- *Phillips, Gordon Hanley**. British. 25, Hudleston Road, Liverpool, 15. Student, Liverpool University. *Signed by* : R. J. S. Beer, W. B. Whalley, A. McGookin.
- Ray, Neil Hunter**, B.Sc. (Manc.), A.R.I.C. British. Bedales, Ashley Drive, Hartford. Chemist. *Signed by* : Leslie Seed, R. B. Richards, L. M. Clark.

- ***Scott, Peter Alan Arthur**, B.Sc.Hons. (Lond.). British. 4c, Albany Road, Leyton, E. 10. Shift Chemist. *Signed by* : F. L. Allen, R. J. Wicker, D. Deverell.
- Shaw, Peter Frederick Dalzell**, B.A. and B.Sc. (Oxon.). British. 310, Banbury Road, Oxford. Nuffield Research Fellow, Clarendon Laboratory, Oxford. *Signed by* : J. C. Smith, F. M. Brewer, D. H. Everett.
- ***Simpson, David Charles Hirst**. British. 41, Hatherley Road, Winchester. Student, Brasenose College, Oxford. *Signed by* : F. E. King, J. A. Barltrop, J. C. Smith.
- Southern, Herbert Kenneth**, M.Sc. (Manc.), A.R.I.C. 4, Barrymore Road, Grappenhall, nr. Warrington. Research chemist, I.C.I. Ltd. *Signed by* : L. A. Haddock, Aneurin Williams, A. G. Jones.
- Williams, David Townley**, B.Sc. (South Africa). South African. c/o Col. A. H. Bishop, Knights Ridge, Pembury. Research Student, King's College, London. *Signed by* : V. Gold, D. W. G. Style, Gwyn Williams.
- ***Wilson, Ivan Robert**, B.Sc. (Sydney). British. 24, O'Donnell Street, Port Kembla, N.S.W. *Signed by* : R. J. W. Le Fevre, T. Iredale, L. E. Lyons.
- Young, David John**. British. 33, Old Road, Chatham. Student, Medway Technical College. *Signed by* : J. Leicester, H. I. Stonehill, G. F. Reynolds.

UNDER SPECIAL PROVISION APPERTAINING TO CANDIDATES RESIDENT ABROAD.

- Chiang, Yao**, B.Sc. (Hangchow). Chinese. 129, King's Highway, Stillwater, Oklahoma. Graduate Fellow, Department of Chemistry, Oklahoma A. and M. College, Stillwater. *Signed by* : Henry Tigerman.
- Podder, Vishnu Prasad**, M.Sc. (Agra). Indian. Rohtas Industries, Ltd., Dalmianagar, Bihar. Works Manager. *Signed by* : S. S. Bhatnagar.
- Sundararajan, A. R.**, B.Sc. and Ph.D. (Madras), M.Sc. (Benares), A.R.I.C. Indian. Nutrition Research Laboratories, Coonoor. Biochemist. *Signed by* : T. R. Seshadri.
- Winans, Charles Francis**, B.S. (Akron), Ph.D. (Wisconsin). American. Koppers Company, Inc. Penacol Plant, Petrolia, Pa. Plant manager. *Signed by* : Foster Dee Snell, Ralph L. Evans.

* Reduced annual subscription.

PAPERS RECEIVED

List of papers received between April 21st and May 10th, 1948.

- "The mechanism of decarboxylation. Part III. Further evidence for the occurrence of α -quinolyl anions during the decarboxylation of quinaldinic acid." By B. R. BROWN and D. LL. HAMMICK.
- "Nuclear methylation of 3 : 5-dimethylphenol." By A. BURAWOY and J. T. CHAMBERLAIN.
- "Action of alkali and acid on methylene-di-durenol." By A. BURAWOY and J. T. CHAMBERLAIN.
- "Synthetic antimalarials. Part XXXVII. Some N^1 -*p*-chlorophenyl- N^2 : N^4 : N^5 -tri-alkyldiguanides and other related miscellaneous diguanide types." By R. DE B. ASHWORTH, A. F. CROWTHER, F. H. S. CURD, J. A. HENDRY, (MISS) D. N. RICHARDSON, and F. L. ROSE.
- "The Friedel-Crafts reaction between succinic anhydride and 1 : 2-diphenylethane (dibenzyl)." By S. D. NICHOLAS and F. SMITH.
- "A new route to iminazoles : synthesis of 2- ω -aminoalkyl derivatives of 4-methyl-iminazole." By L. P. ELLINGER and A. A. GOLDBERG.
- "Derivatives of 2-styryl-4 : 5-dihydro-oxazole-5-one." By WILSON BAKER.
- "The application of the method of molecular rotation differences to steroids. Part VII. Olefinic unsaturation at the 8(9) position." By D. H. R. BARTON and J. D. COX.
- "The application of the method of molecular rotation differences to steroids. Part VIII. 22(23)-Dihydroergosterol D." By D. H. R. BARTON and J. D. COX.
- "The application of the method of molecular rotation differences to steroids. Part IX. Concerning *u*-ergostadienol." By D. H. R. BARTON and E. MILLER.
- "Cyclic conjugated polyenes. Part II. 4 : 5-Benzazulene." By J. R. NUNN and W. S. RAPSON.
- "Compounds related to 4 : 4'-diaminodiphenyl sulphone. *p*-Arylsulphonylphenylethylamines and related compounds." By H. BURTON and P. F. HU.

- “ An investigation of Wada's method of converting α -amino-acids into 2-substituted ethylamines.” By H. BURTON and P. F. HU.
- “ The mechanism of the formation of diphenyl sulphoxide from phenylmagnesium bromide and thiophen-2-sulphonyl chloride.” By H. BURTON and P. F. HU.
- “ The reaction between acetanilide and *p*-toluenesulphonyl chloride in presence of aluminium chloride.” By H. BURTON and P. F. HU.
- “ Action of Grignard solutions on (a) naphthsultone, (b) tolylene-3 : 4-sulphonylde, and (c) *NN'*-diarylsulphonyl derivatives of dianthranilide.” By A. MUSTAFA and A. M. GAD.
- “ Insecticidal activity and chemical constitution. Part I. Chlorinated *p*-chloroethylbenzenes.” By D. WOODCOCK.
- “ Olefinic acids. Part III. *iso*Propylidene-*isopropenyl* isomerisation in the reaction of α -bromo- $\beta\beta$ -dimethylacrylic acid with alkoxides.” By L. N. OWEN.
- “ The dichlorobutanediols. Part I. The addition of hypochlorous acid to some chlorobutenols.” By R. M. EVANS and L. N. OWEN.
- “ The dichlorobutanediols. Part II.” By L. N. OWEN.
- “ Dithiols. Part II. 2 : 3-Dimercaptopropyl ethers of glycerol and of glycollic acid, with some further observations on 'BAL-Intrav.'” By R. M. EVANS and L. N. OWEN.
- “ Dithiols. Part III. Derivatives of polyhydric alcohols.” By R. M. EVANS, J. B. FRASER, and L. N. OWEN.
- “ The Friedel-Crafts reaction of fluoranthene.” By N. CAMPBELL and W. W. EASTON.
- “ A new method of (a) analysis of insoluble phosphates of barium, strontium, calcium, and magnesium, and (b) determination of magnesium in magnesium phosphate.” By T. N. DAS.
- “ Studies in the polyene series. Part XXIV. Molecular structure and vitamin-A activity. The synthesis of a biologically active C₁₇ acid.” By SIR IAN HEILBRON, E. R. H. JONES, and R. W. RICHARDSON.
- “ The synthesis of myristicin.” By U. M. TRIKOJUS and D. E. WHITE.
- “ Contributions to the chemistry of *iso*quinolines. Part I. The synthesis of diamino-1-phenyl*iso*quinoline methiodides in a search for new trypanocides, with some observations on the nitration of 1-phenyl*iso*quinoline.” By A. McCOUBREY and D. W. MATHIESON.
- “ The free-radical reactions of the aromatic diazo-compounds : a reply to the criticisms of Hodgson.” By D. H. HEY and W. A. WATERS.
- “ Remarks on ' bromination of dimethoxystilbenes '.” By F. BERGMANN.
- “ Reaction mechanism of the oxidation of hydrogen bromide.” By Z. SZABÓ and E. KISS.
- “ Exchange reactions and electrolytic dissociation in non-aqueous solvents.” By C. C. EVANS and S. SUGDEN.
- “ Attempted synthesis of penicillin homologues.” By W. BAKER and W. D. OLLIS.
- “ The symmetrical dianthryls.” By F. BELL and D. H. WARING.
- “ A comparative study of the Wurtz-Fittig and the Clemmensen methods in the preparation of aromatic hydrocarbons.” By H. A. FAHIM and A. MUSTAFA.

ADDITIONS TO THE LIBRARY

I. *Donations*

CHEMICAL INSTITUTE OF CANADA. Proceedings of the conference on nuclear chemistry. 2 vols. Ottawa 1947. pp. [xii] + 119, [viii] + 120—228. (*Recd.* 9/4/48.)

From the Publishers :

The Chemical Institute of Canada.

CHERONIS, N. D., and ENTRIKIN, J. B. Semimicro qualitative organic analysis. New York 1947. pp. xiv + 498. ill. 25s. *Recd.* 13/4/48.)

From the London Publishers :

Messrs. Constable & Co., Ltd.

DETHIER, V. G. Chemical insect attractants and repellents. London 1947. pp. xv + 289. ill. 25s. (*Recd.* 8/3/48.)

From the Publishers :

Messrs. H. K. Lewis & Co., Ltd.

GARDNER, W. Chemical synonyms and trade names. A dictionary and commercial handbook. 5th edition, revised and enlarged by E. I. COOKE. Kingston Hill 1948. pp. [viii] + 558. (*Reference.*) 50s. From the Publishers :

The Technical Press, Ltd.

GENEVOIS, L., and RIBEREAU-GAYON, J. Le vin. Paris 1947. pp. 150. Hermann. Fr. 300. (*Recd.* 6/4/48.)

From Mr. A. L. Bacharach.

GORTER, C. J. Paramagnetic relaxation. Amsterdam 1947. pp. vii + 127. ill. Fl. 6.00. (*Recd.* 8/3/48.)

From the Publishers :

The Elsevier Publishing Co., Inc.

MACMUNN, C. A. Outlines of the clinical chemistry of urine. London 1889. pp. xvi + 254. ill. (*Recd.* 11/3/48.)

From Sir Ernest Kennaway, F.R.S.

OXFORD UNIVERSITY JUNIOR SCIENTIFIC CLUB. The Robert Boyle Lectures. Vol. I. Oxford 1897. pp. xi + [183]. ill. (*Recd.* 11/3/48.)

From Sir Ernest Kennaway, F.R.S.

THRELFALL, R. E. Glass tubing. London 1946. pp. 36. ill. (*Reference.*) 2s. 6d.

From the Publishers :

The British Association of Chemists.

TOLANSKY, S. Hyperfine structure in line spectra and nuclear spin. 2nd edition. London 1948. pp. viii + 120. ill. 6s. (*Recd.* 18/3/48.)

From the Publishers :

Messrs. Methuen & Co., Ltd.

ZEERLEDER, A. VON. Technologie der Leichtmetalle. Zürich 1947. pp. xii + 364. ill. (*Recd.* 27/4/48.)

From the Publishers :

Rascher Verlag, Zürich.

Sawyer, Wis. 1946—47. pp. [viii] + 152, [viii] + 147. ill. (*Reference.*) A.S.B.C. \$10.

ANNUAL REVIEW OF MICROBIOLOGY. Vol. I, etc. Stanford 1947+. (*Reference.*) Annual Reviews, Inc.

BERRY, A. J. Qualitative inorganic analysis. 2nd edition. Cambridge 1948. pp. viii + 155. Camb. Univ. Pr. 8s. 6d. (*Recd.* 20/4/48.)

BETHE, H. A. Elementary nuclear theory. New York 1947. pp. vi + 147. Wiley. \$2.50. (*Recd.* 6/4/48.)

BIOLOGICAL SYMPOSIA. Vol. XII. Edited by W. J. DANN and G. H. SATTERFIELD. Estimation of the vitamins. Lancaster, Pa. 1947. pp. [x] + 531. ill. Cattell Press. \$6.50. (*Recd.* 25/2/48.)

BURK, R. E., and GRUMMITT, O. Chemical architecture. (Frontiers in Chemistry, Vol. V.) New York 1948. pp. [xiv] + 202. ill. Interscience. \$4.50. (*Recd.* 31/3/48.)

CHATFIELD, H. W. Varnish constituents. 2nd edition. London 1947. pp. xx + 592. ill. L. Hill. 40s. (*Recd.* 20/4/48.)

EILERS, H., SAAL, R. N. J., and WAARDEN, M. VAN DER. Chemical and physical investigations on dairy products. (Monographs on the Progress of Research in Holland during the war.) Amsterdam 1947. pp. xiii + 215. ill. Elsevier. 21s. (*Recd.* 27/2/48.)

ELLIS, C., and SWANEY, M. W. Soilless growth of plants. 2nd edition. Revised and enlarged by T. EASTWOOD. New York 1947. pp. x + 277. ill. Reinhold. \$4.75. (*Recd.* 19/4/48.)

GALE, E. F. The chemical activities of bacteria. London 1947. pp. [v] + 199. ill. Univ. Tutorial Pr. 8s. 6d. (*Recd.* 20/4/48.)

GEYER, E. W., and BRUGES, E. A. Tables of properties of gases, with dissociation theory and its applications. London 1948. pp. 102. ill. (*Reference.*) Longmans. 12s. 6d.

GIRAL, F. Productos químicos y farmacéuticos. A base de la obra "Preparación de productos químicos y químico-farmacéuticos" por C. A. ROJAHN. 3 vols. Mexico, D.F. 1946. pp. xxxvii + 693, 694—1510, 1511—2226. Editorial Atlante, S.A. \$26.00. (*Recd.* 6/4/48.)

HALE-WHITE W. Materia medica, pharmacy, pharmacology and therapeutics. 27th edition. Revised by A. H. DOUTHWAITE. London 1947. pp. x + 549. (*Reference.*) Churchill. 15s.

HAND- UND JAHRBUCH DER CHEMISCHEN PHYSIK. Vol. II. Part 3C. Chemische Morphologie der Flüssigkeiten und Kristalle.

II. *By purchase*

AMERICAN SOCIETY OF BREWING CHEMISTS. Proceedings Annual Meetings 1946—47.

- By C. WEYGAND. [Leipzig 1941]. pp. 192. ill. (*Recd.* 9/3/48.)
- HARKINS, L. B. Magnesium fabrication. New York 1947. pp. vii + 149. ill. Pitman. 20s. (*Recd.* 20/4/48.)
- HAUSNER, H. H. Powder metallurgy: principles and methods. Brooklyn, N.Y. 1947. pp. vii + 307. ill. Chem. Pub. Co. \$7.00. (*Recd.* 25/2/48.)
- HICKINBOTTOM, W. J. Reactions of organic compounds. 2nd edition. London 1948. pp. x + 481. ill. Longmans. 25s. (*Recd.* 20/4/48.)
- INDIA RUBBER WORLD. Compounding ingredients for rubber. 2nd edition. New York 1947. pp. 640. (*Reference.*) India Rubber World. \$5.00.
- JACKSON, P. G. Boiler feed water. A concise handbook of water for boiler feeding purposes. 4th edition. London 1947. pp. xii + 132. ill. Griffin. 8s. 6d. (*Recd.* 27/2/48.)
- KARRER, P. Organic chemistry. 3rd English edition. Amsterdam 1947. pp. xx + 957. ill. Elsevier. 43s. (*Recd.* 18/3/48.)
- KIRK, R. E., and OTHMER, D. F. Encyclopedia of chemical technology. Vol. I. A to Anthrimides. New York 1947. pp. xxiv + 982. ill. (*Reference.*) Interscience. \$20.00.
- KRUMBHAAR, W. Coating and ink resins: a technological study. New York 1947. pp. v + 318. ill. Reinhold. \$7.00. (*Recd.* 25/2/48.)
- LITTLE, R. W. [Editor.] Flameproofing textile fabrics. (American Chemical Society Monograph Series.) New York 1947. pp. xix + 410. ill. Reinhold. \$6.75. (*Recd.* 19/4/48.)
- LOCK, A. C. Aerosols in theory and practice. 2nd edition. London 1947. pp. 59. Aerosols Ltd. 3s. 6d. (*Recd.* 1/3/48.)
- MANTELL, C. L. The water-soluble gums. New York 1947. pp. v + 279. ill. Reinhold. \$6.00. (*Recd.* 25/2/48.)
- MIGRDICHIAN, V. The chemistry of organic cyanogen compounds. (American Chemical Society Monograph Series.) New York 1947. pp. ix + 460. Reinhold. \$12.00. (*Recd.* 19/4/48.)
- MONTHÉARD, P. Phénoplastes, bakélites. (Matériaux de Synthèse.) Paris 1947. pp. x + 171. ill. Dunod. Fr. 330. (*Recd.* 20/4/48.)
- SILMAN, H. Chemical and electro-plated finishes. The protective treatment of metals. London 1948. pp. xiii + 414. ill. Chapman & Hall. 30s. (*Recd.* 20/4/48.)
- SQUIRE, A. Powder metallurgy: a report of the Watertown Arsenal Laboratory. Brooklyn, N.Y. 1947. pp. [184.] ill. [Photo-Offset.] Mapleton. \$8.00. (*Recd.* 25/2/48.)
- UNITED STATES PHARMACOPŒIAL CONVENTION. The pharmacopœia of the United States of America. 13th revision. Easton, Pa. 1947. pp. cvii + 957. (*Reference.*) Mack Pub. Co. \$8.00.
- WARTH, A. H. The chemistry and technology of waxes. New York 1947. pp. viii + 519. ill. Reinhold. \$10.00. (*Recd.* 19/4/48.)

III. Pamphlets

- ASTON, F. W. The structural units of the material universe. (7th Earl Grey Memorial Lecture.) London 1925. pp. 23. ill.
- BRITISH NON-FERROUS METALS RESEARCH ASSOCIATION, 1920—1945. London 1945. pp. 47. ill.
- ROYAL INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. *Committee on the education and training of laboratory technicians.* Interim Report. London 1947. pp. 24.
- Lecture on chemistry and medicinal treatment. By SIR HENRY DALE. (3rd Dalton Lecture.) London 1948. pp. 15.
- WIRTH, M. M. Bicyclische Verbindungen mit einem vielgliedrigen Ring. Zürich 1948. pp. 54. ill.

LOCAL REPRESENTATIVES OF THE CHEMICAL SOCIETY.

- Aberdeen.* J. M. C. Thompson, M.A., D.Phil., A.R.I.C., Chemistry Department, Marischal College, The University, Aberdeen.
- Australia.* T. Iredale, B.Sc., F.R.I.C., The University, Sydney, Australia.
- Birmingham.* L. L. Bircumshaw, M.A., D.Sc., Department of Chemistry, The University, Edgbaston, Birmingham, 15.
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- Cambridge.* B. Lythgoe, Ph.D., Organic Chemistry Department, The University, Cambridge.
- Canada.* W. D. McFarlane, M.A., Ph.D., The Laboratories, The Canadian Breweries Ltd., 496, Queen Street East, Toronto, 2.
- Edinburgh.* E. G. V. Percival, D.Sc., Ph.D., F.R.I.C., Chemistry Department, King's Buildings, West Mains Road, Edinburgh.
- Eire.* Professor T. S. Wheeler, D.Sc., Ph.D., F.R.I.C., Chemical Department, University College, Upper Merrion Street, Dublin.
- Exeter.* S. J. Gregg, Ph.D., A.R.C.S., A.R.I.C., Department of Chemistry, Washington Singer Laboratories, Prince of Wales' Road, Exeter.
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- Leeds.* F. R. Goss, D.Sc., Ph.D., F.R.I.C., The University, Leeds, 2.
- Liverpool.* W. B. Whalley, B.Sc., Ph.D., F.R.I.C., Organic Chemistry Department, The University, Liverpool.
- „ L. A. Haddock, M.Sc., F.R.I.C., I.C.I., Ltd. (General Chemicals Division), Research Department, Widnes Laboratory, Widnes.
- Manchester.* G. Baddeley, M.Sc., Ph.D., The College of Technology, Manchester.
- „ J. C. Withers, Ph.D., A.R.I.C., Shirley Institute, Didsbury, Manchester.
- Newcastle and Durham.* P. L. Robinson, D.Sc., F.R.I.C., Chemistry Department, King's College, Newcastle-on-Tyne.
- New Zealand.* Professor F. G. Soper, D.Sc., Ph.D., F.R.I.C., University of Otago, Dunedin, New Zealand.
- Northern Ireland.* H. Graham, D.Sc., A.R.I.C., 26, Malone Hill Park, Belfast.
- North Wales.* W. Rogie Angus, M.A., D.Sc., Ph.D., F.R.I.C., Department of Chemistry, University College of North Wales, Bangor.
- Nottingham.* D. O. Jordan, Ph.D., M.Sc., A.R.I.C., University College, University Park, Nottingham.
- Oxford.* W. A. Waters, M.A., Sc.D., Ph.D., F.R.I.C., Balliol College, Oxford.
- St. Andrews and Dundee.* J. D. M. Ross, M.B.E., M.A., D.Sc., Chemistry Department, University College, Dundee.
- Sheffield.* A. H. Lamberton, B.Sc., Ph.D., Chemistry Department, The University, Sheffield, 10.
- South Africa.* Professor W. Pugh, Ph.D., B.Sc., F.R.I.C., Chemistry Department, University of Cape Town, Rondebosch, S. Africa.
- Southampton.* K. R. Webb, B.Sc., Ph.D., University College, Southampton.
- South Wales.* Professor J. E. Coates, O.B.E., D.Sc., F.R.I.C., University College, Singleton Park, Swansea.

June, 1948

PROCEEDINGS
OF THE
CHEMICAL SOCIETY

Minutes of a
SCIENTIFIC MEETING

held at the Royal Institution, Albemarle Street, London, W. 1, on Thursday, June 3rd, 1948,
at 7.30 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held at Burlington House on Thursday, May 20th, were read, and were confirmed and signed.

LIVERSIDGE LECTURE.

After a brief introduction, the President called upon Professor L. C. Pauling to deliver the Liversidge Lecture entitled, "The Modern Theory of Valency." At the conclusion of the lecture, a vote of thanks, proposed from the Chair, was carried with acclamation.

OFFICIAL ANNOUNCEMENTS

DEATHS.

The Council regret to announce the death on March 21st, 1948, of Hans Richard Frank (Schenectady) who was elected a Fellow of the Society on September 5th, 1946.

CONGRATULATIONS.

Birthday Honours List.

The President has conveyed the congratulations of the Society to the following Fellows whose names appeared in the Birthday Honours List.

Knight Bachelor.

Charles Robert Harington.
Cyril Norman Hinshelwood.

C.B.E.

Charles Ambrose Adams.
Herbert William Cremer.
Alexander Findlay.
Alexander King.

Fifty Years of Fellowship.

Congratulations have also been conveyed to the following Fellows who completed fifty years of Fellowship on June 16th, 1948.

Arthur William Cowburn (Manchester).
Robert Findlay Hislop (Shoreham-by-Sea).
George Herbert Martin (Cheltenham).
Sir John Russell (Oxford).
Ernest Witham (Rotherham).
Sir Charles A. Wrench (S.E.1).

COMMITTEES, 1948—1949.

The thanks of Council have been conveyed to the retiring members of Committees for the services they have rendered to the Society.

The following have been appointed for 1948—1949 :

Finance and General Purposes Committee.

H. J. Channon, J. W. Cook, C. J. T. Cronshaw, R. P. Linstead, W. H. Mills, J. R. Park, D. T. A. Townend, W. Wardlaw, together with the Officers, the Chairman of the Publication Committee and the representative of the Joint Library Committee on the Council of the Chemical Society, with the President as Chairman, Treasurer as Vice-Chairman, and the General Secretary as Secretary.

Research Fund Committee.

C. E. H. Bawn, C. W. Davies, M. G. Evans, R. D. Haworth, C. K. Ingold, E. R. H. Jones, J. Read, E. E. Turner, A. R. Ubbelohde, together with the Officers, with the President as Chairman, and the General Secretary as Secretary.

Publication Committee.

M. P. Applebey, W. Baker, G. M. Bennett, F. Bergel, E. G. Cox, M. G. Evans, C. S. Gibson, D. Ll. Hammick, Sir Cyril Hinshelwood, C. K. Ingold, D. J. G. Ives, E. R. H. Jones, F. E. King, G. A. R. Kon, R. P. Linstead, H. W. Melville, R. G. W. Norrish, S. Peat, S. G. P. Plant, H. Raistrick, E. K. Rideal, F. L. Rose, B. C. Saunders, D. W. G. Style, S. Sugden, H. W. Thompson, A. R. Todd, W. Wardlaw, F. G. Young, together with the Officers, with Sir Cyril Hinshelwood as Chairman, and the Editor as Secretary.

RESEARCH FUND GRANTS.

The following grants have been awarded from the Research Fund :

	£	s.	d.
D. H. R. Barton, Imperial College, London. "Application of the method of molecular rotation differences to steroids"	25	0	0
J. O'Mara Bockris, Imperial College, London. "Studies in hydrogen over-potential"	20	0	0
W. A. Boggust, Trinity College, Dublin. "The tryptochrome reaction"	10	0	0
G. R. Clemo, King's College, Newcastle-on-Tyne. "The constitution of yohimbine"	25	0	0
F. H. Dews, The University, Leeds 2. "Heterocyclic compounds of sulphur. Derivatives of 1:3-dithian and of thianthren"	10	0	0
C. H. Hassall, University College of the West Indies. "Plant products of the West Indies"	25	0	0
R. F. Hudson, Queen Mary College, London. "Kinetics of the hydrolysis of acid chlorides in non-aqueous solvents"	20	0	0
R. P. Hullin, Whitchurch Hospital, Cardiff. "Investigation of the chemical constituents of normal and pathological brains"	50	0	0
H. Irving, Inorganic Chemistry Laboratory, Oxford. "The analytical chemistry of scandium"	35	0	0
G. J. Janz, University College, London. "The condensation of some organic nitriles with 1:3-butadiene"	25	0	0
D. C. Nicholson, The University, Leeds. "The influence of poles and polar linkages on tautomerism in the simple three carbon system"	10	0	0
R. Parsons, Imperial College, London. "The effects of change of electrode and solution properties on the reactions occurring in, and the structure of, the the electrode-solution interface"	20	0	0
R. W. Pittman, Birkbeck College, London. "An investigation of electrode processes"	20	0	0
R. A. Robinson, Raffles College, Singapore. "Vapour pressure of non-aqueous solutions. Adsorption of water vapour on proteins"	50	0	0

LOCAL REPRESENTATIVE FOR BRISTOL.

The Council have appointed Dr. F. H. Pollard as Local Representative for Bristol in succession to Professor C. E. H. Bawn who has resigned on taking up an appointment in Liverpool.

ASSISTANT EDITOR.

Dr. L. C. Cross, A.R.C.S., has been appointed as an Assistant Editor of the Society's publications.

ELECTION OF NEW FELLOWS.

The following 48 candidates were elected Fellows of the Society on June 3rd, 1948 :

Rezső Bogнар.	Jan Jozef Michalski.
Charles Lancelot Cleveland Bourne.	Alan Thomas Smith Mitchell.
John Henry Burgoyne.	Kenneth McLean Mitchell.
Alexander Selwood Carson.	Cecil Bertie Monk.
Robert Rood Chambers.	Abdel Aziz Aly Mousa.
Jens Anton Christiansen.	Thomas Nash.
Ralph Alexander Connor.	Arthur Thomas Ness.
DeLos Fletcher Detar.	Norman Thomas Notley.
Henry Dickie.	Thomas Noel Parkin.
George Robert Fulton.	Frederick Joseph Pollok.
Harold Marks Glass.	William Godfrey Pitcher Robertson.
Mohammad Anwar-Ul Haque.	John Robinson.
Clifford Gwilym Harris.	Sidney Sharp.
Guy Hendrickson Harris.	Geoffrey Shaw.
Laurence John Arthur Haywood.	Charles FitzMaurice Creighton Simeons.
Arthur James Howarth.	Leonard Walter Skelton.
Lloyd Miles Jackman.	Peter William George Smith.
Eric Lloyd Jones.	Babue Lal Thakur.
Roy Granville Kinsman.	Gordon Haydn Thomas.
Harry Morrison Kirton.	Johannes Antonius Lebuinus van der Lande.
Caradoc Lloyd.	Granville Hudson Warburton.
Klaus Leopold Loewenstein.	Frederick Charles Waters.
Fergus Barry Lyons.	George Allen Way.
Howard Stanley Mason.	Albert Harry Woodhead.

MEETING OF COUNCIL.

A Meeting of Council was held on Thursday, June 3rd, 1948.

The Report of the Publication Committee (May 6th, 1948) was adopted. Included in the report was a recommendation that authors' copies of reprints of papers appearing in the *Journal* should be supplied in two styles—without wrappers, and with wrappers bearing the title of the paper and names of authors; that orders for reprints should be accepted only from authors of papers; and that authors should be asked to pay for reprints at the time they are ordered.

The Report of the Joint Library Committee (May 26th, 1948) was received, and it was reported that Dr. A. H. Cook and Professor E. D. Hughes had agreed to serve on this Committee.

The Report of the Finance and General Purposes Committee and of the Research Fund Committee (May 20th, 1948) were adopted.

It was agreed that the President should represent the Society at the commemoration in Stockholm on September 20th, 1948, of the Centenary of the death of Jacob Berzelius and that Professor R. D. Haworth should represent the Society at the installation of Lord Halifax as Chancellor of the University of Sheffield on July 2nd, 1948.

Certain formal and financial items were also dealt with.

MEETINGS OUTSIDE LONDON

BIRMINGHAM.

"The Valency of Metals and the Structure of Intermetallic Compounds," by Professor L. C. Pauling, D.Sc., Ph.D., For.Mem.R.S.

A joint meeting with the University Chemical Society was held in the University on May 24th, 1948.

In a metal each atom is surrounded by a large number (often 12) of other atoms to which it is bonded. The electronic structure of a metal may be described in terms of valence bonds which resonate among alternative interatomic positions in the crystal, the metal being stabilised by resonance energy. A large amount of resonance energy may result from the resonance of valence bonds independently of one another, a phenomenon which can occur only if the atoms have an extra orbital which can be used to receive an additional valence bond. This extra orbital, the "metallic orbital," appears to constitute the characteristic structural feature of metals.

In the first long period the metallic valency increases from one for potassium to six for chromium, remains essentially constant at this value to nickel, then drops to five and a half for copper and so on for succeeding elements until the fourth period is reached. The structure and properties of many intermetallic compounds can be interpreted in terms of these metallic valencies and resonating valence bonds.

Following an interesting discussion, a vote of thanks to Professor Pauling proposed by Dr. L. L. Bircumshaw, was carried with enthusiasm.

EIRE.

"Absorption Spectra as Chemical Tools," by Dr. A. E. Gillam, F.R.I.C.

A joint meeting with the Werner Society was held on May 28th, 1948, in the Department of Chemistry, Trinity College, Dublin, with Professor Wesley Cocker in the Chair.

After discussing the details of typical modern photographic and photoelectric methods of spectrophotometry, Dr. Gillam described the applications of absorption spectra to problems in organic chemistry in general, and the chemistry of natural products in particular. The uses of such methods for qualitative detection and quantitative determination of absorbing compounds as well as control of reactions were instanced and applications to the elucidation of the structure of organic molecules discussed.

A vote of thanks, which was proposed by Mr. E. R. Stuart and seconded by Professor T. S. Wheeler, was carried with enthusiasm by a large audience.

HULL.

"Phthalocyanines and related recent developments in Pigments," by Dr. R. P. Linstead, C.B.E., M.A., F.R.S.

A joint meeting with the local section of the Oil and Colour Chemists' Association and the University College Scientific Society was held at University College on January 30th, 1948, with Professor Brynmor Jones in the Chair.

Dr. Linstead described in a most interesting manner the discovery and developments of the phthalocyanines and discussed their structural similarity to compounds of biological interest.

After discussion, a vote of thanks to Dr. Linstead, proposed by Mr. G. W. Gray and seconded by Mr. Milnes, was carried with acclamation.

"The Optical Properties of Molecules," by Professor E. G. Cox, D.Sc.

A joint meeting with the local section of the Royal Institute of Chemistry and the University College Scientific Society was held on February 19th, 1948, at University College, Professor Brynmor Jones being in the Chair.

Professor Cox gave a very interesting account of some of the optical properties of molecules.

After discussion, a vote of thanks proposed by Mr. R. R. Baldwin and seconded by Mr. Humphrey was carried enthusiastically.

“Kinetics of some Organic Halogenation Reactions,” by Mr. R. P. Bell, M.A., F.R.S.

The last meeting of the session was a joint one with the University College Scientific Society held at the University College on May 20th, 1948, with Professor Brynmor Jones in the Chair.

After classifying organic compounds and their halogenation reactions from the standpoint of the rate of reaction, the lecturer gave a lucid account of the kinetics of the reactions in which a reactive methylene group is involved.

After a keen discussion, a vote of thanks to Mr. R. P. Bell, proposed by Dr. J. J. Kipling and seconded by Mr. Hartley, was carried with acclamation.

SOUTHAMPTON.

“Cosmic Rays,” by Professor F. H. Newman, Ph.D., D.Sc., F.Inst.P.

A joint meeting with the Portsmouth and District Chemical Society was held at the Municipal College, Portsmouth, on May 21st, 1948, Mr. G. E. Gale being in the Chair.

Professor Newman described the methods by which cosmic rays are detected and the way in which their intensity varies with latitude. He proceeded then to discuss the nature of the “hard” and “soft” components of the radiation and outlined very clearly how these may be derived from the protons which are thought to enter the earth's atmosphere from cosmic space.

After vigorous discussion, a vote of thanks to Professor Newman, proposed by Dr. C. G. Lyons, was carried enthusiastically.

“Intermolecular Forces and Biological Specificity,” by Professor L. C. Pauling, Ph.D., D.Sc., For.Mem.R.S.

A joint meeting with the Chemical Society of University College, Southampton, was held in the Physics Theatre, University College, Southampton, on May 27th, 1948, Dr. N. B. Chapman being in the Chair.

Professor Pauling surveyed briefly some of the phenomena of biological specificity and then gave a lucid and graphic account of the mechanism which he has developed to explain the inter-relationship between a particular antigen and the antibody which forms in its presence.

A discussion followed and a vote of thanks to the lecturer, proposed by Professor N. K. Adam, was carried with acclamation.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the Journal for June, 1948. Such objections will be treated as confidential. The forms of application are displayed in the Library.)

Allison, James. British. Sherlocks Cottages, Leggs Lane, Langton. Shift Chemist, British Resin Products, Ltd., Tonbridge. *Signed by* : K. C. Cooper, J. J. Wilson, E. M. Evans.

Brown, Ernest, M.A. (Oxon). British. 17, Sidewood Road, S.E. 9. Research Chemist, Directorate of Chemical Research and Development, Ministry of Supply. *Signed by* : C. S. Bryant, R. Owens, K. W. Jones.

Burger, Francis Joseph Peter Julius, Ph.D. (Berlin). British. Flat H, 29, Norfolk Crescent, W. 2. Director of Research, Franks Laboratories, Ltd., S.E. 23. *Signed by* : F. G. Donnan, Charles Goodeve, C. E. Hollis.

Challis, William, F.R.I.C., A.M.C.T. British. 274, Broadway, Derby. Plant Superintendent. *Signed by* : William Hunter, A. C. MacFarlane, T. H. Stothard.

***Cosgrove, Stanley Leonard,** B.A. (Oxon). British. Balliol College, Oxford. Research student. *Signed by* : W. A. Waters, D. A. H. Taylor, M. F. Ring.

Cunningham, Norman Lionel, M.P.S. (South Africa). British. Government Hospital, Broken Hill, N. Rhodesia. Pharmacist. *Signed by* : K. R. Webb, E. Cartmell, A. R. Burkin.

- ***Foster, Eric**. British. 3, Bampton Street, Loughborough. Student, University College, Nottingham. *Signed by* : John C. Roberts, D. O. Jordan, C. C. Addison.
- ***Gray, Kenneth Llewellyn**. British. The Queen's College, Oxford. Student. *Signed by* : W. A. Waters, J. A. Barltrop, J. W. Linnett.
- ***Gray, Peter**, B.A. (Cantab.). British. Gonville and Caius College, Cambridge. Research student. *Signed by* : F. P. Bowden, F. G. Mann, J. E. Lennard-Jones.
- Green, Austin John**, B.Sc. (Lond.), A.R.C.S. British. 114, Fourth Avenue, Sundon Park, Luton. Chemist. *Signed by* : T. Heap, A. W. Greenhill, N. Boothman.
- Harrington, Charles James**, B.S. (Princeton), D.Sc. Chem.Eng. (Mass. Institute of Technology). American. 4, Sterling Street, Montpelier Square, S.W. 7. European Technical Representative, E. I. du Pont de Nemours. *Signed by* : Wallace A. Akers, R. M. Winter, F. A. Freeth.
- Heath, Russel Alan**. British. 9, Potter Avenue, Earlwood, N.S.W. Analytical Chemist, Austral Industrial Products, Camperdown. *Signed by* : Richard W. Challinor, George S. Du Pain, F. R. Morrison.
- ***Hewstone, Ronald Keith**. British. 79, Mycenae Road, S.E. 3. Student, Queen Mary College, London. *Signed by* : J. R. Partington, V. Petrow, R. F. Hudson.
- Kacser, Henrik**, M.Sc. (Q.U.B.). British. 13, Bradbury Place, Belfast. Research chemist. *Signed by* : R. G. R. Bacon, H. Graham, A. R. Ubbelohde.
- Kaliski, Charles Edward**, A.R.I.C., A.M.C.T. British. 79, Clodien Avenue, Heath, Cardiff. Chemist. *Signed by* : G. H. Macadam, E. Levy, Julius Grant.
- Khan, Riaz Ahmed**, B.Sc.Hons. and M.Sc. (Aligarh). Pakistan. 26, Queenscroft Road, S.E. 9. Research Student, College of the Pharmaceutical Society. *Signed by* : Wilfred H. Linnell, L. K. Sharp, Vernon Askam.
- Landon, Michael Foster**, B.Sc. (Lond.). British. Merrow House, Richmond Road, Horsham. Chief Chemist and Works Manager, Dae Health Laboratories, Fleet. *Signed by* : G. J. Pritchard, H. A. Fischer, P. Bailes.
- Lock, Michael Vernon**, B.Sc.Hons. (Manc.). British. 16, Warwick Road, Romiley, Cheshire. Research Student. *Signed by* : A. E. Gillam, G. R. Barker, H. D. Springall.
- ***Longstaffe, Michael Derek**. British. 27, Landgate Road, Birmingham 21. Student, Wadham College, Oxford. *Signed by* : W. A. Waters, D. Ll. Hammick, R. P. Bell.
- Nicholson, Dennis Clifford**, A.R.I.C. British. Devonshire Hall, Cumberland Road, Leeds 6. Research Student. *Signed by* : Frederick Challenger, W. A. Wightman, A. Audsley.
- Pedder, John Saxon**, B.Sc. and Ph.D. (Lond.). British, 31, Tycehurst Hill, Loughton. Research Chemist. *Signed by* : J. G. Clarke, G. King, R. H. Tomlinson.
- ***Percival, James**, B.Sc. (Dunelm). British, Atlas, Harwich Road, Mistley, Manningtree. Research Chemist, B.X. Plastics, Ltd., Brantham. *Signed by* : G. Swann, P. E. Wilson, K. A. R. Julian.
- ***Pethica, Brian Anthony**, B.Sc.Hons. (Lond.). British. 146, Kempton Road, E. 6. Research Student. *Signed by* : A. A. Eldridge, F. C. Tompkins, J. O'M. Bockris.
- ***Pettit, Rowland**, B.Sc.Hons. (Adelaide). British. 3, Tyson Street, Ashford South, Adelaide. Research student and demonstrator, Adelaide University. *Signed by* : Kenneth H. Pausacker, F. L. Winzor, John A. Mills.
- ***Sephton, Douglas Peter**. British. The Ridge, Church Road, Hartley. Student. *Signed by* : H. I. Stonehill, G. F. Reynolds, H. L. Feuchtwanger.
- Shilton, Roy**. British. 10, Rhode Street, Tottington, Nr. Bury. Student. *Signed by* : A. E. Gillam, F. Fairbrother, Colin Campbell.
- ***Smith, Sydney**. British. 22, Ferry Street, Stapenhill, Burton-on-Trent. Student, Queen's College, Oxford. *Signed by* : W. A. Waters, J. A. Barltrop, J. W. Linnett.
- ***Stroud, Kenneth Cecil George**. British. "Cherwell," Whitehall Road, Woodford Wells. Chemist, Metropolitan Water Board. *Signed by* : W. Gerrard, W. A. Smeaton, C. G. Smith.
- ***Thompson, Jack**, B.Sc.Hons. (Lond.), A.R.I.C. British. 17, Elcoat Road, Norton, Stockton-on-Tees. Technical Officer, Research Dept., I.C.I. Billingham. *Signed by* : H. N. Wilson, B. W. Bradford, F. G. Angell.
- Tyrell, Henry John Valentine**, M.A. and B.Sc. (Oxon.). British. 20a, Thornsett Road, Sheffield 7. Assistant Lecturer, Sheffield University. *Signed by* : E. Gertrude Turner, Alex. H. Lamberton, T. B. Smith.
- ***Williams, Robert John**. British. 12, Dobell Road, S.E. 9. Student, Imperial College, London. *Signed by* : James F. Williams, B. E. Conway, G. S. Minkoff.
- Woodcock, Charles Albin**. British. 5, Ambleside Avenue, Beckenham. Laboratory Assistant. Student, Birkbeck College. *Signed by* : W. G. Bartley, W. Rigby, H. N. Rydon.
- Young, Herbert Timothy**, B.A. (Oxon). British. 17, Ladbroke Square, Notting Hill Gate, W. 11. Research chemist, British Drug Houses, Ltd. *Signed by* : C. Ockrent, Frank Hartley, E. J. Chappel.

UNDER SPECIAL PROVISION APPERTAINING TO CANDIDATES RESIDENT ABROAD.

- Bullimore, William Edward Victor**, A.A.C.I. British. 57, Cumberland Street, Cabramatta, N.S.W. Technical Sales Manager and Consultant, Townson & Mercer (Australia), Ltd., Sydney. *Signed by* : Samuel Morris, A. H. Fuller.

- Candy, Henry Arthur**, M.Sc. (S. Africa). South African. c/o Natal University College, Pietermaritzburg, Natal. Lecturer in Chemistry. *Signed by* : F. L. Warren, H. A. E. Mackenzie.
- Ghose, Munindra Nath, Rai Sahib**, B.Sc. (Calcutta). Bengalee. 35/7 Gulu Ostagar Lane, Calcutta, 6. Late Chemical Examiner, Calcutta Custom House. *Signed by* : J. P. Bose.
- Hey, Denis**. British. 8, Deane Avenue, Oakville, Ontario. Chief Chemist, W. C. Hardesty (Canada), Ltd. *Signed by* : Robert Campbell.
- Simpson, Douglas Haig**, M.Sc. (McMaster). Canadian. c/o Dr. M. H. Power, Biochemistry Department, Mayo Clinic, Rochester, Minnesota. Research Assistant. *Signed by* : C. Frederick Koelsch.
- Wilson, Stanley Edward**, B.Sc. (S. Africa). South African. Natal University College, Pietermaritzburg, Natal. Chemist, Municipal Laboratories, Johannesburg. *Signed by* : F. L. Warren, H. A. E. Mackenzie.

* Reduced annual subscription.

PAPERS RECEIVED

List of papers received between May 11th and June 16th, 1948.

- "Some new organo-selenium compounds." By D. G. I. FELTON.
- "The synthesis of some 4 : 4'-dialkylbenzophenones." By H. A. FAHIM.
- "Some derivatives of *p*-alkylbenzoic acids." By H. A. FAHIM.
- "The cross-linking of vinyl polymers by Friedel-Crafts catalysts. Part II." By J. C. BEVINGTON and R. G. W. NORRISH.
- "The thermal decomposition of phenacyltrimethylammonium hydroxide." By J. HARLEY-MASON.
- "Reactions of $\alpha\beta$ -unsaturated cyclic aldehydes and ketones. Part VII. Alcohols derived from phellindral." By J. P. E. HUMAN, A. K. MACBETH, and H. J. RODDA.
- "The non-saponifiable matter of shea nut fat. Part IV. A new tetracyclic diethenoid alcohol, butyrospermol." By SIR IAN HEILBRON, E. R. H. JONES, and P. A. ROBINS.
- "Analgesics. Part I. Esters and ketones derived from α -amino- ω -cyano- $\omega\omega$ -diarylalkanes." By D. J. DUPRÉ, J. ELKS, B. A. HEMS, and (MISS) K. N. SPEYER.
- "Analgesics. Part II. The synthesis of amidone and some of its analogues." By J. ATTENBURROW, J. ELKS, B. A. HEMS, and (MISS) K. N. SPEYER.
- "The preparation of some chloroalkylamino-compounds." By E. R. H. JONES and W. WILSON.
- "Halogenated ketones. Part V. Some derivatives of ω -chloroacetophenone." By J. R. CATCH, D. J. ELLIOTT, D. H. HEY, and E. R. H. JONES.
- "Constitution of conessine. Part I." By R. D. HAWORTH, J. MCKENNA, and N. SINGH.
- "The structure of certain polysulphides and sulphonyl sulphides. Part III. The crystal structure of bisphenylsulphonyl sulphide." By A. M. L. MATHIESON and J. MONTEATH ROBERTSON.
- "Nitrogen utilisation and growth of coliform bacteria. Part I. Adaption to growth in ammonium salt media." By G. A. MORRISON and SIR CYRIL N. HINSHELWOOD.
- "Nitrogen utilisation and growth of coliform bacteria. Part II. Relation between growth and deaminase activity." By G. A. MORRISON and SIR CYRIL N. HINSHELWOOD.
- "Nitrogen utilisation and growth of coliform bacteria. Part III. Nitrogen utilisation and lag phase." By G. A. MORRISON and SIR CYRIL N. HINSHELWOOD.
- "Reaction-kinetic investigations of the incomplete dissociation of salts. Part I. The decomposition of diacetone alcohol in solutions of metal hydroxides." By R. P. BELL and J. E. PRUE.
- "The chemistry of fungi. Part II. Derivatives of 3 : 4-dimethoxyphenol." By G. H. JONES, J. B. D. MACKENZIE, A. ROBERTSON, and W. B. WHALLEY.
- "The chemistry of fungi. Part III. The degradation of *O*-dimethylcitromycin and the structure of citromycetin." By A. ROBERTSON and W. B. WHALLEY.
- "The *Senecio* alkaloids. Part II. Isatinecine." By E. C. LEISEGANG and F. L. WARREN.
- "Absorption spectra and structure of organic sulphur compounds. Part I. Unsaturated sulphides." By H. P. KOCH.

- “Absorption spectra and structure of organic sulphur compounds. Part II. Disulphides and polysulphides.” By H. P. KOCH.
- “Absorption spectra and structure of organic sulphur compounds. Part III. Vulcanisation accelerators and related compounds.” By H. P. KOCH.
- “Absorption spectra and structure of organic sulphur compounds. Part IV. Unsaturated sulphones.” By H. P. KOCH.
- “The organic derivatives of gold. Part X. Diethylgold cyclic derivatives containing the N-C-C-S system.” By R. V. G. EWENS and C. S. GIBSON.
- “A test for the grouping $\cdot\text{CH}\cdot\text{NH}_2$.” By A. SCHÖNBERG and W. I. AWAD.
- “Lanosterol. Part VI. Further reactions of dehydrogenation and oxidation.” By C. DORÉE, J. F. MCGHIE, and F. KURZER.
- “Vapour-phase hydrolysis of non-metallic chlorides. Part I.” By B. ARCHER and R. F. HUDSON.
- “Vapour-phase hydrolysis of non-metallic chlorides. Part II.” By R. F. HUDSON and N. MACLEOD.
- “The condensed phosphoric acids and their salts. Part I. Metaphosphates.” By C. W. DAVIES and C. B. MONK.
- “The condensed phosphoric acids and their salts. Part II. Pyrophosphates.” By C. B. MONK.
- “The condensed phosphoric acids and their salts. Part III. Polyphosphates and general summary.” By C. B. MONK.
- “The conductivity of sodium carbonate solutions at 25°.” By C. B. MONK.
- “Synthetic antimalarials. Part XXXVI. Physicochemical studies on pyrimidine derivatives.” By J. C. GAGE.
- “Acetone compounds of sugar mercaptals: diacetone-D-xylose diethylmercaptal.” By O. T. DALLEY and R. J. McILROY.
- “Amidines. Part XI. Preparation of amidines by ammonolysis of *N*-arylamidinium salts.” By P. OXLEY and W. F. SHORT.
- “The relative reactivity of aromatic double bonds.” By G. M. BADGER.
- “The non-benzenoid aromatic hydrocarbon pentalene. A theoretical discussion.” By D. P. CRAIG and A. MACCOLL.
- “The production of amidines from cyanides and ammonium salts.” By J. CYMERMAN, J. W. MINNIS, P. OXLEY, and W. F. SHORT.
- “Reactions with phenanthraquinone, 9-benzylideneanthrone, and methyleneanthrone in sunlight.” By A. MUSTAFA and A. M. ISLAM.
- “The constitution of yohimbine. Part II.” By G. R. CLEMO and G. A. SWAN.
- “Researches on acetylenic compounds. Part XV. The oxidation of primary acetylenic carbinols and glycols.” By SIR IAN HEILBRON, E. R. H. JONES, and F. SONDHEIMER.
- “Researches on acetylenic compounds. Part XVI. The preparation, reactions, and light-absorption properties of some 2:5-dihydroacetophenones and related compounds. (Studies in light absorption. Part V.)” By E. A. BRAUDE, E. R. H. JONES, F. SONDHEIMER, and J. B. TOOGOOD.
- “Researches on acetylenic compounds. Part XVII. The preparation of substituted 1-acetylcyclohexenes from 4-benzoyloxycyclohexanone.” By E. R. H. JONES and F. SONDHEIMER.
- “Researches on acetylenic compounds. Part XVIII. The addition of thiolacetic acid to acetylenic hydrocarbons. The conversion of monosubstituted acetylenes into aldehydes and 1:2-dithiols.” By H. BADAR, L. C. CROSS, SIR IAN HEILBRON, and E. R. H. JONES.
- “Studies on indene derivatives. Part V. The nature of the colour reaction between α -amino-acids and ninhydrin.” By R. MOUBASHER and A. IBRAHIM.
- “Some derivatives of 2-keto-1:2-dihydro-1-oxa-8-azaphenanthrene.” By V. PETROW and E. L. REWALD.
- “Reaction between mercuric acetate, ethylene, and amines.” By G. SACHS.

- "The primary thermal oxidation product of squalene." By J. L. BOLLAND and HILDA RHODES.
- "Influence of directing groups on nuclear reactivity in oriented aromatic substitutions. Part VI. Nitration of ethyl phenylacetate and of benzyl chloride." By FLORENCE R. SHAW and C. K. INGOLD.
- "Nucleotides. Part II. A synthesis of adenosine triphosphate." By J. BADDILEY, A. M. MICHELSON, and A. R. TODD.
- "The condensation of *p*-dimethylaminobenzaldehyde with nitroparaffins." By D. J. DRAIN and W. WILSON.
- "Picrotoxinin and tutin. Part III. The hydrogenation of picrotoxinin." By S. N. SLATER.
- "The structure of γ -curcumene." By R. D. BATT and S. N. SLATER.
- "Polarography of quinoline derivatives. Part II. The reduction of 8-hydroxyquinoline at the dropping-mercury cathode." By J. T. STOCK.
- "The stereochemistry of an oxazoline derivative of threonine. Improvement of a recent threonine synthesis." By D. F. ELLIOTT.
- "A study of the mechanism of oxidation with chromic acid. Part III. Glycol fission with chromic acid and chromyl chloride." By R. SLACK and W. A. WATERS.
- "A study of the mechanism of oxidation with chromic acid. Part IV. Kinetics of the initial reaction." By R. SLACK and W. A. WATERS.
- "The condensation of fluorene with acetone. Part VI. Methylated di- and tetrahydrofluoranthenes. Synthesis of 2 : 3 : 4-trimethylfluoranthene." By S. H. TUCKER and (Miss) M. WHALLEY.
- "The combustion of carbon : inhibition of secondary reactions by volatile reagents added to the oxidising gas." By J. R. ARTHUR and Miss J. R. BOWRING.
- "Evidence for the sulphite and sulphonate structures of Hantzsch's *syn*- and *anti*-diazo-sulphonates. Part II. The absence of geometrical isomerism among the diazoaryl-sulphonates, -sulphinates, and -sulphones." By H. H. HODGSON and D. BAILEY.
- "Fluorescent acylating agents derived from 7-hydroxycoumarin." By W. BAKER and (the late) C. B. COLLIS.

ADDITIONS TO LIBRARY

I. Donations

ACTA CHEMICA SCANDINAVICA. Vol. I, etc. Copenhagen 1947+. (*Reference.*)

From the Bureau of Abstracts.

ASSOCIATION OF BRITISH CHEMICAL MANUFACTURERS. Safety rules for use in chemical works. Part I. Model rules. 3rd edition. London 1947. pp. 69. (*Reference.*) 7s. 6d.

From the Association.

CHYMIA. Annual studies in the history of chemistry. Editor-in-chief: T. L. DAVIS. Vol. I. Philadelphia 1948. pp. xiv + 190. ill. (*Reference.*) \$3.50.

From the Publishers :

The University of Pennsylvania Press.

EVANS, U. R. An introduction to metallic corrosion. London 1948. pp. xxxvi + 211. ill. 12s. 6d. (*Recd.* 3/6/48.)

From the Publishers.

Messrs. Edward Arnold & Co.

HUSTON, R. C. A correlation of some

physical properties of alkanes and alkenes. Boiling points, molecular volumes and surface tensions. East Lansing 1947. pp. 96. ill. Michigan State College Pr. (*Recd.* 5/5/48.)

From the Author.

IMPERIAL COLLEGE CHEMICAL ENGINEERING SOCIETY. Journal. Vol. 1, etc. London 1945+ (*Reference.*) From the Society.

INSTITUTE OF PETROLEUM. Standard methods for testing petroleum and its products. 9th edition. London 1948. pp. xlviii + 616. ill. I.P. 31s. (*Recd.* 5/5/48.)

From the Institute.

MEDICAL RESEARCH COUNCIL. Medical research in war. Report of the Medical Research Council for the years 1939—1945. London 1947. pp. 455. (*Reference.*) H.M.S.O. 7s. 6d.

From the Council.

SUGAR RESEARCH FOUNDATION, INC. The Sugar Molecule. Vol. I, etc. New York 1947+. (*Reference.*) From the Director.

WALLERSTEIN LABORATORIES. Bottle beer

quality. A 10-year research record. New York 1948. pp. iii + 161. ill. (*Recd.* 27/5/48.)

From the Publishers :
The Wallerstein Laboratories.

II. By Purchase

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Approaches to tumor chemotherapy. Edited by F. R. MOULTON. Washington 1947. pp. [x] + 442. ill. A.A.A.S. \$7.75. (*Recd.* 3/6/48.)

AMERICAN SOCIETY FOR TESTING MATERIALS. Symposium on pH measurement. Philadelphia 1947. pp. v + 79. ill. (*Reference.*) A.S.T.M. \$1.50.

AVERY, G. S., and JOHNSON, E. B. Hormones and horticulture. The use of special chemicals in the control of plant growth. New York 1947. pp. xi + 326. ill. McGraw-Hill. \$4.50. (*Recd.* 28/4/48.)

BAILEY, A. E. [Editor.] Cottonseed and cottonseed products: their chemistry and technology. New York 1948. pp. xxiii + 936. ill. Interscience. \$17.50. (*Recd.* 3/6/48.)

BAYLEY, T. A pocket book for chemists, [etc.]. 10th edition. Edited by F. G. ANGELL. London 1948. pp. xv + 508. (*Reference.*) Spon. 30s.

BIKERMAN, J. J. Surface chemistry for industrial research. New York 1948. pp. ix + 464. ill. Academic Pr. \$8.00. (*Recd.* 3/5/48.)

BOYD, W. C. Fundamentals of immunology. 2nd edition. New York 1947. pp. xvi + 503. ill. Interscience. \$6.00. (*Recd.* 28/4/48.)

BROWN, S. P. Air conditioning and elements of refrigeration. New York 1947. pp. ix + 644. ill. McGraw-Hill. \$6.00. (*Recd.* 3/6/48.)

BULENS, D. K. and others. Steel and its heat treatment. 5th edition. Vols. I & II. New York 1948. pp. xxxii + 489, xxiv + 293. ill. Wiley. \$10.00. (*Recd.* 3/6/48.)

CONFERENCE ON BIOLOGICAL ANTIOXIDANTS, 1st. Transactions. Edited by C. G. MACKENZIE. Sponsored by the JOSIAH MACY, JR. FOUNDATION. New York [1947]. pp. [vi] + 81. (*Reference.*) Macy Foundation. \$2.00.

FEIGL, F. Qualitative analysis by spot tests: inorganic and organic applications. 3rd English edition, translated by R. E. OESPER. New York [1946]. pp. xvi + 574. ill. Elsevier. \$8.00. (*Recd.* 3/6/48.)

FOOD TECHNOLOGY. Vol. I, etc. Campaign 1947+. (*Reference.*) Garrard Pr. \$10 p.a.

FOWLER, R. D., and BURFORD, W. B. Fluorocarbons. Washington [1947]. pp. [xii] + 147. ill. (*Reference.*) U.S. Dept. of Commerce. \$5.00.

FULTON, J. F., and THOMSON, E. H. Benjamin Silliman, 1779—1864. Pathfinder in American science. New York 1947. pp. ix + 294. ill. Schuman. \$4.00. (*Recd.* 28/4/48.)

HALL, J. D. Industrial applications of infrared. New York 1947. pp. x + 201. ill. McGraw-Hill. \$3.50. (*Recd.* 3/6/48.)

HOFFMANN, B. The strange story of the quantum. New York 1947. pp. xi + 239. ill. Harper. \$3. (*Recd.* 28/4/48.)

HOUGEN, O. A., and DODGE, F. W. The drying of gases. Ann Arbor 1947. pp. ix + 199. ill. Edwards. \$4.25. (*Recd.* 3/5/48.)

INDUSTRIAL RESEARCH INSTITUTE, INC. Research in industry: its organization and management. Edited by C. C. FURNAS. New York 1948. pp. xii + 574. ill. Van Nostrand. \$6.50. (*Recd.* 3/6/48.)

KIRKBRIDE, C. G. Chemical engineering fundamentals. New York 1947. pp. xi + 419. ill. McGraw-Hill. \$5.00. (*Recd.* 28/4/48.)

LEVY, H., and PREIDEL, E. E. Elementary statistics. London 1944. pp. vii + 184. Nelson. 5s. (*Recd.* 3/6/48.)

MARK, H., and PROSKAUER, E. S. The science of plastics. A comprehensive source book based on the original literature for 1942—1946. Vol. I. New York 1948. pp. [viii] + 632. ill. (*Reference.*) Interscience. \$9.00.

NEWER METHODS OF PREPARATIVE ORGANIC CHEMISTRY. Translated and revised from the German. New York 1948. pp. xiii + 657. Interscience. \$8.50. (*Recd.* 3/5/48.)

NORTHEASTERN WOOD UTILIZATION COUNCIL. Bulletin No. 18. Special treatments of wood. New Haven 1947. pp. 103. ill. \$ 2.00. (*Recd.* 28/4/48.)

NORTHEY, E. H. The sulfonamides and allied compounds. (American Chemical Society Monograph Series.) New York 1948. pp. xxvii + 660. Reinhold. \$15.00. (*Recd.* 3/5/48.)

OLLARD, E. A., and SMITH, E. B. Handbook of industrial electroplating. London 1947. pp. 287. ill. Louis Cassier Co. 15s. (*Recd.* 3/6/48.)

RICHTER, VICTOR VON. The chemistry of the carbon compounds. Edited by RICHARD ANSCHÜTZ. 3rd English edition. Vol. IV. The heterocyclic compounds and organic free radicals. By F. REINDEL and L. ANSCHÜTZ. Translated from the 12th German edition by

M. F. DARKEN and A. J. MEE. New York 1947. pp. xv + 498. (*Reference.*) Elsevier.

SAHYUN, M. Proteins and amino acids in nutrition. New York 1948. pp. xvi + 566. ill. Reinhold. \$7.50. (*Recd.* 28/4/48.)

SAUCHELLI, V. Manual on fertilizer manufacture. Baltimore 1946. pp. 126. ill. Davison Chem. Corp. \$4.00. (*Recd.* 28/4/48.)

SHERMAN, H. C. Calcium and phosphorus in foods and nutrition. New York 1947. pp. vi + 176. ill. Columbia Univ. Pr. \$3.00. (*Recd.* 28/4/48.)

THOMAS M. Plant physiology. 3rd edition. London 1947. pp. xi + 504. ill. Churchill. 28s. (*Recd.* 3/6/48.)

YARWOOD, J. High vacuum technique: theory, practice, industrial applications, and properties of materials. 2nd edition. Lon-

don 1948. pp. viii + 140. ill. Chapman and Hall. 12s. 6d. (*Recd.* 10/6/48.)

III. Pamphlets

DIEHL, H. Electrochemical analysis with graded cathode potential control. Columbus 1948. pp. vii + 56. ill.

MEDICAL RESEARCH COUNCIL. Memorandum No. 18. Thyroid enlargement and other changes related to the mineral content of drinking water (with a note on goitre prophylaxis). By M. M. MURRAY, J. A. RYLE, B. W. SIMPSON, and D. C. WILSON. London 1948. pp. 39.

SUGAR RESEARCH FOUNDATION, INC. Technological Report Series, No. 4. Use of molasses in grass silage preparation. By C. B. BENDER. New York 1948. pp. [vi] + 22.

LOCAL REPRESENTATIVES OF THE CHEMICAL SOCIETY.

- Aberdeen.* J. M. C. Thompson, M.A., D.Phil., A.R.I.C., Chemistry Department, Marischal College, The University, Aberdeen.
- Australia.* T. Iredale, B.Sc., F.R.I.C., The University, Sydney, Australia.
- Birmingham.* L. L. Bircumshaw, M.A., D.Sc., Department of Chemistry, The University, Edgbaston, Birmingham, 15.
- Bristol.* Dr. F. H. Pollard, B.Sc., A.R.I.C., Chemistry Department, The University, Woodland Road, Bristol.
- Cambridge.* B. Lythgoe, Ph.D., Organic Chemistry Department, The University, Cambridge.
- Canada.* W. D. McFarlane, M.A., Ph.D., The Laboratories, The Canadian Breweries Ltd., 496, Queen Street East, Toronto, 2.
- Edinburgh.* E. G. V. Percival, D.Sc., Ph.D., F.R.I.C., Chemistry Department, King's Buildings, West Mains Road, Edinburgh.
- Eire.* Professor T. S. Wheeler, D.Sc., Ph.D., F.R.I.C., Chemical Department, University College, Upper Merrion Street, Dublin.
- Exeter.* S. J. Gregg, Ph.D., A.R.C.S., A.R.I.C., Department of Chemistry, Washington Singer Laboratories, Prince of Wales' Road, Exeter.
- Glasgow.* J. D. Loudon, Ph.D., D.Sc., A.R.I.C., Chemistry Department, The University, Glasgow, W. 2.
- Hull.* Professor Brynmor Jones, Sc.D., Ph.D., F.R.I.C., University College, Hull.
- India.* Sir Shanti S. Bhatnagar, O.B.E., D.Sc., F.R.S., Council of Scientific and Industrial Research, New Delhi, India.
- Leeds.* F. R. Goss, D.Sc., Ph.D., F.R.I.C., The University, Leeds, 2.
- Liverpool.* W. B. Whalley, B.Sc., Ph.D., F.R.I.C., Organic Chemistry Department, The University, Liverpool.
- „ L. A. Haddock, M.Sc., F.R.I.C., I.C.I., Ltd. (General Chemicals Division), Research Department, Widnes Laboratory, Widnes.
- Manchester.* G. Baddeley, M.Sc., Ph.D., The College of Technology, Manchester.
- „ J. C. Withers, Ph.D., A.R.I.C., Shirley Institute, Didsbury, Manchester.
- Newcastle and Durham.* P. L. Robinson, D.Sc., F.R.I.C., Chemistry Department, King's College, Newcastle-on-Tyne.
- New Zealand.* Professor F. G. Soper, D.Sc., Ph.D., F.R.I.C., University of Otago, Dunedin, New Zealand.
- Northern Ireland.* H. Graham, D.Sc., A.R.I.C., 26, Malone Hill Park, Belfast.
- North Wales.* W. Rogie Angus, M.A., D.Sc., Ph.D., F.R.I.C., Department of Chemistry, University College of North Wales, Bangor.
- Nottingham.* D. O. Jordan, Ph.D., M.Sc., A.R.I.C., University College, University Park, Nottingham.
- Oxford.* W. A. Waters, M.A., Sc.D., Ph.D., F.R.I.C., Balliol College, Oxford.
- St. Andrews and Dundee.* J. D. M. Ross, M.B.E., M.A., D.Sc., Chemistry Department, University College, Dundee.
- Sheffield.* A. H. Lambertson, B.Sc., Ph.D., Chemistry Department, The University, Sheffield, 10.
- South Africa.* Professor W. Pugh, Ph.D., B.Sc., F.R.I.C., Chemistry Department, University of Cape Town, Rondebosch, S. Africa.
- Southampton.* K. R. Webb, B.Sc., Ph.D., University College, Southampton.
- South Wales.* Professor J. E. Coates, O.B.E., D.Sc., F.R.I.C., University College, Singleton Park, Swansea.

PAGES MISSING 81 TO 100

October, 1948.

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING DECEMBER, 1948

LONDON.

Thursday, December 9th, 1948, at 7.15 p.m.

The following papers will be read and discussed :

“ The Kinetics and Mechanism of the Sandmeyer Reaction.” By W. A. Cowdrey and D. S. Davies.

“ The Kinetics of the Thermal Decomposition of Magnesium Hydroxide.” By S. J. Gregg and R. I. Razouk.

“ The Kinetics of the Dehydrochlorination of Substituted Hydrocarbons. Parts I, II, and III.” By D. H. R. Barton.

Preprints of abstracts of the papers for discussion may be obtained on application to the General Secretary.

BIRMINGHAM.

Friday, December 3rd, 1948, at 4.30 p.m.

Lecture, **The Liquid State**, by Dr. E. A. Moelwyn-Hughes.

Joint meeting with the University of Birmingham Chemical Society to be held in the Main Chemistry Lecture Theatre of the University, Edgbaston.

EDINBURGH.

Thursday, December 9th, 1948, at 7.30 p.m.

Lecture, **Bread and its Influence on History**, by Dr. D. W. Kent-Jones, F.R.I.C.

Joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry to be held in the North British Station Hotel, Edinburgh.

GLASGOW.

Friday, December 3rd, 1948, at 2.15 p.m.

Official Meeting of the Society.

The following papers will be read :

“ The relative reactivity of aromatic double bonds.” By G. M. Badger.

“ Gliotoxin, a metabolic product from the mould, *Trichoderma viride*.” By J. A. Elvidge and F. S. Spring.

“ Liquid eutectics and low-melting compositions based on ammonium nitrate.” By J. Taylor and J. Whetstone.

(Ramsay Chemical Dinner to be held the same evening at the Central Hotel.)

LIVERPOOL.

Thursday, December 2nd, 1948, at 4.30 p.m.

Lecture, **Modern Theories of Chemical Valency**, by Sir John Lennard-Jones, K.B.E., F.R.S.

Joint meeting with the local sections of the British Association of Chemists, the Royal Institute of Chemistry and the Society of Chemical Industry to be held at the University.

NORTHERN IRELAND.

MANCHESTER.

Thursday, December 9th, 1948, at 6.30 p.m.

Lecture, **Aromatic Nitration**, by Professor C. K. Ingold, D.Sc., F.R.S.

Joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry to be held in the Chemistry Department of the University.

Wednesday, December 1st, 1948, at 7.30 p.m.

Lecture, **Some Chemical Aspects of Plastics Manufacture**, by Dr. R. G. R. Bacon, A.R.C.S., D.I.C.

Joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry to be held in the Royal Belfast Academical Institution.

NOTTINGHAM.

Thursday, December 9th, 1948, at 6.30 p.m.

Meeting for the reading of original papers.

Joint meeting with the University of Nottingham Chemical Society to be held in the Chemistry Department of the University.

SHEFFIELD.

Thursday, December 2nd, 1948, at 6 p.m.

Lecture, **Problems in the Production of Useful Power from Nuclear Energy**, by Sir Wallace Akers, C.B.E., B.A., F.R.I.C.

Joint meeting with the local section of the Royal Institute of Chemistry and Sheffield University Chemical Society to be held in the Chemistry Department Lecture Theatre of the University.

SOUTHAMPTON.

Friday, December 3rd, 1948, at 5 p.m.

Lecture by Professor M. G. Evans, D.Sc., F.R.S.

Joint Meeting with the University College of Southampton Chemical Society to be held in the Physics Department of University College.

PROCEEDINGS

OF THE

CHEMICAL SOCIETY

Minutes of a SCIENTIFIC MEETING

held at Burlington House, Piccadilly, W. 1, on Thursday, October 14th, 1948, at 7 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held on June 3rd were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : Geoffrey T. Newbold, Ronald C. Odams, S. N. Slater, Sydney Grossman, John M. Swan, Leo F. Oliver, H. Brian Hopkins, John G. Priest.

SCIENTIFIC COMMUNICATIONS.

The following papers were read and discussed :

- “ The Constitution of Conessine.” By R. D. Haworth, J. McKenna, and N. Singh.
“ The Antibacterial Compound Aspergillitic Acid.” By G. Dunn, J. J. Gallagher,
G. T. Newbold, and F. S. Spring.
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OFFICIAL ANNOUNCEMENTS

DEATHS.

The Council regret to announce the deaths of the following Fellows :

	Elected.	Died.
Samuel Robert Adcock (Prescot)	Dec. 15th, 1892.	Mar. 29th, 1948.
William Carrick Anderson (Blanefield)	May 2nd, 1901.	July 25th, 1948.
Angus Fairthorne Core (Manchester)	Dec. 4th, 1919.	Aug. 24th, 1947.
William Cullen (N.W.1).	Mar. 27th, 1941.	Aug. 14th, 1948.
Cecil Cooke Duncan (Worcester).....	Dec. 6th, 1894.	Oct. 4th, 1948.
Ronald Victor George Ewens (S.E.1).	Dec. 16th, 1943.	Sept. 21st, 1948.
George Hugh Gabb (N. 7).	May 3rd, 1894.	Aug. 11th, 1948.
James William Hatch (Co. Down)	June 21st, 1945.	Dec. 16th, 1947.
Martin Mugdan (Richmond)	Sept. 5th, 1946.	July 9th, 1948.
Nicolas Antonovitch Pushin (Belgrade).	Feb. 21st, 1935.	Oct. 23rd, 1947.
Samuel Edward Sheppard (Rochester, N.Y.)	June 20th, 1901.	Sept. 29th, 1948.
Ernest Witham (Rotherham)	June 16th, 1898.	February, 1947.
Sir Charles Arthur Wrench (S.E.1).....	June 16th, 1898.	Sept. 21st, 1948.

*

ELECTION OF NEW FELLOWS.

The following 65 candidates were elected Fellows of the Society on October 14th, 1948 :

John David Cameron Anderson.	David Ibbott Magrath.
Thomas Hemingway Anderson.	Randal George Arthur New.
Hekmat B. F. Antaki.	Thomas Stefan Oesterreicher.
William Ibrahim Awad.	Charles Gilbert Overberger.
Brian George Baldwin.	Ronald Edward Parr.
John Henton Bass.	Robert John Parris.
Sasanka Chandra Bhattacharyya.	John Blunden Payne.
Stanley Birtwell.	Frederick Charles Pegington.
Eileen Brundritt.	Harold John Phelps.
Donald Bryan.	Peter Immanuel Pollak.
Kenneth Osborne Calvert.	Anthony Charles Pollard.
William Thomas Carter.	James Richard Allan Pollock.
Eric Chicken.	Chalat Ramaier Rajagopalan.
Peter Coackley.	Werner Richarz.
David Cowan Crichton.	Harold George Rickard.
Brian Kay Davison.	Chester Clendening Ritchie.
Frederick Keith Duxbury.	Ralph Sidney Robinson.
Lanson Salib H. El-Assal.	Laurence Frederick Rutter.
William Handel Evans.	John Alan Saunders.
Brian Hamer Farnworth.	Leon Anthony Simmonds
Trevor Ferber Joseph Galley.	Margaret Isabel Simpson.
William Cecil Gilpin.	Geoffrey Russell Snow.
Harold Frederick Godson.	Gabriel Stein.
Robert Fred Greenwood.	Hetty Thomas.
Kenneth Hartley.	Morice William Thompson.
Frank Hepburn.	Rafat Husain Usmani.
John Stanley Eastham Holker.	Ian Harry Warren.
Geoffrey Lacy Isles.	Brian Joseph Wilkins.
Paul E. Jean.	Alan Donald Wilson.
David Harold Johnson.	Ronald Newall Woodward.
Pawel Krumholz.	Peter Amyas Wright.
Ronald Long.	John Yates.
Donald Ian McGilvray.	

RECORD OF THE CENTENARY CELEBRATIONS, 1947.

A Record of the Centenary Celebrations of the Society held in July, 1947, is now available. It may be obtained from the General Secretary price 5s., post free. The record, which includes a number of illustrations, contains a report of all the principal meetings, together with the full text of the various lectures and speeches delivered during the Celebrations.

PUBLICATIONS OF THE CHEMICAL SOCIETY—BACK NUMBERS OUT OF PRINT.

The Society is unable to meet the very heavy demand for back numbers of its publications. The following numbers are now out of print :

Journal of the Chemical Society : 1920, 1943, 1944, 1945.

Annual Reports on the Progress of Chemistry : 1911, 1912, 1932, 1933, 1939, 1940, 1941, 1942, 1943, 1944.

Quarterly Reviews : Vol. I (1947).

The Council is very appreciative of the kindness of Fellows, who, from time to time, present back numbers of publications which they no longer need. For copies in good condition, of the issues mentioned above, which are urgently required, the Society will be pleased to pay up to the scheduled price in the year of publication. Fellows having publications for disposal should first communicate with the General Secretary.

MEETING OF COUNCIL.

A Meeting of Council was held on October 14th, 1948.

Approval was given to a recommendation of the Publication Committee that, in order to overcome the problem of delay in publication of papers submitted for publication in

the *Journal*, a supplementary volume of some 400 pages should be published during 1949, and that the size of the *Journal* be increased to approximately 300 pages per month.

The Report of the Joint Library Committee was received and approval given to a recommendation that the Society should become a member of Aslib.

It was reported that paper had now been made available for printing a revised List of Fellows. It was agreed that this should be published as soon as possible and be made available to Fellows at a price of 2s. 6d. per copy.

The Council learned with pleasure that a grant of £2500 had been received from the Chemical Council towards the cost of publications for 1948, and that a bequest of £100 had been received from the executors of Mr. Hugh Main, whose death was reported in the *Proceedings* for August. It was also stated that the bequest of £1000 from the late Professor W. H. Perkin had now become payable, and it was agreed that this should be invested and the income arising therefrom applied to the Publications Fund.

The President reported that he had conveyed the congratulations of Council to Professors C. W. Shoppee, S. Peat, and H. W. Melville, who had accepted new appointments. Under Bye-Law 56, however, it was necessary to accept their resignation as Members of Council for Constituencies I, II, and V, respectively. It was agreed to invite Dr. J. Walker (Constituency I), Professor H. W. Melville (Constituency II), and Dr. E. G. V. Percival (Constituency V), to serve on the Council until the next Annual General Meeting.

The resignation of Professor J. E. Coates as Local Representative for South Wales was accepted with much regret, and the appointment of Professor C. W. Shoppee as his successor was approved. It was also reported that Dr. J. C. Roberts had agreed to assume the duties of Local Representative for Nottingham during the temporary absence in the U.S.A. of Dr. D. O. Jordan.

The thanks of Council were conveyed to Dr. W. H. Mills, who had retired as one of the Society's representatives on the British National Committee for Chemistry, and it was agreed to nominate Professor M. Stacey to succeed him.

The President gave a brief account of the very successful meeting recently held in Stockholm to commemorate the 100th Anniversary of the death of Jacob Berzelius at which he had represented the Society.

It was noted that the Indian Chemical Society would celebrate its Silver Jubilee in January, 1949, and it was decided that a letter of congratulation sealed and signed by the Officers of the Society should be sent to the Indian Chemical Society.

The Report and Accounts of the Bureau of Abstracts for the year 1947 was received. Certain items of a formal and financial nature were also dealt with.

MEETINGS OUTSIDE LONDON.

EDINBURGH.

"Some Aspects of the Chemistry and Biochemistry of Polycyclic Aromatic Hydrocarbons," by Professor J. W. Cook, D.Sc., F.R.S.

A Joint Meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the North British Station Hotel on October 21st, 1948, with Dr. E. G. V. Percival in the Chair.

In his lecture Professor Cook described the advances made in the last ten years, especially with respect to the extension of our knowledge of both the biochemical and chemical oxidation of carcinogenic hydrocarbons. A general discussion followed, and a vote of thanks for the lecture was proposed by Professor W. O. Kermack, and carried with acclamation.

LIVERPOOL.

"Preparation, Properties, and Handling of Elementary Fluorine," by Dr. A. J. Rudge.

A joint meeting with the local sections of the Royal Institute of Chemistry, the Society of Chemical Industry, and the British Association of Chemists was held in the

Chemistry Lecture Theatre of the University on Thursday, October 14th, 1948. The Chairman, Professor C. E. H. Bawn, introduced Dr. Rudge of I.C.I. (General Chemicals Division), and his lecture, delivered to a large audience, was illustrated by a selection of apparatus and experiments.

A vote of thanks to the lecturer was proposed by Dr. W. B. Whalley and carried with acclamation.

LIST OF APPLICATIONS FOR FELLOWSHIP

(*Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the "Journal" for October, 1948. Such objections will be treated as confidential. The forms of application are available in the Library.*)

- Agrawal, Sita Ram**, M.Sc. (Benares). Indian. 46, Glenloch Road, N.W. 3. Student at The Northern Polytechnic. *Signed by:* W. Gerrard, C. S. Ramaakrishnan, J. B. Pande.
- *Aitkenhead, Douglas**, B.Sc.Hons. (Dunedin). British. 7, Moorfield, High West Jesmond, Newcastle-on-Tyne, 2. Student. *Signed by:* P. L. Robinson, E. E. Aynsley, E. Bishop.
- Arend, Franz**. British. 76, Limpsfield Avenue, Thornton Heath. Director of John T. Reckitt & Co. Ltd. *Signed by:* Carl Schmeidler, Cyril J. W. Hooper, G. G. Bradshaw.
- Ashbolt, Richard Frank**, B.Sc.Hons. (Lond.). British. 1, Northwood Gardens, Ilford. Research Chemist. *Signed by:* H. Coates, B. Topley, P. R. Carter.
- *Ashton, Geoffrey**, B.Sc.Hons. (Birm.). British. 122, Gough Road, Birmingham 15. Research Student. *Signed by:* L. L. Bircumshaw, M. Stacey, C. R. Porter, S. J. Green.
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PAPERS RECEIVED

List of papers received between September 14th and October 18th, 1948. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- "Organo-lead compounds. Part I. Trialkyl lead salts possessing sternutatory properties." By B. C. SAUNDERS and G. T. STACEY.
- "Synthetic antimalarials. Part XXXIX. 2-(Quinoly-6'-guanidino)-4- β -diethylaminoethylamino- and 4-(quinoly-6'-guanidino)-2- β -diethylaminoethylamino-6-methylpyrimidines." By (the late) J. M. GULLAND and P. E. MACEY.
- "The constitution of yeast ribonucleic acid. Part XIV. The preparation and structures of the pyrimidine nucleotides." By G. R. BARKER, (the late) J. M. GULLAND, H. SMITH, and J. F. THOMAS.
- "Application of the diene synthesis to terpenoid compounds. Part III. Reactions between β -phellandrene and β -naphthol." By G. G. ACHESON and T. F. WEST.
- "Studies on phosphorylation. Part V. The reactions of tertiary bases with esters of phosphorous, phosphoric, and pyrophosphoric acids. A new method of selective debenzoylation." By J. BADDILEY, V. M. CLARK, J. J. MICHALSKI, and A. R. TODD.
- "Toxic fluorine compounds containing the C-F link. Part IV. (a) 2-Fluoroethyl fluoroacetate and allied compounds. (b) 2:2'-Difluoroethylethylenedithioglycol." By B. C. SAUNDERS and G. T. STACEY.
- "A novel synthesis of some quinoline derivatives." By D. ALLAN and J. D. LOUDON.
- "The reaction of some cyclic tertiary amines with *N*-halogen compounds." By S. L. COSGROVE and W. A. WATERS.
- "Nitration products of 5-aminoacridine, and the synthesis of 1:5- and 4:5-diaminoacridines." By A. HAMPTON and D. MAGRATH.
- "Tetrahydrodibenzopyran derivatives, isomeric with tetrahydrocannabinols." By A. W. D. AVISON, A. L. MORRISON, and M. W. PARKES.
- "A kinetic study of the hydrolysis of diisopropyl fluorophosphonate." By W. A. WATERS and C. G. M. DE WORMS.
- "The kinetics of aromatic halogen substitution. Part V. Iodine-catalysed bromination." By P. W. ROBERTSON, J. E. ALLAN, K. N. HALDANE, and (MISS) M. G. SIMMERS.
- "Toxic fluorine compounds containing the C-F link. Part V. (a) Fluorine-containing ammonium salts (with I. G. E. WILDING). (b) Relationship between physiological action and chemical constitution." By B. C. SAUNDERS.
- "Carbon-halogen bond-energies in the acetyl halides." By A. S. CARSON and H. A. SKINNER.
- "The reaction of *N*-bromosuccinimide with methyl oleate and other vegetable oil derivatives." By D. A. SUTTON and J. DUTTA.
- "Covalency, co-ordination, and chelation. Part II. Complex formation by the trimethylplatinic group." By W. J. LILE and R. C. MENZIES.
- "Oxidation of aldehydes in the gaseous phase. Part I. Low-temperature oxidation of acetaldehyde." By C. A. MCDOWELL and J. H. THOMAS.
- "Oxidation of aldehydes in the gaseous phase. Part II. Oxidation of acetaldehyde in the pre-explosion region. Thermal stability of the acetyl radical." By C. A. MCDOWELL and J. H. THOMAS.
- "The ternary system methanol-methyl acetate-water." By A. G. CRAWFORD, G. EDWARDS, and D. S. LINDSAY.
- "Toxic fluorine compounds containing the C-F link. Part VI. ω -Fluorocarboxylic acids and derivatives." By F. J. BUCKLE, F. L. M. PATTISON, and B. C. SAUNDERS.
- "Curare alkaloids. Part IX. Examination of some *Strychnos* species from British Guiana. Characterisation of diaboline, an alkaloid from *Strychnos diabolii*, sandwith." By H. KING.

- "The constitution of ψ -santonin. Part V. Further studies of the chemistry of desmotropo- ψ -santonin." By W. COCKER, B. E. CROSS, and C. LIPMAN.
- "The condensation of fluorenone and diethyl succinate." By N. CAMPBELL and A. E. S. FAIRFULL.
- "Attempts to find new antimalarials. Part XXVIII. *p*-Phenanthroline derivatives substituted in the 4-position." By B. DOUGLAS and W. O. KERMACK.
- "The ionisation of triphenylmethyl bromide by stannic bromide." By F. FAIRBROTHER and B. WRIGHT.
- "The crystal and molecular structure of certain dicarboxylic acids. Part IV. β -Succinic acid." By J. D. MORRISON and J. M. ROBERTSON.
- "The crystal and molecular structure of certain dicarboxylic acids. Part V. Adipic acid." By J. D. MORRISON and J. M. ROBERTSON.
- "The crystal and molecular structure of certain dicarboxylic acids. Part VI. Sebacic acid." By J. D. MORRISON and J. M. ROBERTSON.
- "The crystal and molecular structure of certain dicarboxylic acids. Part VII. β -Glutaric acid." By J. D. MORRISON and J. M. ROBERTSON.
- "Studies on hydrogen cyanide. Part XV. The constitution of the 'sesquichloride'." By L. E. HINKEL and R. P. HULLIN.
- "Epimeric alcohols of the cyclohexane series. Part VII. The 2-methylcyclohexylcarbinols." By A. K. MACBETH, J. A. MILLS, and D. H. SIMMONDS.
- "The replacement of the diazonium by the nitro-group. Part V. New preparations of 2:3- and 2:5-dinitrotoluene from relevant monoamines, and the simultaneous introduction of two nitro-groups into some homonuclear diamines." By H. H. HODGSON and F. HEYWORTH.
- "Reactions of aromatic nitro-compounds with alkaline sulphides. Part III. Dinitronaphthalenes." By H. H. HODGSON and E. R. WARD.
- "The separation of 6- and 8-nitro-2-naphthylamine." By H. H. HODGSON and J. RATCLIFFE.
- "Studies in the azole series. Part XI. The interaction of α -amino-nitriles, hydrogen sulphide, and ketones." By A. H. COOK, SIR IAN HEILBRON, and A. P. MAHADEVAN.
- "Studies in the azole series. Part XII. Some thiazolopyrimidines." By A. H. COOK, SIR IAN HEILBRON, S. F. MACDONALD, and A. P. MAHADEVAN.
- "Studies in the azole series. Part XIII. A novel synthesis of 9-alkylpurines and analogous compounds." By A. H. COOK, J. D. DOWNER, and SIR IAN HEILBRON.
- "Studies in the azole series. Part XIV. A new synthesis of purines." By A. H. COOK, A. C. DAVIES, SIR IAN HEILBRON, and G. H. THOMAS.
- "Production of antibiotics by fungi. Part IV. Lateritiin-I, lateritiin-II, avenacein, sambucinin, and fructigenin." By A. H. COOK, S. F. COX, and T. H. FARMER.
- "The isomerisation of dienestrol and some related dienes and indenenes." By W. HAUSMANN and A. E. WILDER-SMITH.
- "Cyanamides. Part I. The synthesis of substituted arylsulphonylcyanamides." By F. KURZER.
- "Ultra-violet absorption spectra of isomeric aromatic diazocyanides." By R. J. W. LE FÈVRE and I. R. WILSON.
- "New intermediates and dyes. Part I. 4-*tert*-Butylphthalic acid and its anhydride." By R. B. CONTRACTOR and A. T. PETERS.
- "A modified method for the end-group assay of amylose and other long-chain starch fractions." By E. J. BOURNE, K. H. FANTES, and S. PEAT.
- "Cation exchange with a synthetic phenol-sulphonate resin. Part I. Equilibria with monovalent cations." By T. R. E. KRESSMAN and J. A. KITCHENER.
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- “The synthesis of piperidine derivatives. Part III. 5-Phenyl-1-azabicyclo-3:3:1-nonane.” By G. H. BADGER, J. W. COOK, and T. WALKER.
- “Colchicine and related compounds. Part VII.” By J. W. COOK, G. T. DICKSON, D. ELLIS, and J. D. LOUDON.
- “Colchicine and related compounds. Part VIII. Preliminary synthetic experiments.” By N. BARTON, J. W. COOK, J. D. LOUDON, and (in part) J. MACMILLAN.
- “Polycyclic aromatic hydrocarbons. Part XXXIV. Cyclisation of $\alpha\beta$ -diphenylglutaric anhydride.” By G. M. BADGER, (Miss) J. E. CAMPBELL, and J. W. COOK.
- “Polycyclic aromatic hydrocarbons. Part XXXV. Isomerisation in the *perinaphthene* series.” By G. M. BADGER, W. CARRUTHERS, and J. W. COOK.
- “The steric hindrance of resonance. Part I. The effect of intramolecular configuration on the properties of some acylated aromatic amines.” By G. BADDELEY and S. B. RAWLINSON.
- “Synthetic antimalarials. Part XXVIII. Physical chemical studies on quinoline derivatives.” By J. C. GAGE.
- “The oxidation of aldoses by hypiodous acid II.” By O. G. INGLES and G. C. ISRAEL.
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LEVI, G. R. *Chimica per i Medici*. 2nd edition. Milan 1948. pp. xi + 511. ill. (*Recd.* 11/10/48.)

From the Publishers:

Libreria Editrice Politecnica.

PHILOSOPHICAL MAGAZINE. Natural philosophy through the 18th century and allied topics. Edited by A. FERGUSON. Commemoration number to mark the 150th anniversary of the foundation of the magazine. London 1948. pp. ix + 164. ill. 15s. (*Recd.* 7/9/48.)

From the Publishers:

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ANDRADE, E. N. DA C. Viscosity and plasticity; being the substance of three post-graduate lectures to the Oil and Colour Chemists' Association. Cambridge 1947. pp. 82. ill. Heffer, 10s. (*Recd.* 15/10/48.)

BAWN, C. E. H. The chemistry of high polymers. London 1948. pp. x + 249. ill. Butterworth. 17s. 6d. (*Recd.* 15/10/48.)

BERGMANN, E. D. Isomerism and isomerisation of organic compounds. New York 1948. pp. xi + 138. Interscience. \$3.50. (*Recd.* 15/10/48.)

GAYDON, A. G. Spectroscopy and combustion theory. 2nd edition. London 1948. pp. xii + 242. ill. Chapman & Hall. 25s. (*Recd.* 15/10/48.)

HARRY, R. G. Principles and practice of modern cosmetics. Vol. 2. Cosmetic materials; their origin, characteristics, uses and dermatological action. London 1948. pp. xi + 479. ill. (*Reference.*) Hill. 35s.

MINISTRY OF FUEL AND POWER. *Fuel Efficiency Committee*. The efficient use of steam. By O. LYLE. London 1947. pp. [iv] + 912. ill. H.M.S.O. 15s. (*Recd.* 15/10/48.)

NETHERLANDS CHEMICAL SOCIETY. Chemistry in wartime in the Netherlands; A review of the scientific work done by Dutch chemists in the years 1940—1945. Amsterdam 1947. pp. [vi] + [542]. Centen. 34s. 6d. (*Recd.* 15/10/48.)

OIL AND COLOUR CHEMISTS' ASSOCIATION. Paint performance, its assessment by maker and user. Cambridge 1948. pp. vi + [200]. Heffer. 10s. 6d. (*Recd.* 15/10/48.)

SHAND, S. J. Eruptive rocks, their genesis, composition, classification, and their relation to ore-deposits, with a chapter on meteorites. 3rd edition. London 1947. pp. xvi + 488. ill. Murby. 30s. (*Recd.* 15/10/48.)

THEILHEIMER, W. Synthetic methods of organic chemistry; a thesaurus. Vol. 1, 1942—1944. Translated from the German by H. WYNBERG. New York 1948. pp. x + 254. (*Reference.*) Interscience. \$5.00.

TOWNSEND, SIR JOHN. Electrons in gases. London 1947. pp. viii + 166. ill. Hutchinson. 25s. (*Recd.* 15/10/48.)

TROTMAN, S. R., and TROTMAN, E. R. Textile analysis. 2nd edition. London 1948. pp. [vi] + 303. ill. Griffin. 25s. (*Recd.* 15/10/48.)

TYLER, C. Chemical engineering economics. 3rd edition. New York 1948. pp. x + 321. ill. McGraw-Hill. \$4.00. (*Recd.* 15/10/48.)

VERWEY, E. J. W., and OVERBEEK, J. TH. G. Theory of the stability of lyophobic colloids; the interaction of sol particles having an electric double layer. New York 1948. pp. xii + 205. ill. Elsevier. 22s. 6d. (*Recd.* 15/10/48.)

III. Pamphlets

CHEMICAL INSTITUTE OF CANADA. The professions of chemistry and chemical engineering in Canada. By L. H. CRAGG. [Ottawa] 1948. pp. iv + 33.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH. *National Physical Laboratory*. The inclusion of equivalent metric values in scientific papers. London 1945. pp. 15. ill. (Two copies.)

ILLINOIS INSTITUTE OF TECHNOLOGY. Research Publications. Corrosion. Chicago 1948. pp. [ii] + [59]. ill.

MOND NICKEL CO. Nickel alloy steels; a summary of their properties and applications. London [1948]. pp. 16. ill.

SUGAR RESEARCH FOUNDATION, INC. Scientific Report Series, No. 10. Chromatography of sugars and related substances. By W. W. BINKLEY and M. L. WOLFROM. New York 1948. pp. [vi] + 34. ill.

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- Oxford.* W. A. Waters, M.A., Sc.D., Ph.D., F.R.I.C., Balliol College, Oxford.
- St. Andrews and Dundee.* J. D. M. Ross, M.B.E., M.A., D.Sc., Chemistry Department, University College, Dundee.
- Sheffield.* A. H. Lamberton, B.Sc., Ph.D., Chemistry Department, The University, Sheffield, 10.
- South Africa.* Professor W. Pugh, Ph.D., B.Sc., F.R.I.C., Chemistry Department, University of Cape Town, Rondebosch, S. Africa.
- Southampton.* K. R. Webb, B.Sc., Ph.D., University College, Southampton.
- South Wales.* Professor C. W. Shoppee, Ph.D., D.Sc., D.Phil., A.R.C.S., F.R.I.C., University College, Singleton Park, Swansea.

November, 1948.

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING JANUARY, 1949

LONDON.

Thursday, January 20th, 1949, at 7.15 p.m., at the Royal Institution, Albemarle St., W.1.

Tilden Lecture, **Three- and Four-membered Heterocyclic Rings**, by Professor F. E. King, M.A., D.Sc.

NOTE. Attention is drawn to the amended time and place of this meeting.

ABERDEEN.

Friday, January 14th, 1949, at 7.30 p.m.

Lecture, **Sulphide Precipitation and the Law of Mass Action**, by R. Belcher, Esq., F.R.I.C.

Joint meeting with the Local Sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Chemistry Department of Marischal College.

Thursday, January 27th, 1949, at 7.30 p.m.

Lecture, **Application of Dyestuffs to Materials other than Textiles**, by J. G. Grundy, Esq.

Joint meeting with the Local Sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Chemistry Department of Marischal College.

EDINBURGH.

Thursday, January 13th, 1949, at 7.30 p.m.

Lecture, **Amphipathic Behaviour in Colloid Systems**, by Dr. T. R. Bolam.

Joint meeting with the Local Sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the North British Station Hotel.

MANCHESTER.

Friday, January 7th, 1949, at 6.45 p.m.

Lecture, **Production of Acetylene from Hydrocarbons**, by Dr. H. Steiner.

Joint meeting with the Local Sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Engineers' Club.

NEWCASTLE and DURHAM.

Friday, January 14th, 1949, at 5 p.m.

Bedson Club Lecture, **Chemistry and Atomic Energy**, by Dr. R. Spence, M.Sc., F.R.I.C., to be held in the Chemistry Department, King's College, Newcastle-on-Tyne. All Fellows are invited.

Friday, January 28th, 1949, at 5 p.m.

Tilden Lecture and Official Meeting of the Society, **Three- and Four-membered Heterocyclic Rings**, by Professor F. E. King, M.A., D.Sc., to be held in the Chemistry Department, King's College, Newcastle-on-Tyne.

NORTHERN IRELAND.

Thursday, January 20th, 1949, at 7.30 p.m.

Lecture, **Nutritional Theories Reviewed in the Light of War-time Experience**, by Sir Jack Drummond, D.Sc., F.R.S.

Joint meeting with the Local Sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Lecture Theatre, Department of Agricultural Chemistry, Queen's University, Belfast.

NOTTINGHAM.

Thursday, January 27th, 1949, at 6.30 p.m.

Lecture, **Some Aspects of Structural Inorganic Chemistry**, by Dr. A. F. Wells, M.A.

Joint meeting with the Chemical Society of Nottingham University, to be held in the Chemistry Department of the University.

OXFORD.

Monday, January 24th, 1949, at 8.15 p.m.

Alembic Club Lecture, **Some Remarks on the Periodic Table**, by Professor N. V. Sidgwick, C.B.E., D.Sc., LL.D., F.R.S., to be held in the Physical Chemistry Laboratory. All Fellows are invited.

SOUTHAMPTON.

Friday, January 28th, 1949, at 5 p.m.

Lecture, **Some Aspects of Recent Work at the Chemical Research Laboratory, Teddington**, by Dr. R. P. Linstead, C.B.E., D.Sc., F.R.S.

Joint meeting with the Chemical Society of Southampton University College, to be held in the Physics Department of University College.

SOUTH WALES.

Friday, January 21st, 1949, at 6 p.m.

Lecture, **The Oxidation of Phenols**, by Professor R. D. Haworth, D.Sc., F.R.S., to be held at University College, Swansea.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY

Minutes of a
SCIENTIFIC MEETING

held at Burlington House, London, W.1, on Thursday, October 28th, 1948, at 7 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held at Burlington House on October 14th, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : F. J. Burger, K. L. Loewenstein, John F. Ryley, L. H. Briggs, K. J. M. Andrews, C. W. Parr, Douglas P. Sephton, S. A. Wood, A. H. Munro, J. R. Marshall, H. K. Black, J. B. Davis, R. K. Hewstone.

LECTURE.

The President called upon Sir Robert Robinson to deliver the lecture entitled "Strychnine, Brucine, and Vomisine." At the conclusion of the lecture a vote of thanks to the Lecturer, proposed from the Chair, was carried with acclamation.

Minutes of a
SCIENTIFIC MEETING

held at Burlington House, London, W.1, on Thursday, November 11th, 1948, at 7 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., LL.D., F.R.S., was in the Chair.

MINUTES.

The Minutes of the Scientific Meeting held at Burlington House on October 28th, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : P. F. D. Shaw, F. Moran, S. H. Bannister, K. Mackay, K. L. Sutherland, R. G. Otter, U. Eisner, Ormsby W. Molony, O. H. Gellner, L. Bretherick, R. G. Partington, M. C. Ford, J. Newell, D. A. Davenport, J. D. S. Goulden, Peter Agius, Irene M. Cohn, E. C. A. Horner, M. P. Barnett.

TILDEN LECTURE.

The President called upon Professor C. E. H. Bawn to deliver the Tilden Lecture entitled, "The Structure and Reactivity of Free Radicals." At the conclusion of the lecture a vote of thanks to Professor Bawn, proposed by Mr. E. J. Bowen, was carried with acclamation.

OFFICIAL ANNOUNCEMENTS

DEATHS.

The Council regret to announce the deaths of the following Fellows :

	Elected.	Died.
Peter George Carter (Manchester).....	Dec. 4th, 1924.	Sept. 20th, 1948.
Charles Alexander Hill (N.1) Council 1916—1920	Dec. 3rd, 1896.	Oct. 23rd, 1948.
Charles Fletcher Roberts (Warrington)	Aug. 7th, 1941.	Aug. 8th, 1948.

ELECTION OF NEW FELLOWS.

The following 34 candidates were elected Fellows of the Society on November 11th, 1948 :

Cyril Barnett.	Gerald Lederer.
John Bond.	Richard Keith Lewis.
Earl Martin Chamberlain.	Douglas James Birkmyre Miller.
David Ronald Bryan Corning.	Joan Welch Mulley.
Vivian Guy Curnow.	Satgur Saran Nigam.
George Allison Dinsmore.	Dady Kawashaw Patel.
Brian Sloane Dunn.	Ray Arthur Patelski.
Derek John Elgar.	Charles Leiper Scott.
George Norman Flint.	Ezra Shamash.
Maurice Leonard Franks.	John Sturgeon Thompson.
Leo Friedler.	Jan Heinrik van Santen.
Alan Henry Friezer.	Cecil Fredrick Wells.
John Henry Spencer Green.	Ernest Louis Edward Westbrook.
Gordon Havord.	William Bolesbridge Whitham.
Derek Arthur Higgins.	Margaret Treharne Williams.
Peter Robert Hills.	Maurice Woodhead.
Norris John Holness.	Barbara Seaton Winton.

MEETING OF COUNCIL.

A Meeting of Council was held on Thursday, November 11th, 1948.

The Report of the Publication Committee (October 14th, 1948) was adopted.

Council noted with regret that Dr. J. E. Driver had tendered his resignation as Editor on accepting an appointment as Professor of Chemistry in the University of Hong Kong.

The Council acknowledged its thanks to Dr. A. L. Stern for gifts of the Society's publications.

Certain formal and financial items were also dealt with.

THE LIBRARY.

The Library will close for the Christmas Holidays at 1 p.m. on Thursday, December 23rd, and re-open at 10 a.m. on Wednesday, December 29th.

FIRST INTERNATIONAL CONGRESS OF BIOCHEMISTRY.

The First International Congress of Biochemistry will be held at Cambridge on August 19th—25th, 1949. Full details and forms of application for membership may be obtained from The Honorary Organiser, 1st International Congress of Biochemistry, 56, Victoria Street, London, S.W.1.

SECOND INTERNATIONAL CONGRESS OF CROP PROTECTION.

The Second International Congress of Crop Protection will be held in London on July 21st—28th, 1949. Full details and forms of application for membership may be obtained from The Honorary Organiser, 2nd International Congress of Crop Protection, 56, Victoria Street, London, S.W.1.

BRITISH STANDARDS INSTITUTION.

The following draft of British Standards Specification has been received for technical comment :

CJ(M)9699—Appendix No. 1:1949 to B.S. 350:1944.
Conversion Factors and Tables.

This has been placed in the Library, and Fellows wishing to make technical comment are requested to do so before February 8th, 1949, to the British Standards Institution, 28, Victoria Street, London, S.W.1.

PUBLICATIONS OF THE AMERICAN CHEMICAL SOCIETY.

Fellows of the Chemical Society may obtain the publications of the American Chemical Society at the following rates :

(a) <i>Chemical and Engineering News</i>	\$3.60	plus	\$2.25	postage
(b) <i>Journal of the American Chemical Society</i>	\$9.00	„	\$1.50	„
(c) <i>Chemical Abstracts</i>	\$13.50	„	\$2.40	„
(d) <i>Industrial and Engineering Chemistry</i>	\$3.60	„	\$2.25	„
(e) <i>Analytical Chemistry</i>	\$2.70	„	\$0.75	„

Application should be made direct to the American Chemical Society, 1155, Sixteenth Street, N.W., Washington D.C., U.S.A.

NOTE.—Permission to remit money abroad must be obtained through a bank.

MEETINGS OUTSIDE LONDON**BIRMINGHAM.**

“Cell Growth Phenomena and Chemical Kinetics,” by Sir Cyril Hinshelwood, M.A., Sc.D., F.R.S.

A joint meeting with the University Chemical Society was held in the University, Edgbaston, on October 22nd, 1948, with Professor H. W. Melville, F.R.S., in the Chair.

The lecture dealt with some of the general aspects of cell growth which admit of discussion in the light of the ideas of chemical kinetics. The processes leading to the synthesis of proteins and other cell constituents are envisaged as a continuous production line in which the products of one step form the raw material of the next. The functioning of enzyme material is conceived as closely linked with its own synthesis so that interference with the rate of any step in the total reaction sequence will cause changed enzyme proportions in the cell. On the basis of this picture various phenomena such as lag phases, adaption to utilise new sources of essential elements, and development of drug resistance were considered. The respective rôles of adaption and selection in producing modified bacterial strains were briefly mentioned.

A vote of thanks to the Lecturer, proposed by Dr. S. R. Carter, was carried with acclamation by a large audience.

LIVERPOOL.

“The Chemistry of some Carbohydrate Constituents of Bacteria,” by Professor M. Stacey, D.Sc., F.R.I.C.

A meeting was held in the Nicholson Lecture Theatre of the University on November 10th, 1948, with Dr. W. B. Whalley in the Chair.

Professor Stacey's lecture was much appreciated and led to considerable discussion. A vote of thanks to the Lecturer was proposed by Mr. B. J. Ralph and carried with enthusiasm.

SHEFFIELD.

"The Electron Microscope and some Recent Discoveries with it in the field of Macromolecules," by Professor W. T. Astbury, F.R.S.

A joint meeting with the University Chemical Society was held in the Chemistry Lecture Theatre of the University on November 4th, 1948, with Professor R. D. Haworth, F.R.S., in the Chair.

Professor Astbury gave a short description of the principles of electron microscopy, and proceeded to deal with the application of the instrument in the investigation of virus molecules, and of fibres of animal origin.

A vote of thanks, proposed by Dr. A. H. Lamberton, was accorded heartily by the meeting.

SOUTHAMPTON.

"Tribochemistry and the Initiation of Explosives," by Dr. F. P. Bowden, F.R.S.

A joint meeting with the Portsmouth and District Chemical Society was held at the Municipal College, Portsmouth, on October 19th, 1948, with Mr. G. E. Gale in the Chair.

Dr. Bowden began by pointing out that the older tribochemical explanation of the initiation of explosives appeared to be invalid. The lecturer divided his topic into two classes, namely, initiation by impact, and initiation by friction. In the former case experimental evidence suggested that the true cause was the development of momentary "hot spots" by adiabatic compression of extremely minute entrapped air bubbles, though with solid explosives, other factors may also play a part. In the frictional case, the determining factor was the melting point of the materials composing the sliding surfaces. Dr. Bowden then discussed the growth of the initial decomposition, and described the experimental techniques employed in its study.

The lecture was followed by a vigorous discussion and a vote of thanks to the Lecturer was proposed by Dr. C. G. Lyons.

LIST OF APPLICATIONS FOR FELLOWSHIP

(Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the "Journal" for November, 1948. Such objections will be treated as confidential. The forms of application are available in the Library.)

- Allan, Andrew John Gordon**, B.Sc. (Lond.), A.C.G.I., A.R.I.C. British. Peterhouse, Cambridge. Research chemist. *Signed by* : A. H. Lewis, Kathleen J. Sinclair, D. M. Newitt.
- Ambrose, Alan Douglas**, B.Sc. (Lond.). British. 51, Elmhurst Avenue, Northampton. Research Chemist, Stewarts & Lloyds, Ltd., Corby. *Signed by* : C. C. Addison, M. H. Everdell, D. O. Jordan.
- Armitage, Robert Frank**. British. 10, Sunnysdale Gardens, Mill Hill, N.W. 7. Student, King's College, London. *Signed by* : S. H. Harper, A. Nechvatal, A. J. Allmand.
- Barker, Charles Cobbett**, B.Sc. and Ph.D. (Bristol), A.R.I.C. British. 25, Ash Grove, Berkley Road, Hull. Lecturer in Chemistry, University College, Hull. *Signed by* : Brynmor Jones, R. R. Baldwin, G. W. Gray.
- Baron, Samuel Aaron**, B.Sc.Hons. (Lond.), F.R.I.C. British. 177, Goldhurst Terrace, Hampstead, N.W. 6. Works Chemist and Buyer, John Burgess & Son, Ltd. *Signed by* : D. C. Garratt, Francis H. Banfield, A. J. M. Bailey.
- Bennion, Denis**. British. 18, Alleyn Road, West Dulwich, S.E. 21. Student, King's College, London University. *Signed by* : S. H. Harper, G. H. Williams, J. Newell.
- Bonner, Bernard Thomas**. British. Hugh Stewart Hall, Lenton Hall Drive, Derby Road, Nottingham. Student. *Signed by* : John C. Roberts, W. Hales, George Crosbie.
- Bott, Ronald William**, B.Sc. (Q.U.B.). British. 114, Stranmillis Road, Belfast. Research student, Queen's University, Belfast. *Signed by* : Cecil L. Wilson, H. Graham, R. G. R. Bacon.
- *Brown, Majorie Joan**, B.Sc.Hons. (Lond.). British. Royal Holloway College, Englefield Green. Research student. *Signed by* : Gwyn Williams, T. G. Bonner, J. W. E. Brading, A. Graham Foster.
- Chase, Basil Hugh**, B.Sc. (Lond.). British. 190, High Street, Epping. Chemical Research for Ph.D., King's College, London. *Signed by* : A. D. Jenkins, Martin F. Ansell, D. H. Hey.

- ***Clark, Margaret Phyllis**, B.Sc. (Lond.). British. 30, Lilburne Road, Eltham, S.E. 9. Research Assistant, Encyclopædia Britannica, Ltd. *Signed by* : R. T. Fowler, D. L. Nicol, E. Millman Hunt.
- ***Cooke, Frederick**. British. 29, Ebury Street, Sheffield, 9. Student, Sheffield University. *Signed by* : M. I. Gillibrand, R. D. Haworth, A. S. C. Lawrence.
- ***Daly, James**, B.Sc. (N.U.I.), A.R.I.C. Irish. 231, Albert Road, Alexandra Park, N. 22. Chemistry lecturer, Northern Polytechnic. *Signed by* : W. Gerrard, C. G. Smith, W. A. Smeaton.
- Davies, Andrew**. British. 19, Stoneyholm Road, Kilbirnie. Student. *Signed by* : J. W. Cook, J. M. Robertson, James D. Loudon.
- Denton, George Martin**. British. 3, Escourt Place, Bingham. Chemistry Student, Nottingham University. *Signed by* : Gordon Cumming, K. Selby, John C. Roberts.
- Dewdney, Duncan Alexander Cox**, B.Sc.Hons. (Birm.). British. Esso Development Co., Ltd., Esso House, Abingdon. *Signed by* : E. B. Evans, H. M. Davies, C. Chilvers.
- Durrant, Philip John**, M.A. and Ph.D. (Cantab.). British. Selwyn College, Cambridge. Author. *Signed by* : F. G. Mann, F. B. Kipping, W. G. Palmer.
- El Khadem, Hassan Saad**, B.Sc.Hons. (Fouad I Univ.). Egyptian. Laboratorium für organische Chemie, Eidg. Technische Hochschule, Zürich. Student. *Signed by* : V. Prelog, L. Ruzicka, E. Heilbronner.
- Evans, Hermas**, B.Sc.Hons. (Wales), A.R.I.C. British. 1, Garden Crescent, Garden Village, Gorseinon, Swansea. Lecturer in Physical and Inorganic Chemistry, Cardiff Technical College. *Signed by* : J. Ormston, W. D. Williams, H. B. Watson.
- Farrar, Kathleen Rebecca**, B.Sc. and Ph.D. (Lond.). British. Flat 1, 75, High Street, Manchester, 13. Demonstrator in Chemistry, Manchester University. *Signed by* : A. E. Gillam, G. R. Barker, E. R. H. Jones.
- Fisher, Nathan**. British. 16, Woodlands, North Harrow. Student, Birkbeck College. *Signed by* : H. N. Rydon, D. J. G. Ives, C. A. Woodcock.
- ***Garner, Peter George**, B.Sc.Hons. (Lond.). British. Craigie, 1, Bramdean Crescent, Lee, S.E. 12. Research Student for Ph.D., King's College, London University. *Signed by* : D. H. Hey, B. W. V. Hawes, F. L. Tye.
- ***Glasby, John Stephen**. British. Rowan Lea, 40, Newton Street, Retford. Student, Nottingham University. *Signed by* : B. D. Shaw, D. V. Elmore, John C. Roberts.
- ***Glasson, Douglas Royston**, B.Sc.Hons. (Lond.). British. 34, Craven Avenue, St. Jude's, Plymouth. Research Student, University College, Exeter. *Signed by* : H. T. S. Britton, S. J. Gregg, Kenneth J. Hill.
- Golledge, Ronald William**. British. 132, Rydens Way, Old Woking. Chemistry Student, King's College, London University. *Signed by* : S. H. Harper, A. J. Allmand, D. H. Hey.
- Gray, Eleanor**, B.Sc.Hons. and M.Sc. (Manc.). British. Tame House, Reddish Vale, Reddish, nr. Stockport. Development Chemist. *Signed by* : A. E. Gillam, Colin Campbell, Alan H. Gowenlock.
- ***Gray, John Alan**. British. 76, The Ridgeway, Watford. Student, King's College, London University. *Signed by* : E. G. Baxter, S. H. Harper, A. J. B. Edgar.
- ***Grundon, Michael Francis**, B.A.Hons. (Oxon). British. 3, Claremont Gardens, Ebury Road, Nottingham. Student. *Signed by* : F. E. King, Denis A. Kidd, B. J. Langdon.
- ***Hardy, Doreen Margaret**, B.Sc.Hons. (Lond.). British. Royal Holloway College, Englefield Green. Research student for Ph.D. *Signed by* : Gwyn Williams, J. W. E. Brading, A. Graham Foster.
- ***Harrison, James Tolson**. British. 43, Saxonía Road, Walton, Liverpool, 4. Chemist with Pure Chemicals, Ltd. *Signed by* : A. E. Findlay, N. A. Hornstein, R. R. Butler, H. H. Armstrong.
- ***Harrison, Philip**. British. 33, Station Crescent, Billingham. Student, Nottingham University. *Signed by* : John C. Roberts, W. L. Hales, J. C. Beckitt.
- ***Hedderly, James Arnold**. British. 10, Rosedale Avenue, Gt. Crosby, Liverpool, 23. Student, Liverpool University. *Signed by* : W. B. Whalley, R. J. S. Beer, A. McGookin.
- ***Heggie, Robert Murray**, B.Sc.Hons. (Glas.), A.R.I.C. British. Thrushcraig House, Rowan Street, Paisley. Research student. *Signed by* : J. W. Cook, J. M. Robertson, Frank D. Gunstone.
- ***Hilton, John**. British. 39, Roch Street, Rochdale. Student, King's College, London University. *Signed by* : S. H. Harper, D. H. Hey, G. H. Williams.
- ***Hunter, Gordon James**. British. 6, Byron Road, Selsdon, South Croydon. Student, King's College, London University. *Signed by* : S. H. Harper, D. W. G. Style, V. Gold.
- ***Jack, James**, B.Sc.Hons. (Glas.), A.R.I.C. British. The Nursery, Thomson Street, Johnstone. Post graduate research student. *Signed by* : J. W. Cook, J. M. Robertson, James D. Loudon.
- ***Jacobs, Harold**. British. 294, Amhurst Road, Hackney, N. 16. Junior Assistant Chemist. *Signed by* : F. C. Hymas, A. J. Turnbull, D. Ridge.
- Jefferson, Edward Graham**. British. Ellasdale, Magna Carta Lane, Wraysbury. Student, King's College, London University. *Signed by* : A. J. Allmand, S. H. Harper, V. Gold.
- Jervis, William Frank**, B.Sc.Hons. (Lond.). British. 2, Cannon Close, Raynes Park, S.W. 20. Food chemist. *Signed by* : C. L. Arcus, J. W. Smith, P. A. Holt.
- ***Johnson, Peter Sydney**. British. 232, Marlborough Avenue, Hull. Student *Signed by* : Brynmor Jones, M. A. Weinberger, Wilfred B. Orr, J. J. Kipling.
- Jones, Gurnos**. British. 17, Middleton Road, Mansfield Woodhouse, Mansfield. Student, Sheffield University. *Signed by* : Alex. H. Lamberton, M. I. Gillibrand, D. H. Peacock.
- ***Katritzky, Alan Roy**. British. 8, Venetia Road, N. 4. Student, St. Catherine's Society, Oxford. *Signed by* : F. M. Brewer, M. F. Hoare, L. A. K. Staveley.

- ***Kvaszes, Manfred**, B.Sc.Hons. (Lond.). Austrian. 25, Westbourne Terrace, W. 2. Post-graduate student at Imperial College, London University. *Signed by* : H. V. A. Briscoe, P. Alexander, K. A. Stacey.
- ***Lawrence, Jack Edward**. British. 124, Church Lane, Cheshunt. Student. *Signed by* : H. Holness, B. D. Pate, M. A. Crook, R. W. Jukes, R. Trewick, M. R. Porter.
- Lord, Norman**. British. 6, Clift Street, N. 1. Civil Servant, D.S.I.R. *Signed by* : W. A. Smeaton, K. G. Latham, E. H. Green.
- McKenna, James**. B.Sc.Hons., M.Sc. and Ph.D. (N.U.I.), A.R.I.C. British. Chemistry Department, The University, Sheffield, 10. Assistant Lecturer in Chemistry, Sheffield University. *Signed by* : D. P. Dodgson, R. D. Haworth, P. L. Pauson.
- Mann, Gordon Marshall Leonard**, A.R.I.C. British. The Ruberoid Co., Ltd., Research Department, Stockingswater Lane, Brimsdown, Enfield. Chemist. *Signed by* : G. Brown, S. Gordon Smith, H. J. T. Ellingham.
- ***Maxwell, Zena Mary Elizabeth**. British. 3, Poynder's Road, Clapham Park, S.W. 4. Science Teacher, Girls High School. *Signed by* : Royston Barry Drew, Leslie G. Luker, A. R. Cluer.
- ***Morgan, Keith John**. British. Brasenose College, Oxford. Student, Oxford University. *Signed by* : C. A. Finch, L. E. Sutton, J. A. Barltrop.
- ***Mortlock, Herbert Norman**. British. 107, Sadler Road, Coventry. Student, King's College, London University. *Signed by* : S. H. Harper, D. H. Hey, P. J. Dyne.
- ***Oldfield, Lucy Florence**, B.Sc. (Lond). British. 30, Whitefriars Drive, Wealdstone. Research student, Imperial College, London University. *Signed by* : J. O'M. Bockris, Roger Parsons, J. A. Kitchener.
- ***O'Neill, William Alexander**. British. 18, Milton Avenue, Cambuslang, Glasgow. Student, Glasgow University. *Signed by* : James D. Loudon, J. C. Speakman, C. Buchanan.
- ***Owen, John Mervyn**, B.Sc.Hons. (L'pool). British. 3, Woodsorrel Road, Birkenhead, Cheshire. H.M. Forces. *Signed by* : W. B. Whalley, A. McGookin, G. W. K. Cavill.
- ***Peace, John Eldred**. British. 307, St. Ann's, Well Road, Nottingham. Chemist. *Signed by* : Neville Smith, A. G. Catchpole, Jack Wood.
- Pearson, William Burton**, D.F.C., M.A. (Oxon). British. 5, Staverton Road, Oxford. Student. *Signed by* : W. A. Waters, J. W. Linnett, M. F. Hoare.
- Pedley, Edgar**. British. 6, Queen Victoria Avenue, Wembley. Works Manager, Therapeutic Products, Ltd., Greenford. *Signed by* : M. A. Phillips, S. G. Howden-Simpson, R. J. Wicker.
- Perold, Guido Werner**, M.Sc. (Stellenbosch), D.Sc. (Pretoria). South African. c/o Chemisches Institut der E.T.H., Universitätstrasse 6, Zürich, 6. Chemical study. *Signed by* : L. Ruzicka, V. Prelog, W. I. Taylor.
- Plant, Derek**, B.Sc.Hons. (Lond.). British. 133, High Street, Stevenage. Post-graduate organic research, Cambridge University. *Signed by* : B. Lythgoe, H. Davoll, A. G. Long.
- Pross, August William**, B.Sc. (Lond.), A.R.P.S. British. 81, St. Mary's Grove, Chiswick, W. 4. Research chemist. *Signed by* : G. M. Hamilton, K. I. Speed, D. C. Hancock.
- ***Read, William James**. British. School House, Wall, Gwinear, Hayle. Student, Bristol University. *Signed by* : F. H. Pollard, J. K. N. Jones, D. D. Eley.
- ***Richards, John Willis**. British. Connaught Hall, Swaythling, Southampton. Student, University College, Southampton. *Signed by* : R. E. Parker, K. R. Webb, E. Cartmell.
- Richards, John Robins**, M.Sc. (Melbourne). British. Ancroft, Newcastle Road, Neville's Cross, Durham. Research student, University of Durham. *Signed by* : F. A. Paneth, G. R. Martin, M. Green.
- Sawyer, Ronald**. British. 240, Albert Road, Sheffield, 8. Student, Sheffield University. *Signed by* : M. I. Gillibrand, Alex. H. Lamberton, P. L. Pauson.
- Scott, Peter Ewart**. British. 29, Devon Drive, Sherwood, Nottingham. Student, Nottingham University. *Signed by* : Gordon Cumming, John C. Roberts, K. Selby.
- ***Sheppard, Mary Gwen**, B.Sc.Hons. (Bristol). British. 12, Primrose Hill Road, N.W. 3. Chemist. *Signed by* : D. D. Eley, G. E. Coates, F. H. Pollard.
- ***Shorten, George Alfred**. British. 4, Aconbury Close, Norris Green, Liverpool, 11. Assistant Grease-maker and Chemist. *Signed by* : A. E. Findley, H. H. Armstrong, R. R. Butler.
- ***Smith, Ronald Philip**. British. 10, Newman Place, Moseley Road, Bilston. Student, Birmingham University. *Signed by* : S. R. Carter, M. Stacey, L. L. Bircumshaw.
- Smith, William Roy**. British. 5, College Street, Sheffield, 10. Student. *Signed by* : Alex. H. Lamberton, P. L. Pauson, W. R. Bamford.
- Suschitzky, Hans**, B.Sc.Hons. (Lond.). British. 109, Hillfield Court, Belsize Avenue, N.W. 3. Chemist. *Signed by* : John R. Young, F. L. Allen, Ernest A. Rudge.
- ***Tanner, David Williamson**. British. 176, Clarence Avenue, New Malden. *Signed by* : David H. Burton, E. J. Bowen, L. A. K. Staveley.
- ***Warwick, Alan John**. British. 24, Winthorpe Road, Newark. Student, Nottingham University. *Signed by* : John C. Roberts, K. Selby, M. H. Everdell.
- ***Wheatley, Kenneth Harold**. British. 47, Furlong Road, Gloucester. Student, University College, Exeter. *Signed by* : S. J. Gregg, H. T. S. Britton, R. King.
- White, Eric Alfred Dutton**, B.Sc. British. 116, Ditchling Road, Brighton. Post-graduate student, Bedford College, London University. *Signed by* : R. M. Barrer, G. E. Watts, T. J. Morrison.
- ***Willox, Ian Cartledge**, B.Sc.Hons. (Edin.). British. 58, Blake Street, Dunfermline. Research chemist, Edinburgh University. *Signed by* : E. G. V. Percival, Neil Campbell, Mowbray Ritchie.

Wooding, Maurice Edward Henry. British. 129, Colwyn Road, Northampton. Assistant chemist, Northampton Power Station. *Signed by* : R. D. Knight, D. R. Bell, W. Siddall.

UNDER SPECIAL PROVISIONS APPERTAINING TO CANDIDATES RESIDENT ABROAD.

Bonino, Giovanni Battista, D.Chem. (Genoa), Doc.Hon.Causa Bordeaux. Italian. via Selmi 2, Bologna. Professor of Chemistry, University of Bologna. *Signed by* : Vincenzo Caglioti.

Constable, Frederick Hurn, M.A., Ph.D., Sc.D. (Cantab.), Ph.D., D.Sc. (Lond.), F.R.I.C., F.Inst.P. British. Fizikokimya Enstitusu, Fen Fakultesi, Istanbul Universitesi, Turkey. Professor of Physical Chemistry. *Signed by* : H. J. T. Ellingham, R. Leslie Collett.

***Kaikini, Krishna Sheshgiri,** B.Sc. (Bombay), Ph.D. (Lond.), A.R.I.C. Indian. c/o Professor H. Mosbeh, Bronshof, Kirkevej 5, Copenhagen. Research Chemist. *Signed by* : Wilfred H. Linnell.

Lane, John Fero, M.B.E., A.B., M.A. (California), Ph.D. (Princeton). American. School of Chemistry, Rutgers University, New Brunswick, New Jersey. Assistant Professor of Chemistry. *Signed by* : Hugh S. Taylor.

Waddan, Dhafir Yusuf, B.Sc.Tech. Iraçian. 52, Chepstow Villas, Notting Hill Gate, W. 11. Student. *Signed by* : J. Kenyon, R. E. Dabby.

* Reduced annual subscription.

PAPERS RECEIVED

List of papers received between October 19th and November 13th, 1948. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- “Dissociation-energies of carbon-halogen bonds. The bond-strengths allyl-X and benzyl-X.” By O. H. GELLNER and H. A. SKINNER.
- “Mechanism of aromatic side-chain reactions with special reference to the polar effects of substituents. Part XIV. The aldehyde-cyanohydrin reaction with halogeno-benzaldehydes. Polar effects of halogen substituents.” By J. W. BAKER and H. B. HOPKINS.
- “Some trinuclear cyanine dyes. Part III. Trinuclear dimethin*mesocyanines* and intermediate compounds.” By F. M. HAMER, R. J. RATHBONE, and B. S. WINTON.
- “A trimethincyanine ; a trimethinoxonol and some compounds related to trimethinoxonols ; some di- and tetra-methin*mesocyanines*.” By F. M. HAMER and B. S. WINTON.
- “The configuration of some cadalene derivatives.” By L. H. Briggs, (Miss) N. S. GILL, F. LIONS, and W. I. TAYLOR.
- “The constitution of ψ -santonin. Part VI. Experiments on ψ -santoninic acid.” By W. COCKER and C. LIPMAN.
- “The synthesis of benzimidazoles from *o*-phenylenediamines and iminoethers.” By F. E. KING and R. M. ACHESON.
- “The constitution of yohimbine and related alkaloids. Part III. The structure of sempervirine.” By G. A. SWAN.
- “The constitution of yohimbine and related alkaloids. Part IV. Some further observations of the structure of ketoyobyrine.” By G. A. SWAN
- “On the basic strength of amines.” By A. F. TROTMAN-DICKENSON.
- “Cyclic conjugated polyenes. Part III. Attempts to prepare heptalenes by the dehydrogenation of *bicyclo*-[0:5:5]-dodecane derivatives.” By D. H. S. HORN and W. S. RAPSON.
- “Cyclic conjugated polyenes. Part IV. Attempts to prepare heptalene by dehydrobromination reactions.” By D. H. S. HORN and W. S. RAPSON.
- “Studies on the structure of emetine. Part III. Stability of some α -arylalkyltrimethylammonium iodides.” By G. NORCROSS and H. T. OPENSHAW.
- “Steroids and the Walden inversion. Part V. The Serini reaction.” By C. W. SHOPPEE.
- “Acridine syntheses and reactions. Part V. A new dehalogenation of 5-chloroacridine and its derivatives.” By A. ALBERT and R. ROYER.
- “The reaction of cyanogen and related nitriles with 1:3-dienes. Part I. Thermodynamic considerations, and study of the uncatalysed reaction of cyanogen and related nitriles with 1:3-butadiene.” By P. J. HAWKINS and G. J. JANZ.

- "The reaction of cyanogen and related nitriles with 1:3-dienes. Part II. The study of the catalysis of the reaction of cyanogen and related nitriles with 1:3-butadiene." By P. J. HAWKINS and G. J. JANZ.
- "4-Aminosalicylic acid and its derivatives." By D. J. DRAIN, D. D. MARTIN, B. W. MITCHELL, D. E. SEYMOUR, and F. S. SPRING.
- "Hydrothermal reactions involving thallium." By H. F. W. TAYLOR.
- "Synthetic antimalarials. Part XL. Dialkylaminoalkylaminoquinoxalines." By A. F. CROWTHER, F. H. S. CURD, D. G. DAVEY, and G. J. STACEY.
- "Synthetic antimalarials. Part XLI. The effect of variation of substituents in 2-chloro-3- β -diethylaminoethylaminoquinoxaline." By F. H. S. CURD, D. G. DAVEY, and G. J. STACEY.
- "High-pressure reactions of carbon monoxide. Part I. Reaction with primary arylamines." By G. D. BUCKLEY and N. H. RAY.
- "High-pressure reactions of carbon monoxide. Part II. Reducing action." By G. D. BUCKLEY and N. H. RAY.
- "High-pressure reactions of carbon monoxide. Part III. Reaction with hydrazine." By G. D. BUCKLEY and N. H. RAY.
- "Replacement of the diazonium and bisdiazonium groups by the cyano-group in neutral solution." By H. H. HODGSON and F. HEYWORTH.
- "A facile preparation of 8-nitro-1-naphthylamine." By H. H. HODGSON and J. RATCLIFFE.
- "Note on benzyldiene derivatives of 3-keto-6:7-dimethoxy-2:3-dihydrobenzthiazine." By A. MACKIE.
- "Some derivatives of 1:5-naphthyridine." By V. PETROW and B. STURGEON.
- "Compounds related to thiosemicarbazine. Part I. 3-Phenyl-1:2:4-triazole derivatives." By E. HOGGARTH.
- "Compounds related to thiosemicarbazine. Part II. 1-Benzoylthiosemicarbazides." By E. HOGGARTH.
- "A comparison of the dipole moments of the isomeric benzaldoximes and furfuraldoximes." By K. E. CALDERBANK and R. J. W. LE FÈVRE.
- "The comparison of weak neutron fluxes using ethyl iodide." By P. F. D. SHAW and C. H. COLLIE.
- "Benziminazoles related to pteric and pteroylglutamic acid." By F. E. KING, R. M. ACHESON, and P. C. SPENSLEY.
- "The additive effect of substituents on the strength of benzoic acid." By J. SHORTER and F. J. STUBBS.
- "Deoxy-sugars. Part I. The Dische reaction for 2-deoxypentoses." By R. E. DERIAZ, M. STACEY, E. G. TEECE, and L. F. WIGGINS.
- "Deoxy-sugars. Part II. Synthesis of 2-deoxy-D-ribose and 3-deoxy-D-xylose from D-arabinose." By P. W. KENT, M. STACEY, and L. F. WIGGINS.
- "Deoxy-sugars. Part III. Methanesulphonyl derivatives of D-arabinose." By W. G. OVEREND and M. SATCEY.
- "Deoxy-sugars. Part IV. A synthesis of 2-deoxy-D-ribose from D-erythrose." By W. G. OVEREND, M. STACEY, and L. F. WIGGINS.
- "The configuration of heterocyclic compounds. Part XII. The optical resolution of 2-chloro-10-*p*-carboxyphenylphenoxarsine." By M. S. LESSLIE.
- "The condensation of fluorene derivatives with acrylonitrile." By N. CAMPBELL and A. E. S. FAIRFULL.
- "Pyrazine derivatives. Part X. 2:5-Dicyano-3:6-disubstituted pyrazines." By E. GOLOMBOK and F. S. SPRING.
- "The ionisation of basic triphenylmethane dyes." By R. J. GOLDACRE and J. N. PHILLIPS.
- "The nitration of some simple nitrogen heterocycles." By K. SCHOFIELD and T. SWAIN.
-

ADDITIONS TO THE LIBRARY

I. *Donations*

CLAUS, C. Fragment einer Monographie des Platin's und der Platinmetalle 1865-1883. St. Petersburg 1883. pp. v + 62. [Photostat Copy.] (*Reference*) From Messrs.

Johnson, Matthey & Co., Ltd.

FIAT REVIEW OF GERMAN SCIENCE 1939-1946. Non-ferrous metallurgy. Part II. By M. HANSEN [and others]. Wiesbaden 1948. pp. [iv] + 171. (Two copies.) (*Recd.* 14/10/48. From the Department of

Scientific and Industrial Research.

HAUGHTON, J. L. Bibliography of the literature relating to constitutional diagrams of alloys. (Institute of Metals Monograph and Report Series, No. 2.) London 1942. pp. [iv] + 163. (*Reference*) From the

Faraday Society.

KUNSTSTOFFE. Vol. 37, etc. Munich 1947+. (*Reference*) From the

Bureau of Abstracts.

LE FÈVRE, R. J. W. Dipole moments; their measurement and application in chemistry. 2nd edition. London 1948. pp. vi + 117. ill. 5s. (*Recd.* 14/10/48.) From the

Publishers: Messrs. Methuen & Co., Ltd.

LONDON COUNTY COUNCIL. Oxidation-reduction potentials in bacteriology and biochemistry. 5th edition. By L. F. HEWITT. London 1948. pp. 130. ill. (*Recd.* 14/10/48.)

From the Author.

ODDO, G. Trattato di chimica organica. 2nd edition. Palermo 1948. pp. xx + 1018. ill. L. 3,500. (*Recd.* 29/10/48.)

From the Author.

II. *By purchase*

BELL, D. J. Introduction to carbohydrate biochemistry. 2nd edition. London 1948. pp. viii + 107. Univ. Tutor. Pr. 6s. (*Recd.* 23/10/48.)

BRITISH PHARMACOPŒIA 1948. London 1948. pp. xl + 914. (*Reference*.) 45s.

CARSLAW, H. S., and JAEGER, J. C. Conduction of heat in solids. Oxford 1947. pp. viii + 386. ill. Oxf. Univ. Pr. 30s. (*Recd.* 16/9/48.)

CHEMICAL CORPS ASSOCIATION. The chemical warfare service in World War II: a report of accomplishments. Washington 1948. pp. 222. ill. Reinhold. \$4.00. (*Recd.* 23/10/48.)

ELSEVIER'S ENCYCLOPŒDIA OF ORGANIC CHEMISTRY. Edited by E. JOSEPHY and F. RADT. Series III. Carboisocyclic condensed compounds. Vols. 12A, 13, 14. New York 1948, 1946, 1940. pp. xxviii + 1262; xx + 1265; xx + 711. (*Reference*.) \$201.00.

GAUGER, A. W. Physical chemistry and the technology of fuels. (21st Annual Priestley Lectures.) Pennsylvania 1947. pp. vii + 114. ill. Penn. State College. \$2.00. (*Recd.* 4/10/48.)

HUTCHISON, R. Food and the principles of dietetics. 10th edition. Revised by V. H. MOTTRAM and G. GRAHAM. London 1948. pp. xxviii + 727. ill. Arnold. 21s. (*Recd.* 23/10/48.)

KAPP, R. O. The presentation of technical information; based on four public lectures given at University College, London. London 1948. pp. xii + 147. Constable. 6s. (*Recd.* 23/10/48.)

KOBE, K. A. Inorganic process industries. New York 1948. pp. viii + 371. ill. Macmillan. \$6.00. (*Recd.* 23/10/48.)

MAKROMOLEKULARE CHEMIE, DIE. Vol. 1, etc. Freiburg im Breisgau 1947+. (*Reference*.) \$7.50 per vol.

SCHENK, M. Werkstoff Aluminium und seine anodische Oxydation; ein Handbuch und Ratgeber für den Praktiker. Bern 1948. pp. 1042. ill. Francke. Sw. Fr. 138. (*Recd.* 3/11/48.)

STEVELS, J. M. Progress in the theory of the physical properties of glass. Amsterdam 1948. pp. xii + 104. ill. Elsevier. \$2.00. (*Recd.* 23/10/48.)

III. *Pamphlets*

IRISH CHEMICAL ASSOCIATION and ROYAL INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND. Proceedings of a colloquium on the industrial utilisation of agricultural products and of seaweed. Dublin 1947. pp. 71. ill.

LOCAL REPRESENTATIVES OF THE CHEMICAL SOCIETY.

- Aberdeen.* J. M. C. Thompson, M.A., D.Phil., A.R.I.C., Chemistry Department, Marischal College, The University, Aberdeen.
- Australia.* T. Iredale, B.Sc., F.R.I.C., The University, Sydney, Australia.
- Birmingham.* L. L. Bircumshaw, M.A., D.Sc., Department of Chemistry, The University, Edgbaston, Birmingham, 15.
- Bristol.* F. H. Pollard, B.Sc., Ph.D., A.R.I.C., Chemistry Department, The University, Woodland Road, Bristol.
- Cambridge.* B. Lythgoe, Ph.D., Organic Chemistry Department, The University, Cambridge.
- Canada.* W. D. McFarlane, M.A., Ph.D., The Laboratories, The Canadian Breweries Ltd., 496, Queen Street East, Toronto, 2.
- Edinburgh.* E. G. V. Percival, D.Sc., Ph.D., F.R.I.C., Chemistry Department, King's Buildings, West Mains Road, Edinburgh.
- Eire.* Professor T. S. Wheeler, D.Sc., Ph.D., F.R.I.C., Chemical Department, University College, Upper Merrion Street, Dublin.
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- Glasgow.* J. D. Loudon, Ph.D., D.Sc., A.R.I.C., Chemistry Department, The University, Glasgow, W. 2.
- Hull.* Professor Brynmor Jones, Sc.D., Ph.D., F.R.I.C., University College, Hull.
- India.* Sir Shanti S. Bhatnagar, O.B.E., D.Sc., F.R.S., Council of Scientific and Industrial Research, New Delhi, India.
- Leeds.* F. R. Goss, D.Sc., Ph.D., F.R.I.C., The University, Leeds, 2.
- Liverpool.* W. B. Whalley, B.Sc., Ph.D., F.R.I.C., Organic Chemistry Department, The University, Liverpool.
- „ L. A. Haddock, M.Sc., F.R.I.C., I.C.I., Ltd. (General Chemicals Division), Research Department, Widnes Laboratory, Widnes.
- Manchester.* G. Baddeley, M.Sc., Ph.D., The College of Technology, Manchester.
- „ J. C. Withers, Ph.D., A.R.I.C., Shirley Institute, Didsbury, Manchester.
- Newcastle and Durham.* P. L. Robinson, D.Sc., F.R.I.C., Chemistry Department, King's College, Newcastle-on-Tyne.
- New Zealand.* Professor F. G. Soper, D.Sc., Ph.D., F.R.I.C., University of Otago, Dunedin, New Zealand.
- Northern Ireland.* H. Graham, D.Sc., A.R.I.C., 26, Malone Hill Park, Belfast.
- North Wales.* W. Rogie Angus, M.A., D.Sc., Ph.D., F.R.I.C., Department of Chemistry, University College of North Wales, Bangor.
- Nottingham.* J. C. Roberts, Ph.D., B.Pharm., A.R.I.C., University College, University Park, Nottingham.
- Oxford.* W. A. Waters, M.A., Sc.D., Ph.D., F.R.I.C., Balliol College, Oxford.
- St. Andrews and Dundee.* J. D. M. Ross, M.B.E., M.A., D.Sc., Chemistry Department, University College, Dundee.
- Sheffield.* A. H. Lamberton, B.Sc., Ph.D., Chemistry Department, The University, Sheffield, 10.
- South Africa.* Professor W. Pugh, Ph.D., B.Sc., F.R.I.C., Chemistry Department, University of Cape Town, Rondebosch, S. Africa.
- Southampton.* K. R. Webb, B.Sc., Ph.D., University College, Southampton.
- South Wales.* Professor C. W. Shoppee, Ph.D., D.Sc., D.Phil., A.R.C.S., F.R.I.C., University College, Singleton Park, Swansea.

December, 1948

THE CHEMICAL SOCIETY

SCIENTIFIC MEETINGS DURING FEBRUARY, 1949

LONDON.

Thursday, February 3rd, 1949, at 7.15 p.m.

Johannes Nicholas Brønsted Memorial Lecture, by Mr. R. P. Bell, M.A., F.R.S.

To be held at Burlington House.

Thursday, February 17th, 1949, at 7.30 p.m.

Lecture, **Recent Developments in the Chemistry of Macrocyclic Compounds**, by Professor Dr. V. Prelog (Zurich). (The lecture will be followed by a discussion.)

To be held in the Main Chemistry Lecture Theatre of the Imperial College of Science and Technology, South Kensington, London, S.W.7.

ABERDEEN.

Friday, February 25th, 1949, at 7.30 p.m.

Lecture, **Some Factors Influencing the Strengths of Acids and Bases**, by Professor D. H. Everett, M.B.E., D.Phil.

Joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Chemistry Department of Marischal College.

BRISTOL.

Thursday, February 10th, 1949, at 7 p.m.

Lecture, **The Stability of Emulsions**, by Dr. A. S. C. Lawrence.

Joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Chemistry Department of the University.

EDINBURGH.

Tuesday, February 8th, 1949, at 7.30 p.m.

Lecture, **Some Recent Advances in the Chemistry of Natural Products**, by Professor R. D. Haworth, D.Sc., F.R.S.

Joint meeting with the Royal Institute of Chemistry, the Society of Chemical Industry and the Edinburgh University Chemical Society, to be held in the Biochemistry Lecture Theatre of the University.

Thursday, February 24th, 1949, at 7.30 p.m.

Lecture, **Analytical Chemistry, Chemical Analysis and the Analyst**, by Mr. R. C. Chirnside, F.R.I.C.

Joint meeting with the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the North British Station Hotel.

EIRE.

Monday, February 28th, 1949, at 7.45 p.m.

Lecture, **Researches on the Chemistry of the Algæ**, by Professor T. Dillon, M.A., D.Sc.

Joint meeting with the University College of Dublin Chemical Society and the Werner Society to be held in the Department of Chemistry of University College, Dublin.

GLASGOW.

Friday, February 18th, 1949, at 7 p.m.

Local Annual General Meeting and Meeting for the reading of original papers, to be held at the Royal Technical College.

HULL.

Thursday, February 24th, 1949, at 6 p.m.

Lecture, **The Nature of Scientific Convictions**, by Professor M. Polanyi, M.D., Ph.D., F.R.S.

Joint meeting with the Hull and District Section of the Royal Institute of Chemistry and the University College Scientific Society to be held in the Science Lecture Theatre of University College.

LIVERPOOL.

Thursday, February 10th, 1949, at 4.30 p.m.

Lecture, **Recent Advances in the Physical Chemistry of High Polymers**, by Dr. G. Gee, M.Sc., A.R.I.C.

Joint meeting with the Royal Institute of Chemistry, the Society of Chemical Industry and the British Association of Chemists, to be held at the University.

MANCHESTER.

Thursday, February 24th, 1949, at 6.45 p.m.

Lecture, **Some Recent Developments in Inorganic Chromatography**, by Dr. R. P. Linstead, C.B.E., F.R.S.

Joint meeting with the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Engineers' Club.

NEWCASTLE and DURHAM.

Friday, February 11th, 1949, at 5 p.m.

Bedson Club Lecture, **Partition Chromatography**, by Dr. A. J. P. Martin.

To be held in the Chemistry Department, of King's College, Newcastle-on-Tyne. All Fellows are invited.

NORTHERN IRELAND.

Wednesday, February 9th, 1949, at 7.30 p.m.

Lecture, **Some Problems of the Sensitiveness of Explosives**, by Professor A. R. Ubbelohde, M.A., D.Sc.

Joint meeting with the Royal Institute of Chemistry and the Society of Chemical Industry, to be held in the Lecture Theatre of the Chemistry Department of Queen's University, Belfast.

NORTH WALES.

Thursday, February 17th, 1949, at 5.30 p.m.

Lecture, **Corrosion : The Study of Surface Reactions on Metals**, by Dr. W. H. J. Vernon, O.B.E., D.Sc., F.R.I.C.

Joint meeting with the University College of North Wales and University of Liverpool Chemical Societies, to be held in the Department of Chemistry, University College of North Wales, Bangor.

NOTTINGHAM.

Thursday, February 24th, 1949, at 6.30 p.m.

Lecture, **The Shape of the Chemical Bond**, by Professor C. A. Coulson, M.A., D.Sc.

Joint meeting with the University of Nottingham Chemical Society to be held in the Chemistry Department of the University.

OXFORD.

Monday, February 7th, 1949, at 8.15 p.m.

Alembic Club Lecture, **Localised and Non-localised Bonds**, by Professor C. A. Coulson, M.A., D.Sc.

To be held in the Physical Chemistry Laboratory. All Fellows are invited.

Monday, February 28th, 1949, at 8.15 p.m.

Alembic Club Lecture, **Research and Productivity in Industry**, by Mr. C. S. Robinson, C.B.E., M.A., F.R.I.C.

Joint meeting with the Royal Institute of Chemistry, to be held in the Physical Chemistry Laboratory. All Fellows are invited.

ST. ANDREWS and DUNDEE.

Thursday, February 10th, 1949, at 5.30 p.m.

Lecture, **Soil Fertility**, by Dr. W. G. Ogg, M.A.

Joint meeting with the Royal Institute of Chemistry, Society of Chemical Industry and in conjunction with the British Association (Dundee) Trust, to be held in the Chemistry Department of University College, Dundee.

Friday, February 25th, 1949, at 5.15 p.m.

Lecture, **Free Radicals and Hydrocarbon Chemistry**, by Professor C. E. H. Bawn, Ph.D.

Joint meeting with the Royal Institute of Chemistry and the University Chemical Society, to be held in the Chemistry Department of United College, St. Andrews.

SHEFFIELD.

Thursday, February 17th, 1949, at 5.30 p.m.

Lecture, **Hydrogen Peroxide as an Ionising Solvent**, by Professor W. F. K. Wynne-Jones, D.Sc.

Joint meeting with Sheffield University Chemical Society, to be held in the Lecture Theatre of the Chemistry Department of the University.

SOUTHAMPTON.

Wednesday, February 2nd, 1949, at 7 p.m.

Lecture, **Food Science in Evolution**, by Dr. L. H. Lampitt, F.R.I.C.

Joint meeting with the Portsmouth and District Chemical Society, the Royal Institute of Chemistry (Mid-Southern Counties Section) and the London Section of the Society of Chemical Industry, to be held in the Municipal College, Portsmouth.

SOUTH WALES.

Thursday, February 3rd, 1949, at 6 p.m.

Lecture, **The Friction and Lubrication of Metal Surfaces**, by Dr. F. P. Bowden, F.R.S.

Joint meeting with the University College of Swansea Students' Chemical Society, to be held at University College, Swansea.

PROCEEDINGS
OF THE
CHEMICAL SOCIETY

**Minutes of a
SCIENTIFIC MEETING**

**held in the Main Chemistry Lecture Theatre of the Imperial College of Science and
Technology, on Thursday, November 25th, 1948, at 2.30 p.m.**

The President, SIR IAN HEILBRON, D.S.O., D.Sc., F.R.S., was in the Chair, and welcomed Dr. S. Claesson, Uppsala, who was present, as the Guest of the Society.

MINUTES.

The Minutes of the Scientific Meeting held at Burlington House on November 11th, 1948, were read, and were confirmed and signed.

SCIENTIFIC COMMUNICATIONS.

The President called upon Dr. R. P. Linstead to introduce the Discussion entitled, "The Theory and Practice of New Techniques in Separation and Purification." The first session on "Chromatography and Partition Chromatography" comprised the following papers which were read and discussed :

"Factors Influencing the Efficiency of Chromatographic Separations," by Dr. E. Glueckauf.

"Adsorption Analysis of High Molecular Substances," by Dr. Stig Claesson.

"Partition Chromatography in Relation to Other Methods of Purification," by Dr. A. J. P. Martin.

"The Separation of Inorganic Substances on Cellulose," by Dr. R. P. Linstead.

"Separations of Amino-acids and Polypeptides," by Dr. C. E. Dent.

The meeting then adjourned and was resumed at 7.30 p.m.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : Fred C. Martin, C. F. C. Simeon, Neil H. Ray, G. G. Allen, R. A. P. Williams, Courtenay Phillips, J. F. Duncan, B. A. Lister, Robert A. E. Stockdale, E. Glueckauf, L. F. Rutter, Roy G. Kinsman, H. E. Coomber, K. A. Ford, A. E. Bond, J. F. Short.

SCIENTIFIC COMMUNICATIONS.

The President then asked Dr. R. P. Linstead, Vice-President, to take the Chair and the evening session on "Ion Exchange" proceeded with the following contributions which were read and discussed :

"Ion-exchange Resins," by Professor C. W. Davies.

"The Properties of Ion-exchange Polymers in Relation to their Structure," by Dr. N. E. Topp and Mr. K. W. Pepper.

"Chromatographic Studies of the Sodium-Hydrogen Ion-exchange Equilibrium," by Dr. J. F. Duncan and Dr. B. A. J. Lister.

"Separation of Amino-acids by Displacement Chromatography on Ion-exchange Resins," by Dr. S. M. Partridge.

“Equilibrium Studies with a Cation-exchange Resin,” by Dr. J. A. Kitchener and Mr. T. R. E. Kressman.

“Ion-exchange Properties of Alginates,” by Mr. I. L. Mongar and Dr. A. Wassermann.

At the conclusion of the meeting Dr. Linstead expressed the thanks of the meeting to all who had contributed to the discussion.

Minutes of a

SCIENTIFIC MEETING

held at the Royal Technical College, Glasgow, on Friday, December 3rd, 1948, at 2.15 p.m.

The President, SIR IAN HEILBRON, D.S.O., D.Sc., F.R.S., was in the Chair.

Dr. B. S. Anderson, Director of the Royal Technical College, officially welcomed the Society to the Royal Technical College for the meeting. In reply the President expressed on behalf of the Society his thanks to Dr. Anderson, and his pleasure at presiding at an Official Meeting of the Society in Glasgow.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : John Whetstone, Felix Schwarz, Alex. C. Ritchie, Hamish Christie, Samuel H. Graham, Margaret Whalley, P. A. Ongley, William Hopkin, James Muil Leitch, E. Clar, D. J. Duff, Alex. Urie.

SCIENTIFIC COMMUNICATIONS.

The following papers were read and discussed :

“The Relative Reactivity of Aromatic Double Bonds,” by G. M. Badger.

“Gliotoxin, a Metabolic Product from the Mould, *Trichoderma viride*,” by J. A. Elvidge and F. S. Spring.

“Liquid Eutectics and Low-melting Compositions based on Ammonium Nitrate,” by J. Taylor and J. Whetstone.

At the conclusion, Professor J. W. Cook, on behalf of Fellows in the Glasgow area, expressed appreciation of the Council’s decision to hold an Official Meeting in Glasgow and thanked the Officers of the Society who had made the journey for the meeting.

The President acknowledged Professor Cook’s remarks and conveyed the thanks of the meeting to the contributors of the scientific papers.

Minutes of a

SCIENTIFIC MEETING

held at Burlington House, London, W.1, on Thursday, December 9th, 1948, at 7.15 p.m.

DR. G. M. BENNETT, C.B., M.A., F.R.S., Vice-President, was in the Chair.

MINUTES.

The Minutes of the Scientific Meetings held at the Imperial College of Science and Technology on November 25th, 1948, and at the Royal Technical College, Glasgow, on December 3rd, 1948, were read, and were confirmed and signed.

FORMAL ADMISSION OF FELLOWS.

The following were admitted Fellows of the Society : John C. Charlton, Charles L. Scott, George T. Dickson, H. W. Davidson, E. B. Knott.

SCIENTIFIC COMMUNICATIONS.

The following papers were read and discussed :

“ The Kinetics and Mechanism of the Sandmeyer Reaction,” by W. A. Cowdrey and D. S. Davies.

“ The Kinetics of the Thermal Decomposition of Magnesium Hydroxide,” by S. J. Gregg and R. I. Razouk.

“ The Kinetics of the Dehydrochlorination of Substituted Hydrocarbons. Parts I, II, and III,” by D. H. R. Barton and K. E. Howlett.

OFFICIAL ANNOUNCEMENTS
DEATHS.

The Council regret to announce the deaths of the following Fellows :

	Elected.	Died.
John Arnold (S.E. 16)	Feb. 18th, 1937.	Oct. 20th, 1948.
Frederick Stanley Baxter (Brentwood)	May 7th, 1914.	Nov. 20th, 1948.
Einar Christian Saxtorph Biilmann (Copenhagen)	May 20th, 1926.	—
George Frederick Birks (Killara, N.S.W.) ...	Dec. 2nd, 1937.	May, 1948.
Francis Henry Swinden Curd (Bramhall) ...	Dec. 5th, 1929.	Dec. 3rd, 1948.
Reginald Murdin Drake (W.1)	Dec. 4th, 1924.	Nov 21st, 1948.
William Mair (Edinburgh)	Feb. 15th, 1900.	Dec. 1st, 1948.
Arthur Walter Richardson (Southall)	Dec. 7th, 1916.	Aug. 6th, 1948.
Marc Tiffeneau (Paris)	Dec. 2nd, 1920.	—
Florence Mary Wood (W.11)	Dec. 2nd, 1920.	Nov. 18th, 1948.

CONGRATULATIONS.(a) *Patron.*

The following telegram was dispatched on the 15th November, 1948, to Sir Alan Lascelles, Buckingham Palace :

“ The Officers and Council of the Chemical Society present their humble duty to His Majesty King George VI their Patron and tender loyal congratulations on the birth of a grandson.

President.”

The following reply was received :

“ To the President of the Chemical Society.

Please convey to Officers and Council of the Chemical Society the sincere thanks of The King for their kind message on the birth of His Majesty’s grandson.

Private Secretary.”

(b) *Professor E. L. Hirst.*

The congratulations of Council have been conveyed to Professor E. L. Hirst on the award of the Davy Medal by the Royal Society.

(c) *Sixty years of Fellowship.*

The congratulations of Council have been conveyed to the following who completed sixty years of Fellowship on December 6th, 1948 :

William Jay Schieffelin (New York).
 Arthur Landauer Stern (Chorley Wood).
 Frederic Walmsley Warrick (Richmond).
 Richard William Woosnam (Grimsby).

(d) *Fifty years of Fellowship.*

Congratulations have also been conveyed to the following who completed fifty years of Fellowship on December 1st, 1948 :

Marston Taylor Bogert (New York).
 David Leonard Chapman (Oxford).
 John Naish Goldsmith (S.W.1).
 Thomas Arthur Nightscales (Preston).
 Edward Milton Rich (E.C.3).
 Gilbert Rigg (Melbourne, Australia).
 Richard Seligman (S.W.18).
 Samuel Smiles (S.W.1).
 John Henry Young (Bournemouth).

QUARTERLY REVIEWS, 1947.

Volume I of Quarterly Reviews, first issued in 1947, is now being reprinted. It will be published as one complete volume early in 1949, and Fellows wishing to purchase a copy may do so at the reduced price of 12s. 6d. Orders from Fellows, accompanied by the necessary remittance, should reach the General Secretary as soon as possible.

VACANCIES ON COUNCIL.

Members of Council who retire at the next Annual General Meeting are as follows :

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

Dr. R. P. LINSTEAD, Professor S. SUGDEN.

Honorary Secretary :

Dr. J. L. SIMONSEN.

Elected Ordinary Members of Council :

Constituency I (South-East England). Dr. F. S. DAINTON, Dr. J. F. J. DIPPY,
 Dr. S. H. HARPER, Dr. F. G. MANN, Dr. J. WALKER.

Constituency II (Central and South-West England and South Wales). Professor
 H. W. MELVILLE.

Constituency III (North-West England, North Wales, and Isle of Man).
 Dr. D. W. HILL, Dr. A. MCGOOKIN.

Constituency V (Scotland). Dr. E. G. V. PERCIVAL.

With the exception of Dr. F. S. Dainton, Dr. J. Walker, Professor H. W. Melville, and Dr. E. G. V. Percival, who were appointed by Council in accordance with Bye-Law 42, all the above are ineligible for re-election to the same office, until after the lapse of one year.

NOTICE is hereby given that, in accordance with the Bye-Laws, the following vacant places in the Council fall due to be filled at the Annual General Meeting to be held in London on March 31st, 1949 :

Vice-Presidents who have not filled the office of President *Two vacancies.*

Honorary Secretary *One vacancy.*

Elected Ordinary Members of Council :

Constituency I (South-East England) *Five vacancies.*

Constituency II (Central and South-West England and South
 Wales) *One vacancy.*

Constituency III (North-West England, North Wales, and Isle
 of Man) *Two vacancies.*

Constituency IV (North-East England) *No vacancy.*

Constituency V (Scotland) *One vacancy.*

Constituency VI (Ireland) *No vacancy.*

In accordance with Bye-Law 23, the Council have nominated Professor Harold Burton to the office of Honorary Secretary.

Nominations by Fellows for the offices of Vice-President or Honorary Secretary should be made in writing **signed by at least twenty Fellows.**

Fellows resident in a constituency may nominate any Fellow resident in that constituency for election to the Council to fill a vacancy arising in that constituency. Every such nomination must be made in writing **signed by at least fifteen Fellows resident in that constituency.**

Every nomination must relate to one vacancy only, and must be accompanied by a signed declaration by the nominee that he is willing to accept office, if elected.

All nominations must be received by the Honorary Secretaries at the Society's rooms not later than **Monday, February 14th, 1949.**

Forms of nomination can be obtained on application to the General Secretary. Applicants should indicate the vacancy for which the form is required.

ANNUAL GENERAL MEETING.

The Annual General Meeting will be held in London on Thursday, March 31st. In association with the Annual General Meeting a discussion meeting on the chemistry of the heavy elements and on the preparation and use of radiotracer elements in chemistry, will be held during the period March 28th—April 1st.

The discussion meeting will take place in two parts. The first part, a Symposium on "*The Chemistry of the Heavy Elements*" organised on behalf of The Chemical Society and The Atomic Energy Research Establishment, by the Chemistry Division of A.E.R.E., will be held at Oxford on Monday, March 28th, to Wednesday, March 30th. The programme will include a visit to the Atomic Energy Research Establishment at Harwell. Accommodation for Fellows will be available at Oxford.

The Anniversary Dinner will be held at the Dorchester Hotel, Park Lane, W.1, on Thursday, March 31st, 1949, at 7 for 7.30 p.m.

The second part of the discussion on "*The Use of Radioactive Tracers in Chemistry*," will be held in London on Friday, April 1st, in the Lecture Theatre of the Institution of Civil Engineers, Great George Street, S.W.1.

Full particulars will be circulated to Fellows later.

RESEARCH GRANTS.

The Council have approved the following grants from the Research Fund :

<i>Birmingham, The University</i>		£	s.	d.
Dr. L. L. Bircumshaw. "Reaction between zinc and iodine in various solvents"		10	0	0
<i>Cambridge, Department of Physical Chemistry</i>				
Dr. F. S. Dainton. "Retardation of photochlorination reactions by nitrosyl chloride"		30	0	0
Mr. P. Gray. "Investigation of high-speed and explosive reactions by electronic and photographic means"		15	0	0
<i>Leeds, The University</i>				
Mr. S. Birtwell. "Studies in the triazine series"		10	0	0
<i>London, Imperial College</i>				
Dr. D. H. R. Barton. "Application of the method of molecular rotation differences to steroids"		25	0	0
Dr. E. A. Braude. "Alkenylation with lithium derivatives"		30	0	0
Dr. J. F. Herringshaw. "Comparison between chemical and electrolytic methods of reduction"		5	0	0

	£	s.	d.
Dr. J. A. Kitchener. (a) "Physical chemistry of ion-exchange resins."			
(b) "Salting-in effect"	25	0	0
Dr. R. A. Raphael. "Employment of acetylenic compounds in the synthesis of natural products"	25	0	0
<i>London, King's College</i>			
Dr. J. Honeyman. "Structure of amine- <i>N</i> -glycosides"	25	0	0
<i>London, Queen Mary College</i>			
Mr. A. M. Freedman. "Oxidation-reduction potentials of some heterocyclic compounds"	15	0	0
Dr. D. C. Jones. "Studies in adsorption from solution"	30	0	0
Miss Ingrid G. Rose. "Electrochemistry of non-aqueous solutions"	35	0	0
<i>London, West Ham Municipal College</i>			
Mr. R. J. Wicker. "Rate of hydrolysis of α -phenylcrotonic acid derivatives"	15	0	0
Mr. P. Scott. "Extensions of the diene synthesis"	25	0	0
<i>Oxford, Dyson Perrins Laboratory</i>			
Mr. P. V. Clifton. "Studies in the indolocarbazole group"	12	0	0
Mr. A. R. Pinder. "Experiments on the synthesis of the alkaloid dioscorine"	35	0	0
Mr. R. J. Rallings. "Alkylfurans"	15	0	0
<i>Oxford, Inorganic Chemistry Laboratory</i>			
Mr. L. A. K. Staveley. "Properties of germanium tetraethyl at low temperatures"	30	0	0
<i>Portsmouth, Municipal College</i>			
Mr. J. M. Wilson. "Addition of organolithium compounds to the carbonyl group"	25	0	0
<i>Swansea, University College</i>			
Mr. R. J. Bridgwater. "Steroids and the Walden inversion"	10	0	0
Mr. B. G. Gowenlock. "Determination of bond dissociation energies by pyrolysis"	40	0	0
Dr. K. W. Sykes. "Mechanism of gas reactions catalysed by solid surfaces at high temperatures"	50	0	0

ELECTION OF NEW FELLOWS.

The following 51 candidates were elected Fellows of the Society on December 9th, 1948 :

Sita Ram Agrawal.	Geoffrey Spencer Davy.
Douglas Aitkenhead.	Anthony John Everett.
Franz Arend.	George Albert Gamlen.
Richard Frank Ashbolt.	Robert Mortimer Gascoigne.
Geoffrey Ashton.	Neville Rex Geary.
Dennis Ion Whitchurch Atkinson.	Nadim Abdel Salam Ghanem.
Derek Robert Atkinson.	Brian Glover Gowenlock.
Frederick Marshall Beringer.	James Grey.
Egon Blutstein.	Ruth Mary Hainsworth.
Edward William Bodycote.	Peter Halsall.
William Bolton.	Joseph Harris.
Frederick George Bordwell.	Derek William Houghton.
Thomas Henry Boyd.	Lajos Imre.
Horace Nicholas Brocklesby.	Prajapati Joshi.
Richard Hugh Boyce Cam.	G. Krishna.
Santosh Hari Chatterjee.	Denis Birkby Lisle.
Leonard Vincent Chilton.	Jean Martin McLachlan.
David Barringer Clayson.	Werner Otto Marbach.
Harry Frederick Davenport.	Patrick Meares.

Terence Mannix Moylett.
Ernest Charles Preston.
Laszlo Richter.
John Brewster Rose.
Ruby Kathleen Smith.
Phillip Souter.
Maurice Barrington Sparke.

Eric David Totman.
Samuel Eric Turpin.
Levi Robert Turrell.
Reginald Gordon Harry Watson.
Bernard Arthur Willson.
William Henry Yates.

MEETING OF COUNCIL.

A meeting of Council was held on Thursday, December 9th, 1948.

Approval was given to a suggested scheme of co-operation by which the Chemical Society together with the Society of Chemical Industry would co-operate with the Chemical Institute of Canada in a joint subscription scheme for Fellows resident in Canada.

The Twelfth Report of the Chemical Council was received.

Certain items of a formal and financial nature were dealt with.

MEETINGS OUTSIDE LONDON

BRISTOL.

"Recent Advances in Chromatography," by Dr. T. I. Williams.

A joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the Chemistry Department of the University on November 4th, 1948, with Professor W. Baker in the Chair.

Dr. Williams pointed out that the most important of recent advances have been in two-dimensional partition analysis on paper, in inorganic chromatography, in theoretical studies, and in the development of industrial applications.

Two-dimensional partition analysis on paper has proved a general analytical method of remarkable sensitivity capable—in the amino-acid field—of detecting a fraction of a microgram of such substances as valine and alanine. Its possibilities in the analysis of sugars, organic acids, and other substances have also been convincingly demonstrated. In inorganic chromatography the most important of recent events has been the spectacular success of the method, as part of the Plutonium Project, in separating on ion-exchangers a wide variety of fission species produced as a result of nuclear changes. The method clearly has great possibilities for the practical chemistry of the rare earths. Very recently separations of cations on paper have been described. Theoretical studies have been made by a number of workers, and as a result a clear picture of the mechanism of chromatography is being built up and the method is fast losing the empiricism which has previously retarded its development.

Awakening interest in the industrial possibilities of chromatography—unexpectedly long delayed in view of its manifest promise—is reflected in the technical and patent literature. The chief developments here are the method of radial chromatography on a hollow cylinder of adsorbent and the possibility of using a divided column for large-scale work. Analysis by forming columns of foam is also of interest.

After an interesting discussion, a vote of thanks to Dr. T. Williams, proposed by Dr. E. B. Maxted, was carried with acclamation.

EDINBURGH.

"The Chemical Research Laboratory, Teddington," by Dr. R. P. Linstead, C.B.E., F.R.S.

A joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the North British Station Hotel, on November 18th, 1948, with Dr. Ames in the Chair.

Dr. Linstead outlined the type of work carried out by his laboratory, illustrating his lecture by accounts of work on corrosion, including bacterial corrosion, the purification of organic compounds, and the search for new uses for acenaphthene. A discussion followed and a vote of thanks to the lecturer, proposed by Dr. Preece, was carried with acclamation.

“Bread and its Influence on History,” by Dr. D. W. Kent-Jones, F.R.I.C.

A joint meeting with the local sections of the Royal Institute of Chemistry and the Society of Chemical Industry was held in the North British Station Hotel, on December 9th, 1948, with Mr. G. R. Thin in the Chair.

Dr. Kent-Jones gave an address to an appreciative audience. A vote of thanks moved by Mr. C. Yeates-Johnson was carried with acclamation.

EIRE.

“Some Advances on the Chemistry of Fluorine,” by Professor H. J. Emeléus, D.Sc., F.R.S.

A joint meeting with the Werner Society and the University College, Dublin, Chemical Society, was held in the Department of Chemistry, Trinity College, Dublin, on November 1st, 1948, with Professor E. A. Werner in the Chair.

The lecturer gave a review of the methods now available for the preparation of elementary fluorine. It may be applied in the production of fluorocarbons by using the direct reaction between carbon and fluorine or by the action of fluorine on hydrocarbons in a vessel packed with silver-plated copper turnings. An alternative is the use of cobaltic fluoride. The production of polyfluoroethylene was also described.

The compounds CF_3I and $\text{C}_2\text{F}_5\text{I}$ have recently been synthesised from IF_5 and Cl_4 or C_2I_4 and are found not to give a Grignard reagent. By using a direct section with mercury, however, the mercurial HgCF_3I can be prepared which with silver amalgam forms the dimercurial $\text{Hg}(\text{CF}_3)_2$. This is a water-soluble solid. The aqueous solution has a low but definite conductivity.

The three halogen fluorides ClF_3 , BrF_3 , and IF_5 have been studied to determine if they are conductors: BrF_3 alone has a conductivity of the same order as that of fused salts. The temperature coefficient is negative. The existence of the ions BrF_2^+ and BrF_4^+ is postulated, this hypothesis being supported by the formation of the salts KBrF_4 , AgBrF_4 , and $\text{Ba}(\text{BrF}_4)_2$ when KF , AgF , and BaF_2 react with BrF_3I .

A vote of thanks to the lecturer proposed by Mr. J. A. Alexander was carried with acclamation by a large audience.

This lecture was repeated informally at University Colleges, Cork and Galway.

“The Production and Uses of Radioactive Tracers,” by Professor H. J. Emeléus, D.Sc., F.R.S.

A joint meeting with the Irish Chemical Association and the local section of the Royal Institute of Chemistry was held in the Department of Chemistry of University College, Dublin, on November 2nd, 1948, with Professor T. S. Wheeler in the Chair.

Professor Emeléus gave a brief summary of the steps leading to the discovery of artificial radioactivity. The three methods now available for the production of radioactive isotopes are: (a) the use of the cyclotron or similar ion-accelerating devices, (b) the isolation of uranium fission products, and (c) neutron irradiation in the pile. The cyclotron has the advantage of flexibility and also gives important isotopes which are not made by other means. At very high energies (*ca.* 200 Mev.) it may also be used to give a new phenomenon termed by Seaborg “spallation,” in which the isotopes produced are deficient in mass and are positron emitters.

Fission, besides providing an important approach to the synthesis of the transuranic elements, the chemistry of which has been largely worked out by tracer methods, gives a range of isotopes suitable for use in chemical problems. Its main use in isotope production is, however, as the source of a high neutron intensity in the pile. Irradiation by neutron in the pile is at present the main source of radioactive isotopes for use as tracers.

Methods for the separation of radioactive isotopes from the target materials were also discussed. Finally, the lecturer dealt in detail with the uses of radioactive isotopes, *e.g.*, in the determination of specific surface and work on self-diffusion.

A vote of thanks to the lecturer, proposed by Professor E. J. Conway, F.R.S., was carried enthusiastically by a large audience.

Professor Emeléus repeated his lecture to joint meetings under the same auspices in

University College, Cork, on November 4th, and in University College, Galway, on November 8th. Professor J. J. McHenry presided in Cork, and Professor T. Dillon at Galway.

“Some Thermal Properties of the Hydrogen Bond in Crystals,” by Professor A. R. Ubbelohde, D.Sc.

A joint meeting with the Werner Society and with the University College, Dublin, Chemical Society was held in the Department of Chemistry, Trinity College, Dublin, on November 12th, 1948, with Professor Wesley Cocker in the Chair.

Professor Ubbelohde pointed out that recent theories of the hydrogen bond emphasise the importance of electrostatic effects and tend to minimise the importance of any “resonance” attraction due to alternative linkage of the proton with the two atoms of the bond pair. Whilst purely electrostatic effects may be sufficient to account for hydrogen bonds in isolated molecules, in crystals the properties of these bonds, such as their length, binding energy, and polarisability, can be affected by lattice forces of various types due to neighbouring groups, and in certain cases, the possibility of co-operative effects comprehending groups or chains of atoms extending in one, two, or three dimensions in the crystal must be considered.

Various thermal properties have been used to elucidate the problem to what extent resonance forces contribute to the energy of hydrogen bonds in crystals. One method is to measure changes in hydrogen-bond lengths on substituting deuterium. For O H O bonds longer than about 2.7 Å, this substitution leads to the *contraction* which would be expected for covalent O-H bonds, but for hydrogen bonds of length 2.65—2.5 Å, the substitution of D for H leads to a marked *expansion*, which can be explained on the basis of a resonance contribution to the bond energy.

A development of this method of investigation is to compare isotope effects with thermal expansions. Both effects point to very marked anharmonicity of vibration, particularly in the shorter hydrogen bonds, and the comparison permits an assessment of the contribution from resonance. In the hydrogen bonds in oxalic acid dihydrate, this contribution does not exceed 2 to 3 kcal. per N bonds. (N = Avogadro's number.)

A second method of investigation is from changes in the polarisability of the crystal, when the contraction of the lattice on cooling, or on applying external forces, imposes a contraction on the hydrogen bonds. An explanation has been put forward of the lower Curie point in Rochelle salt, in terms of the idea that as the hydrogen bond contracts the hydrogen atom moves to the middle of the bond.

A vote of thanks for a very stimulating lecture, which was proposed by Dr. D. C. Pepper, was carried enthusiastically.

LEEDS.

“The Mechanism of Autoxidation,” by Professor C. E. H. Bawn, Ph.D.

A meeting was held in the Chemistry Department of the University on November 22nd, 1948, with Professor M. G. Evans in the Chair.

Professor Bawn described his investigations on the oxidation of acetaldehyde in the liquid phase and in presence of cobaltic and cupric salts. The reaction involves the initial oxidation of the aldehyde to peracetic acid and also formation of a peroxide of undetermined structure. It is slowed down by the presence of water and is dependent on changes in the valency state of the metal ion.

After an interesting discussion on the mechanism of the reaction, a vote of thanks to the lecturer was proposed by Professor E. G. Cox and carried with acclamation.

LIVERPOOL.

“Modern Theories of Chemical Valency,” by Sir John Lennard-Jones, K.B.E., F.R.S.

A meeting was held in the Nicholson Lecture Theatre of the University on December 2nd, 1948, with Dr. R. O. Griffiths in the Chair.

Sir John delivered his address to an exceptionally large audience, and after a lively discussion a vote of thanks to the lecturer, proposed by Professor C. E. H. Bawn, was carried with acclamation.

NORTH WALES.

"Problems in Inorganic Chemistry," by Professor W. Wardlaw, D.Sc., F.R.I.C.

A joint meeting with the University College of North Wales Chemical Society was held in the Department of Chemistry of University College of North Wales on November 25th, 1948.

Professor Wardlaw dealt with a number of structural problems and methods for their elucidation. He also reviewed the available evidence for suggesting that N_2O_4 can possess a structure corresponding with nitrosyl nitrate. After a lively discussion, the lecturer was accorded a very hearty vote of thanks proposed by Professor Stanley Peat.

NOTTINGHAM.

Meeting for the reading of original papers.

A joint meeting with the University Chemical Society was held in the Chemistry Department of the University on December 9th, 1948, with Professor F. E. King in the Chair.

The following papers were read and discussed :

"The Structure of the Nitramines," by L. Hunter and S. H. Harvey.

"Some Glutamic Acid Derivatives of Biological Interest," by F. E. King and D. A. A. Kidd.

SHEFFIELD.

"A Theory of Organic Reactions," by Professor E. D. Hughes, D.Sc.

A joint meeting with the University Chemical Society was held in the Chemistry Lecture Theatre of the University on November 18th, 1948, with Dr. Alex. H. Lamberton in the Chair.

Professor Hughes gave a clear account of the electronic theory of chemical reactions, as developed in this country during the past twenty years.

On the proposal of Dr. J. McKenna, the meeting gave a hearty vote of thanks to the lecturer.

"Problems in the Production of Useful Power from Nuclear Energy," by Sir Wallace Akers, C.B.E., B.A., F.R.I.C.

A joint meeting with the Royal Institute of Chemistry was held in the Chemistry Lecture Theatre of the University on December 2nd, 1948, with Professor R. D. Haworth in the Chair.

After an introductory review of atomic structure and nuclear fission, Sir Wallace dealt with : (1) the problem of shielding the uranium from corrosion (the "canning" problem); (2) the necessity for stringent purification of all reagents used in the pile; (3) the question of shielding the operators from radiation; and (4) the problems involved in the choice of a suitable liquid or gas to transfer the heat generated from the pile to an engine for the production of useful power. Thereafter, the lecturer gave an account of the energy which might be obtained from the available uranium, and dealt with the nuclear reactions which suggest the possibility of "burning" thorium in a pile consisting of thorium, uranium 233, and a moderator.

After a vigorous discussion, the meeting, on the proposal of Dr. R. A. Mott, accorded Sir Wallace a vote of thanks in a manner which showed its obvious appreciation of the lecture.

SOUTHAMPTON.

"Some Recent Advances in the Use of Organic Reagents in Analysis," by Mr. G. H. Osborn, A.R.I.C.

A joint meeting with the Mid-Southern Counties Section of the Royal Institute of Chemistry and the Chemical Society of University College, was held in the Physics Department, University College, on November 19th, 1948, with Dr. C. G. Lyons in the Chair.

Mr. Osborn surveyed the application of a number of recently investigated organic reagents in the fields of general analytical chemistry and absorption spectroscopy, particular reference being made to the cases of "difficult" elements, such as beryllium and boron. The lecturer also gave brief accounts of recent developments in several analytical techniques of growing importance, for example, base exchange on synthetic resins and inorganic partition chromatography.

After the discussion, a vote of thanks proposed by Dr. K. R. Webb was accorded warmly by the large audience.

"Mechanism of Free-radical Reactions involved in Polymerisation," by Professor M. G. Evans, D.Sc., F.R.S.

A joint meeting with the Chemical Society of University College, was held in the Physics Department of University College on December 3rd, 1948, with Mr. E. Cartmell in the Chair.

Professor Evans first gave a general picture of the free-radical mechanism of polymerisation reactions and pointed out the separate stages which can be distinguished kinetically. He next surveyed briefly methods of free-radical production in non-ionic systems. Proceeding then to a consideration of free-radical formation in ionic electron-transfer reactions and the processes of polymer formation involving free radicals so produced, he gave a clear account of the mechanism and kinetics of polymerisations brought about by $\cdot\text{OH}$ radicals formed in the $\text{Fe}^{2+}-\text{H}_2\text{O}_2$ reaction.

The degree of correspondence between predictions arrived at from a consideration of the postulated mechanisms and actual experimental data was fully illustrated by slides.

A discussion followed, and a vote of thanks to Professor Evans, proposed by Mr. R. G. Wilkins, was accorded.

SOUTH WALES.

"The Structure of the Boron Hydrides and Similar Compounds," by Mr. R. P. Bell, M.A., F.R.S.

A joint meeting with the Chemical Society of University College, Swansea, was held in the Chemistry Department on November 15th, 1948, with Professor C. W. Shoppee in the Chair.

After reviewing the distribution of electron-deficient molecules with respect to the position in the periodic table of the atoms concerned, Mr. Bell discussed in some detail modern work relating to the structure of diborane.

After a discussion, a cordial vote of thanks to the Lecturer was proposed by Dr. Sykes and carried with acclamation.

"The Chemistry of Penicillin," by Professor Wilson Baker, M.A., D.Sc., F.R.S.

A meeting was held at University College, Cardiff, on November 18th, 1948, with Professor C. W. Shoppee in the Chair.

Professor Wilson Baker reviewed the degradational work, carried out in this country and the U.S.A., which led to the elucidation of the structure of Penicillin F and Penicillin G.

After a discussion a vote of thanks to the Lecturer, proposed by Dr. N. M. Cullinane, was carried with enthusiasm by the large audience.

LIST OF APPLICATIONS FOR FELLOWSHIP

(*Fellows wishing to lodge objections to the election of these candidates should communicate with the Honorary Secretaries within ten days of the date of publication of the Journal for December, 1948. Such objections will be treated as confidential. The forms of application are available in the Library.*)

- ***Abadir, Boushra Jacob**, B.Sc. (Farouk I Univ.). Egyptian. Chemistry Department, The University, Glasgow. Research Student. *Signed by* : William Hopkin, James D. Loudon, J. W. Cook.
- ***Allner, David**. British. 122, Leigh Road, Eastleigh, Hants. Student, University College, Southampton. *Signed by* : K. R. Webb, W. V. Blakey, N. B. Chapman.
- ***Almond, Clifford Younger**, B.A. (Cantab.). British. 23, Morpeth Avenue, South Shields. Student, Cambridge University. *Signed by* : F. G. Mann, A. W. Johnson, L. J. Haynes.
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* Reduced annual subscription.

PAPERS RECEIVED

List of papers received between November 15th and December 9th, 1948. (This list does not include the titles of papers which have been read at a Scientific Meeting or which have appeared in the *Journal*.)

- "Deoxypentose nucleic acids. Part IV. The electrophoresis of the deoxypentose nucleic acid of calf thymus." By J. M. CREETH, D. O. JORDAN, and (the late) J. M. GULLAND.
- "Deoxypentose nucleic acids. Part V. An attempted interpretation of the electrophoretic mobilities of the deoxypentose nucleic acid of calf thymus." By J. M. CREETH and D. O. JORDAN.
- "Deoxypentose nucleic acids. Part VI. Electrometric titration of the acidic and basic groups of the deoxypentose nucleic acids of lamb thymus and herring sperm." By D. J. COSGROVE and D. O. JORDAN.
- "Action of Grignard reagents on photo-peroxides of 9:10-diarylanthracene." By A. MUSTAFA.
- "Steric hindrance in analytical chemistry. Part I." By H. IRVING, E. J. BUTLER, and M. F. RING.
- "Chemistry of the *Coprosma* genus. Part IV. The non-glycosidic anthraquinone compounds from *Coprosma lucida*." By L. H. BRIGGS and G. A. NICHOLLS.
- "Chemistry of the *Coprosma* genus. Part V. The anthraquinone colouring matters from *Coprosma acerosa*." By L. H. BRIGGS and B. R. THOMAS.
- "Studies on hydrogen cyanide. Part XVI. The alleged resorcylaldimine hydrochloride." By L. E. HINKEL and R. P. HULLIN.
- "Oxidation of some simple carbohydrates by periodate in phosphate and other buffers." By D. J. BELL, ANNE PALMER, and (in part) A. T. JOHNS.
- "The application of the method of molecular rotation differences to steroids. Part X. 'β-Dihydroergosterol.'" By D. H. R. BARTON, J. D. COX, and N. J. HOLNESS.
- "The conversion of sucrose into pyridazine derivatives. Part VI. The behaviour of 3-pyridazone and its derivatives towards aldehydes." By HILDA GREGORY, JOAN HILLS, and L. F. WIGGINS.
- "Synthesis of 1-aryl-4:5-dihydroglyoxalines." By M. W. PARTRIDGE and H. A. TURNER.
- "The intracellular mode of action of the sulphonamide derivatives. Some condensation products of reductone. Part I." By E. A. BELL, W. COCKER, and R. A. Q. O'MEARA.
- "The colorimetric measurement of pH, and the dissociation constants of the malonates of some bivalent metals." By D. I. STOCK and C. W. DAVIES.
- "Reformatsky reactions with methyl 3-bromocrotonate." By E. R. H. JONES, D. G. O'SULLIVAN, and M. C. WHITING.
- "Unsaturated lactones. Part II. (Researches on acetylenic compounds. Part XIX.) Reactions of the esters of αβ-acetylenic hydroxy-acids with nucleophilic reagents." By E. R. H. JONES and M. C. WHITING.
- "Studies on compounds related to auxin-a and auxin-b. Part I. (Unsaturated lactones. Part III.)" By E. R. H. JONES and M. C. WHITING.
- "The suggested identification of *cis*-azobenzene with an equimolecular mixture of hydroazobenzene and azoxybenzene." By R. J. W. LE FÈVRE and P. SOUTER.
- "Naturally-occurring quinones. A synthesis of droserone." By R. H. THOMSON.
- "The structure of inorganic oxy-acids: the crystal structure of selenious acid." By A. F. WELLS and M. BAILEY.
- "The chemistry of fungi. Part VII. Syntheses of citrinin and dihydrocitrinin." By N. J. CARTWRIGHT, A. ROBERTSON, and W. B. WHALLEY.
- "The chemistry of the 'insoluble red woods.' Part III. The structure of santal and a note on orobol." By A. ROBERTSON, C. W. SUCKLING, and W. B. WHALLEY.
- "Studies in the azole series. Part XV. The reactivity of 4-ethoxymethylene-5-thiazolones and -oxazolones." By A. H. COOK, G. HARRIS, and G. SHAW.
- "Studies in the azole series. Part XVI. Synthesis of a new analogue of penicillamine." By J. D. BILLIMORIA, A. H. COOK, and SIR IAN HEILBRON.

- "Studies in the azole series. Part XVII. The preparation and cyclisation reaction of aminocynoacetamide." By A. H. COOK, SIR IAN HEILBRON, and E. SMITH.
- "Studies in the azole series. Part XVIII. The interaction of α -amino-nitriles and carbon oxysulphide." By A. H. COOK, SIR IAN HEILBRON, and G. D. HUNTER.
- "The preparation of diacridyl by reacting 5-chloroacridine with chromous sulphate." By R. ROYER.
- "Bacteriostasis in the amino-acid series. Part II. Further studies with alanine derivatives." By D. F. ELLIOTT and SIR CHARLES HARRINGTON.

ADDITIONS TO THE LIBRARY

I. Donations

BARY, P. Les origines de la chimie colloïdale. A. Baudrimont (1806—1880). Paris [1928]. pp. 78. ill. (*Recd.* 3/12/48.)

From Dr. W. Clayton.

BRITISH OXYGEN CO., LTD. Oxygen: its potentialities in iron and steel production. London 1948. pp. v + 52. ill. (*Recd.* 19/11/48.)

From the Director.

EPHRAIM, F. Inorganic chemistry. 5th edition. By P. C. L. THORNE and E. R. ROBERTS. London 1948. pp. xii + 939. ill. (*Recd.* 2/12/48.)

From the Publishers: Messrs. Gurney & Jackson.

FAHRION, W. Die Fabrikation der Margarine, des Glycerins und Stearins. Berlin 1920. pp. 135. (*Recd.* 3/12/48.)

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FIAT REVIEW OF GERMAN SCIENCE 1939—46. General metallurgy. By M. HANSEN [and others]. Wiesbaden 1948. pp. [viii] + 295. (*Recd.* 1/12/48.) (Two copies.)
From the Department of Scientific and Industrial Research.

INSTITUT INTERNATIONAL DE CHIMIE SOLVAY. Septième Conseil de Chimie, 1947. Rapports et discussions sur les isotopes. Bruxelles 1948. pp. 411. ill. (*Reference.*)

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LANG, V. Die Fabrikation der Kunstbutter (Margarine) Kunstspeisefette und Pflanzenbutter. 5th edition. Wien 1923. pp. viii + 160. ill. (*Recd.* 3/12/48.)

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II. By Purchase

BOOTH, A. D. Fourier technique in X-ray organic structure analysis. Cambridge 1948. pp. viii + 106. ill. Camb. Univ. Press. 12s. 6d. (*Recd.* 9/12/48.)

BROGLIE, L. DE. Licht und Materie. 6th edition. (Ergebnisse der Neuen Physik.) Hamburg 1944. pp. 329. Goverts. R.M. 9.60. (*Recd.* 3/12/48.)

BUCHAN, S. Rubber to metal bonding. London 1948. pp. xiv + 239. ill. Crosby Lockwood. 21s. (*Recd.* 9/12/48.)

COLD SPRING HARBOR. *Biological Laboratory*. Symposia on quantitative biology. Vol. XI. Heredity and variation in micro-organisms. New York 1946. pp. xii + 314. ill. (*Reference.*) \$6.00.

— — — Symposia on quantitative biology. Vol. XII. Nucleic acids and nucleoproteins. New York 1946. pp. xii + 279. ill. (*Reference.*) \$7.00.

CORRIE, F. E. Some elements of plants and animals. London 1948. pp. x + 120. Fertiliser J. 8s. 6d. (*Recd.* 9/12/48.)

COTTRELL, A. H. Theoretical structural metallurgy. London 1948. pp. viii + 256. ill. Arnold. 21s. (*Recd.* 9/12/48.)

CRUESS, W. V. Commercial fruit and vegetable products. 3rd edition. New York 1948. pp. x + 906. ill. McGraw. \$8.50. (*Recd.* 9/12/48.)

FLAGG, J. F. Organic reagents used in gravimetric and volumetric analysis. (Chemical analysis, Vol. 4.) New York 1948. pp. xiv + 300. ill. Interscience. \$6.00. (*Recd.* 9/12/48.)

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HEVESY, G. Radioactive indicators: their application in biochemistry, animal physiology, and pathology. New York 1948. pp. xviii + 556. ill. Interscience. \$9.00. (*Recd.* 9/12/48.)

HOPKINS, E. S. Water purification control. 3rd edition. Baltimore 1948. pp. x + 289. ill. Williams & Wilkins. \$4.00. (*Recd.* 9/12/48.)

JØRGENSEN, A. Micro-organisms and fermentation. 15th edition. By A. HANSEN. London 1948. pp. 589. ill. Griffin. 60s. (*Recd.* 9/12/48.)

LORIG, C. H., and ADAMS, R. R. Copper as an alloying element in steel and cast iron. New York 1948. pp. xii + 213. ill. McGraw \$3.00. (*Recd.* 9/12/48.)

MELVILLE, H. W. The chemistry of high polymers, and RIDEAL, E. K. Surface chemistry. Cambridge 1948. pp. 76. ill. Heffer. 10s. (*Recd.* 9/12/48.)

MINISTRY OF FOOD. Insect pests of food; the control of insects in flour mills. By J. A. FREEMAN and E. E. TURTLE. London 1947. pp. iv + 84. ill. H.M.S.O. 7s. 6d. (*Recd.* 9/12/48.)

MITCHELL, A. D. British chemical nomenclature. London 1948. pp. viii + 156. Arnold. 21s. (*Reference.*)

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