

JOURNAL OF THE NEW ZEALAND
INSTITUTE OF CHEMISTRY

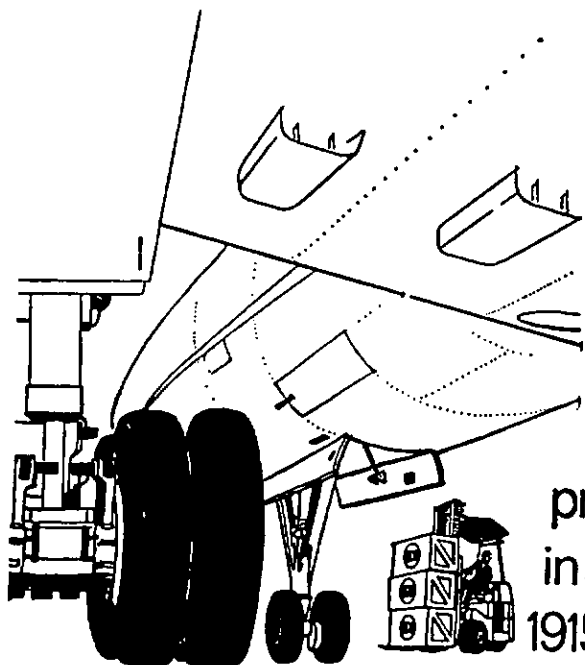
Vol. 29

No. 6

December

1965





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JOURNAL OF THE NEW ZEALAND INSTITUTE OF CHEMISTRY

Vol. 29, No. 6

DECEMBER, 1965

CONTENTS

	<i>page</i>
President 1965-66	217
Branch Chairmen 1965-66	218
Officers of Council	220
Branch Committees	221
Papers read before Branches	222
Minutes of Council Meeting, August 17	223
Minutes of Annual General Meeting, August 18	224
The Registry	226
List of Members	231

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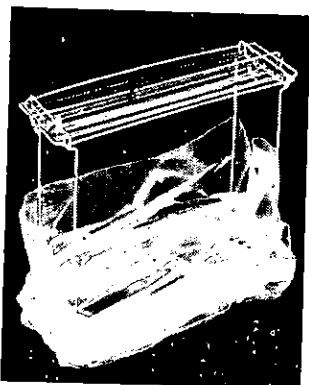
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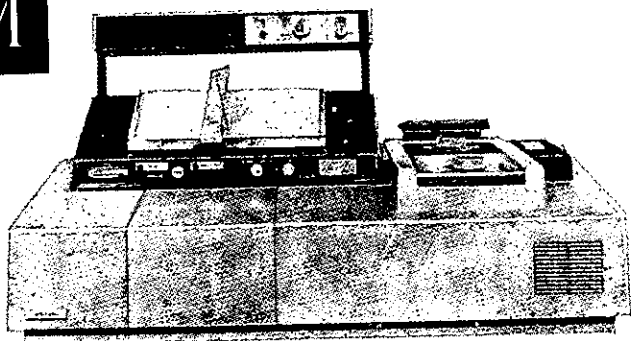
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D A R M S T A D T

JOURNAL OF THE NEW ZEALAND INSTITUTE OF CHEMISTRY

Vol. 29, No. 6

DECEMBER, 1965

PRESIDENT 1965 - 66

Dr A. T. Johns, M.Sc., Ph.D.(Cantab.), F.R.S.N.Z., F.N.Z.I.C., Director Plant Chemistry Division, Palmerston North, has been appointed to succeed Mr L. W. Tiller as Assistant Director-General on Mr Tiller's retirement from the Department in mid-January 1966.

Dr Johns was born at Amberley, North Canterbury. He graduated from Canterbury College with First Class Honours in Physical Chemistry and spent a time at the Dairy Research Institute working as a National Research Scholar with Dr C. R. Barnicoat.



He was with the New Zealand Army for five and a half years carrying out liaison duties for scientific purposes with the Australian Army, and was radar instructor at the School of Artillery, Melrose, Wellington. He saw active service with the Field Artillery in Italy.

Dr Johns attended Cambridge University from 1945-48, where he gained his Ph.D. for work on the biochemistry of bacteria. In this period he also worked in the A.R.C. Unit for Animal Physiology. He was a New Zealand delegate to the 1947 International Conference for Microbiology in Copenhagen.

On his return to New Zealand he joined Plant Chemistry Division, where his research has been in the field of biochemical processes involved in microbial digestion in the rumen of sheep and cattle, in particular on the causes of bloat in cattle and other metabolic diseases in ruminants.

As a Commonwealth Fund Fellow he carried out work on bacterial metabolism at the University of California at Berkeley during 1954-55. He was appointed Director of Plant Chemistry Division in 1956. In 1960 he was awarded a grant by the Rockefeller Foundation to visit and lecture in agricultural research institutions in the United States en route to the Eighth International Grasslands Conference in Reading, England.

Since 1964 Dr Johns has been Pro-Chancellor of Massey University of Manawatu. He had been a member of the Council for some years previously.

In January of this year he attended the Ninth International Grasslands Conference held in Sao Paulo, Brazil, and visited agricultural research institutions in several South American countries.

He is currently President of the Grasslands Association, New Zealand, and the Animal Production Society, in addition to being President of the New Zealand Institute of Chemistry.

BRANCH CHAIRMEN, 1965-66

CANTERBURY

The Canterbury Branch Chairman, Mr A. H. Wocff, was educated at Christ's College and Canterbury University College, graduating B.Sc. in 1942. Returning to the University in 1946 he gained the Diploma in Industrial Chemistry and then entered industry. After two years with Dominion Industries Ltd. (Asbestos Cement Division) he was with Carbonic Ice Ltd. until 1955. For the past ten years he has been on the staff of Christchurch Boys' High School where he has recently been appointed Head of the Science Department.



OTAGO

Dr M. H. Panckhurst graduated M.Sc. with first-class honours in chemistry from Canterbury University College in 1950. Working under Professor H. N. Parton he gained his Ph.D. in 1953, after which he was appointed assistant lecturer in chemistry at the University of Auckland. He went to the University of Oxford as a Shell Postgraduate Scholar at the end of 1953. Graduating D.Phil. in 1955 Dr Panckhurst stayed in Oxford for two further years as an I.C.I. Research Fellow before going to the chemistry department at the University of Toronto as the holder of an N.R.C. Post-Doctoral Fellowship. He was appointed lecturer at the University of Otago in 1959 where he is now Reader in Chemistry. His research interests are in the physical chemistry of electrolyte solutions. He was elected an Associate of the Institute in 1952 and a Fellow in 1964.



WELLINGTON



Professor J. F. Duncan, born and educated in England, was an undergraduate of Jesus College, Oxford, from 1939 to 1942. From 1942 to 1946, as a postgraduate student at Oxford, he worked on problems associated with the development of atomic energy. The next six years were spent at Harwell working on fluorine corrosion and the physical chemistry of ion exchange resins. During this time the textbook "Modern Radiochemical Practice" was produced under the co-ownership of Professor Duncan and Dr G. B. Cook.

In 1952 Professor Duncan was appointed to the staff of the Chemistry Department, Melbourne University, and as Reader in Radiochemistry he later initiated work on the chemical applications of Mössbauer spectroscopy.

In 1962 Professor Duncan was appointed to the Chair of Inorganic and Theoretical Chemistry at Victoria University of Wellington. In his short time at Victoria Professor Duncan has expanded the work on Mössbauer spectroscopy, developed new lines of research in the field

of solid state chemistry and has assisted in many ways in presenting chemistry at the secondary school level. The Wellington Science Fair resulted largely from his efforts.

Professor Duncan was elected a Fellow of the Institute in 1962 and has been a committee member of the Wellington Branch for the year 1964-65.

AUCKLAND

Dr G. A. Nicholls is re-elected. Details of his career were published in the December 1964 issue of the Journal.

WAIKATO

Mr N. Law graduated M.Sc. with 1st class honours in physical chemistry from Auckland University College in 1934. He went to the U.K. in 1936 where he worked for Boots Pure Drugs Co. Ltd, Nottingham, for 11 years. During this employment he was awarded a Fellowship by the Royal Institute of Chemistry and was sent to Imperial College where he received training in micro-chemistry. He was later appointed Chief Chemist to the Fine Chemicals Department.

He returned to New Zealand as Senior Chemist, D.S.I.R., in 1947, and was asked to establish a Defence Science Group within the D.S.I.R. in 1950, to undertake dehydration studies and organise a Meat Research team. He undertook bacon research for the N.Z. Bacon Curers' Association. In 1957 he was appointed Director of Meat Industry Research Institute of N.Z. He was made a Fellow of the N.Z.I.C. in 1950.

OFFICERS OF COUNCIL 1965 - 66

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Standards Institute Representatives: Mr G. A. Lawrence, Mr W. Joiner
Salary Survey and Professional Status: Dr B. Miller (convenor)
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BRANCH OFFICERS 1965-66

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Delegate to Council: Dr G. A. Nicholls
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Branch Auditor: Mr Stackman
Committee: Mr G. R. Goodey, Prof. D. Hall, Dr D. F. Nelson, Mr G. R. White

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Canterbury

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Otago

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Branch Editor: Dr L. W. Deady
Committee: Mr A. J. D. Robb (Immediate Past-Chairman), Prof. F. B. Cousins, Dr J. C. Dacre, Mr G. W. Emerson, Mr C. W. Thomson

PAPERS READ BEFORE BRANCHES, 1965

Auckland

- The Structure of Wheat Flour*, Dr P. Meredith.
My Lady's Hair Cosmetic, Mr J. H. Goodey and staff of Sonata Laboratories.
Chemistry in Criminology, Dr D. F. Nelson.
Adhesives Past, Present and Future, Dr R. F. Blomquist.
The Computer and the Chemist, Prof. D. Hall.
Crystallography as a Research Tool in Chemistry, Dame Kathleen Lonsdale.
A Research Programme at C.S.I.R.O., Mr I. E. Newnham.
Mössbauer Spectroscopy for the Chemist, Dr R. M. Golding.
 Additional Functions: Social evening during Science Congress; Visit to N.Z. Forest Products Ltd.

Waikato

- The Structure of Wheat Flour*, Dr P. Meredith.
Gas Chromatography, Dr E. Pawson.
Soil Resources of Trace Elements, Dr E. B. Davies.
Naturally Occurring Plant Growth Stimulants, Dr S. Letham.
Corrosion in the Dairy Industry, Mr F. R. Leighton.
Modern Chemistry Teaching, Mr R. C. McDonald.
Refractories—a Review for the Chemist, Mr W. Vose.
Scientific Serendipities, Dame Kathleen Lonsdale (public address under the auspices of the University of Waikato).

Manawatu

- Chemical Aspects of Dairy Research in other Countries*, Dr W. A. McGilivray.
Unusual Aminoacids in Plants, Dr P. Peterson.
Insecticide Production and the Chemist in Industry, Dr O. K. Sewell.
Forensic Toxicology, Mr P. J. Clark.
Stable Isotopes and Geochemistry, Dr J. R. Hulston.
Aspects of Imidazole Chemistry, Dr M. R. Grimmett.

Wellington

- The White Dwarf Stars*, Mr I. L. Thomsen.
Chemistry Applied to Forensic Science, Dr D. F. Nelson.
The Chemistry of Pinus Radiata, Dr D. J. Brasch.
Functions of Scientific Societies, (held jointly with the Wellington Branch of The Royal Society).
Upper Atmosphere Chemistry, Dr L. F. Phillips.
Scientific Serendipities, Dame Kathleen Lonsdale.
The Mellor Lecture: Isotopic Geochemistry, Mr T. A. Rafter.
The Chemistry of The Group IV Elements, Mr I. E. Newnham.
The Organisation of Science, (held jointly with the Wellington Branch of The Royal Society), Mr J. T. Andrews.
The Growing Industry in Organic Chemicals, Mr J. E. Cornish.
Some Recent Developments in Atomic Absorption Methods of Chemical Analysis, Dr A. Walsh.
 The following additional functions were also held: A Visit to the Animal Research Station, Wallaceville; Conversazione: The Teaching of Chemistry at Victoria University of Wellington.

Canterbury

- The Permanganate-Oxalate Reaction*, Prof. R. M. Noyes.
Research in Chemical Engineering at the University of Canterbury, Prof. S. R. Siemon.
The Al Electrode and its Relation to Corrosion, Mr W. B. Earl.
Mechanism of Action of Antibiotics, Prof. E. F. Gale, F.R.S.
Organic Photochemistry, Dr A. Fischer.
Chemical Aspects of Rayon Pulp Preparation from New Zealand Pulp-woods, Dr D. J. Brasch.
Ceramic Chemistry in a Research Association, Dr P. K. Foster.
Chemistry Teaching . . . Facts and Theories, Mr W. E. Dasant and Dr M. H. Panckhurst.
Natural Products Chemistry, Dr R. E. Corbett.
The Discovery of the Inert Gases, Dr A. Metcalf.
Macromolecular Goo, Dr A. J. Wicken.
Research into Industrial Problems of Air Pollution, Dr W. Strauss.
Some Chemical Systems, Messrs A. H. Wooff, T. R. Hitchings and N. M. Baird.

Otago

- Sodium and Potassium in Living Tissue*, Dr P. M. Wiggins.
Caulking Compounds and Sealants, (Chairman's Address), Mr A. J. D. Robb.
Ceramic Chemistry in a Research Association, Dr P. K. Foster.
Comparative Biochemistry of Detoxication Mechanisms, Prof. J. N. Smith.
Some Steric Effects in Naphthalene Derivatives, Prof. J. Packer.
Research Papers, Messrs E. G. Kelly, G. A. Lawrence and M. H. G. Munro.
Some Recent Discoveries in Synthetic and Natural Polymer Materials, Dr G. N. Malcolm.
Nuclear Reactors, Mr J. F. McCahon.

ABRIDGED MINUTES OF A MEETING OF THE COUNCIL OF THE NEW ZEALAND INSTITUTE OF CHEMISTRY (INC.) HELD AT ARANA HALL, DUNEDIN, ON TUESDAY, AUGUST 17, 1965, AT 10 A.M.

Present M. S. Carrie (2nd Vice-President, in the Chair), Dr G. R. White (Auckland), Dr E. B. Davies (Waikato), D. W. King (Manawatu), Dr P. P. Williams (Wellington), T. A. Mitchell (Canterbury), Dr J. C. Dacre (Otago), Miss J. M. Mattingley (Editor), D. J. Hogan (Registrar) and Dr W. E. Harvey (General Secretary).

Apologies Apologies were received from the President, Professor S. R. Siemon and the 1st Vice-President, Dr A. T. Johns.

Minutes The minutes of the meeting of Council held on June 2, 1965, were taken as read and confirmed.

Conference Dr Dacre reported briefly on final arrangements for the conference.

Journal The Registrar outlined the changed tax position with respect to Journal advertising which came about with the change in publishing arrangements. It appears that the Institute will be liable for tax on all advertising income, whether or not the Journal operates at a profit or a loss. It was agreed that the Registrar should discuss the position with the Institute's auditor.

Institute Prizes It was RESOLVED (2nd Vice-President, Secretary) THAT the Institute Prizes for 1965 be awarded as follows: I.C.I. Prize, Dr I. K. Walker; Morcom Green & Edwards Prize, Dr D. E. Wright; Chemical Essay Prize, Dr M. R. Grimmett.

Annual Report The Annual Report for the year ending 31 July, 1965, was tabled.

Balance Sheet The audited Balance Sheet and Statement of Accounts for the year ended April 30, 1965, was tabled.

Election of Officers The Secretary reported that on the closing date for nominations no nominations had been received for the office of 2nd Vice-President. After closing date Dr D. R. Llewellyn had been nominated. It was agreed that the situation should be explained to the Annual General Meeting and that nominations should be called for at that meeting to fill the office.

Examinations for Associateship RESOLVED (Secretary/Auckland) THAT each examiner appointed for the Associateship examinations in 1965 be paid a fee of £10/10/-. A letter relating to the examinations for the Associateship was referred to the Examinations Committee.

N.Z. Society of Scientific and Technical Publishing RESOLVED (Wellington/Canterbury) THAT the Institute apply for membership of the N.Z. Society of Scientific and Technical Publishing.

Standards Institute The Institute has been invited to nominate a representative to serve on the Non-ferrous Metals Sectional Committee, and one representative to serve on the committee relating to the petroleum industry to be set up by the N.Z. Standards Institute. It was agreed to approach Mr G. S. Lambert for the former appointment, and to discuss with Mr E. S. Borthwick possible nomination for the latter.

Instrument Survey RESOLVED (Secretary/Manawatu) THAT a copy of the instrument survey be sent to each laboratory that contributed to the survey, and to Branch Secretaries. RESOLVED (Canterbury/Manawatu) THAT Mr A. H. Horn be reimbursed the sum of £20, being expenses incurred in connection with the instrument survey.

Qualifications for Associateship RESOLVED (Secretary/Canterbury) THAT a B.Sc.(Hons.) degree or a M.Sc. degree, in Chemistry or Biochemistry, together with, in each case, one additional year spent in the study or practice of chemistry be accepted as qualification for election to the Associateship in terms of Rule 8.2.2. RESOLVED (Canterbury/Manawatu) THAT teaching of Chemistry in a Secondary School at any level be considered to satisfy the requirements relating to the "practice of the profession" in Rule 8.2.1.

MINUTES OF AN ANNUAL GENERAL MEETING OF THE NEW ZEALAND INSTITUTE OF CHEMISTRY (INC.) HELD AT THE UNIVERSITY OF OTAGO, DUNEDIN, ON WEDNESDAY, AUGUST 18, 1965, AT 3.30 P.M.

Present Professor S. R. Siemon, President, in the Chair and approximately 50 Fellows and Associates.

Apology An apology was received from Dr A. T. Johns (1st Vice-President).

Minutes The Minutes of the Annual General Meeting held in Hamilton August 27, 1964, were taken as read and confirmed.

Presidential Remarks The President referred to his absence from New Zealand for most of his term of office and thanked Dr Johns for acting in his place. The institution of the office of Second Vice-President had proved to be a valuable amendment to the Rules introduced to cover situations such as had arisen during his term of office. The President briefly commented on the steady increase in membership of the Institute and on the new arrangements for the publication of the Journal.

Institute Prizes The President announced that Institute prizes for 1965 had been awarded as follows: I.C.I. Prize, Dr I. K. Walker; Morcom Green & Edwards Prize, Dr D. E. Wright; Chemical Essay Prize, Dr M. R. Grimmett.

Officers The President announced that officers for the coming year would be as follows: President, Dr A. T. Johns; 1st Vice-President, Mr M. S. Carrie; General Secretary, Dr W. E. Harvey. At the time when nominations closed for the office of 2nd Vice-President no nominations had been received. Subsequently Dr D. R. Llewellyn had been nominated. The President called for further nominations and there being none it was **RESOLVED** (Chair/Secretary) **THAT** Dr D. R. Llewellyn be appointed 2nd Vice-President.

Annual Report The Annual Report for the year ended July 31, 1965, was received and adopted (Duncan/Shorland).

Balance Sheet The audited Balance Sheet and Statement of Accounts for the year ended April 30, 1965, was received and adopted (Chair/Secretary).

Honorary Fellows The President announced that Council acting in terms of the Rules had elected as Honorary Fellows, Mr W. A. Joiner, Professor J. Packer, Mr P. R. Parr and Dr F. G. Soper.

Mössbauer Conference Professor J. F. Duncan outlined tentative arrangements for the forthcoming conference on the Mössbauer effect and related topics, and sought the support of the Institute. **RESOLVED** (Keys/Shorland) **THAT** this meeting recommends to Council that it supports the forthcoming Mössbauer Conference in every way possible.

Public Relations Professor J. F. Duncan and others spoke briefly on the problem of establishing for the Institute a favourable public image. **RESOLVED** (Duncan/Campbell) **THAT** in future the Conference Committee prepared a short summary of the Conference programme for release to news media. **RESOLVED** (Keys/Duncan) **THAT** the meeting recommends that Council consider setting up a public relations committee.

Standards Organisation Mr G. A. Lawrence outlined the proposed organisation for the Standards Organisation. It was hoped that the proposals, which were patterned on the existing Australian Standards Organisation, would make it possible to recruit better qualified staff, so that more work could be carried out by officers of the organisation. The cost is estimated at approximately £100,000 per year and contributions would be sought from all interested bodies. **MOVED** (Keys/Shorland) **THAT** in view of the Government's decision to create an independent Standards Organisation in New Zealand, this Annual General Meeting authorises Council to make a contribution, not exceeding £100, to the funds of the organisation. **MOVED AS AN AMENDMENT** (Lawrence/Carrie) **THAT** the motion be amended to read "... authorises Council to make an annual contribution to the funds of the organisation". The **AMENDMENT** was put and **CARRIED**. The amended motion was then put and **CARRIED**.

Dr. F. J. Llewellyn **RESOLVED** (Chair/Duncan) **THAT** the meeting send a message of congratulation on his new appointment and good wishes to Dr and Mrs F. J. Llewellyn.

W. E. HARVEY,
General Secretary.

THE REGISTRY

The following members were elected November 10, 1965:

Fellowship

WICKEN, Anthony John, M.A. (Cantab.), B.Sc. (Hons), Ph.D. (Capetown), Biochemistry Department, Lincoln College, Lincoln, Canterbury. (*Senior Lecturer*).

Associateship

- ANDREWS, James, B.E. (Chem.), Skellerup Rotocure, P.O. Box 9553, Christchurch. (*Assistant Manager*).
- DAVIES, Brian Edward, B.Agr.Sc. (Dairy Tech.), Kaipara Co-op. Dairy Co., P.O. Box 20, Helensville. (*Assistant Manager*).
- DEVINE, Carrick Erskine, M.Sc., Wellcome Research Institute, Medical School, P.O. Box 913, Dunedin. (*Research Officer*).
- FREEMAN, Alan George, M.Sc., Ph.D. (Birm.), A.R.I.C., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Lecturer*).
- GIBBINS, Lawrence Norman, B.Sc. (Hons), Ph.D. (Birm.), A.R.I.C., Cawthron Institute, P.O. Box 175, Nelson. (*Thomas Cawthron Research Fellow*).
- HENTSCHEL, Peter Rudolph, M.Sc., Chemistry Division, D.S.I.R., P.O. Box 2112, Christchurch. (*Scientist*).
- INGRAM, David Ferguson, M.Sc., Central Research Laboratories, I.C.I.A.N.Z., Newson Street, Ascot Vale, W.2, Victoria.
- MILLER, Miss Helen Eleene, B.Sc., Dannevirke High School, P.O. Box 23, Dannevirke. (*Senior Chemistry Teacher*).
- MORTON, Alistair Stephen, M.Sc., Rutherford High School, Auckland. (*Head of Science Department*).
- ROBERTSON, John Gray, M.Sc., Plant Chemistry Division, D.S.I.R., Private Bag, Palmerston North. (*Scientist*).
- STEWART, Robert Carmichael, M.Sc., Manukau Purification Works, Island Road, Mangere, Auckland.
- WALKER, Michael Lawrence Galwey, B.Sc., 63 Dunster Street, Christchurch, 5.

CHEESEMAN-POND PRIZE

The Council of the Auckland Institute and Museum invites entries for the Cheesman-Pond Memorial Prize for award in February, 1966.

The prize, founded through a bequest from Mr J. A. Pond in commemoration of his friend Thomas F. Cheeseman, F.L.S., F.R.S.N.Z., will take the form of scientific books or scientific instruments suitably inscribed, to the value of £15, and shall be open for competition among members of a branch of the Royal Society of New Zealand or of an institution affiliated thereto or graduates or undergraduates of the Universities.

The prize will be awarded for the most meritorious paper or papers prepared and published by the candidate during the period of five years immediately preceding the date of his candidature in any of the subjects—Physics, Chemistry, Palaeontology, Botany or Zoology. No candidate shall be eligible for the prize if prior to such a period of five years he has published the result of any scientific research done by him.

Candidates shall on or before December 31, give notice to the Director of candidature and at the same time submit two copies of the publication or publications offered for the purposes of the competition.

E. G. TURBOTT, Director.

BRANCH NOTES

Wellington

Members of the Wellington Branch were privileged to hear a lecture on "Atomic Absorption Spectroscopy" from Dr A. Walsh of the Division of Chemical Physics, C.S.I.R.O., Melbourne. The lecture was preceded by an enjoyable buffet dinner provided for members by courtesy of Unilever (N.Z.) Limited.

Dr Walsh was the visiting speaker at a course on "Spectroscopic Methods of Analysis" held at Victoria University from the 19th to 20th October.

The Junior Members of the Wellington Branch held an October meeting when they were addressed by Dr F. B. Shorland, Director of the Fats Research Laboratory, on "Food and Population Problems".

Chemistry Division, D.S.I.R., celebrated their centenary by opening their laboratories to the public for one week. A total of over 8,000 people saw the successful culmination of months of hard work on the part of the staff of the laboratory. The difficult job of presenting a digestible form of chemistry for the public was extremely well done and Chemistry Division are to be congratulated on making an excellent contribution towards publicising the profession of chemistry.

Professor A. T. Wilson, known for his work on surface adsorption phenomena, leaves New Zealand in December to spend a sabbatical year with Professor R. F. Barrow, of Imperial College, London.

Dr R. A. Matheson, Senior Lecturer in Physical Chemistry at Victoria University, is at present overseas on sabbatical leave, working with Dr J. E. Prue at Reading University.

Canterbury

Professor C. H. Eaborn has returned to the University of Sussex, having spent six weeks at the University of Canterbury on an Erskine Fellowship.

Dr G. J. Wright has been awarded a Leverhulme fellowship and has left to spend a year working with Professor Eaborn at the University of Sussex.

Dr B. H. Robinson has taken up a post-doctoral fellowship at the University of Newcastle-upon-Tyne.

Mr B. H. Breach has transferred from Fletchers Ltd, Auckland, to Inca Ltd, Christchurch.

Dr D. A. R. Happer has returned to the University of Canterbury as a lecturer after working as a post-doctoral fellow at Brown University, Providence, Rhode Island, and at the University of North Carolina.

Dr W. M. Litchman, from the University of Utah, has taken up a post-doctoral fellowship in physical chemistry at the University of Canterbury.

Mr M. J. McEwan, having fulfilled the requirements for a Ph.D. at the University of Canterbury, has taken up a post-doctoral fellowship at York University, Toronto.

Mr P. Fitzgerald of Burnside High School has transferred to Southland Boys' High School as head of the science department.

The Shell Essay Prize of the Junior Chemical Society for 1965 has been awarded to A. J. Brown of Riccarton High School.

The Unilever Awards of the Junior Chemical Society have been won by P. Briggs, F. T. Greenaway, A. H. Macey and D. J. Jones.

The Kempthorne-Prosser Award, to the 1964 member of the J.C.S. gaining highest marks in the University Scholarship Examinations, has been awarded jointly to D. J. Blackstock and M. R. Dunne.

BOOK REVIEW

THERMAL METHODS OF ANALYSIS, Vol. 19, in a Series of Monographs on Analytical Chemistry and its Applications. By Wesley Min. Wedlandt. Published by Interscience, Sydney, 1964. 424 pages. Price £7/8/6.

The purpose of this book is to acquaint chemists and other investigators with the relatively new series of instrumental techniques which are broadly classified as "thermal methods".

The two most widely used thermal methods of analysis are thermogravimetric analysis (TGA) and differential thermal analysis (DTA). It is natural, therefore, that a consideration of these techniques should occupy over half the pages. The book assumes special interest because the author includes within one volume descriptions of numerous other thermal methods of analysis, viz. thermometric titrimetry, pyrolytic techniques, dynamic reflectance, spectroscopy, thermoluminescence, oxy-luminescence, dilatometry, electrical conductivity, melting point determination, heated infra-red gas cell and high-temperature x-ray diffraction. Many of these require apparatus of their own, but recently instruments have been modified to enable different analyses, e.g. DTA, TGA and dilatometric analysis to be performed simultaneously on a given sample. Whereas previously DTA and TGA in particular were used mainly on clays and inorganic substances, these are now applied more widely and are finding increased use in organic chemistry. This text should therefore be useful to workers in many branches of chemistry.

The book gives a clear account of the theoretical and experimental aspects of thermal analysis. It includes a description and criticism of a wide range of commercial instruments and gives numerous examples of applications of different methods of thermal analysis. Accounts of recent developments, such as the derivatograph in which weight change, rate of weight change and DTA curves are automatically recorded simultaneously are given. The various aspects of the subject are presented under headings which make information easy to locate. Over 600 references are quoted and the book contains 239 graphs or thermograms.

Lack of standardisation in terminology is evident on occasions, e.g. heating rates are generally given as °C per minute but sometimes as °C per hour. However, criticisms such as the above are minor indeed when one considers the book's value to investigators in providing them with one publication which covers so many aspects of thermal analysis.

R.A.K.

New Publications

Molecular Pharmacology, a new international journal, is a publication of the American Society for Pharmacology and Experimental Therapeutics. It is for the publication of results of investigations that elucidate mechanisms of drug action or of toxicity at the molecular level. Articles include those that describe applications of the methods of biochemistry, biophysics, genetics and molecular biology to pharmacological or toxicological problems. Fundamental investigations which are not concerned with drugs but which nevertheless provide an immediate basis for further study of the molecular mechanism of drug action will also be published.—Academic Press.

A new quarterly journal *Molecular Crystals* will publish original research papers dealing with molecular crystals and related topics such as crystallinity in polymers, liquid and radiation effects, optical and magnetic properties, surface phenomena etc.—Gordon and Breach Science Publishers.

National Bureau of Standards, U.S. Department of Commerce. *Standard Reference Materials; Sources of Information. Interrelations between Cement and Concrete Properties. Current Research on Archival Microfilm. Research on Crystal Growth and Characterisation at the National Bureau of Standards July-December 1964. National Standard Reference Data System—Plan of Operation. National Standard Reference Data Series—Thermal Properties of Aqueous Univalent Electrolytes.*

The British Sulphur Corporation Ltd. *World Survey of Sulphur Resources.*

International Conference

The fourth international IUPAC-Symposium on **The Chemistry of Natural Products**, to be held in Stockholm, June 26-July 2, 1966, will have sections on

- (1) Polysaccharides,
- (2) Structural elucidation of natural products other than macromolecular compounds,
- (3) Biosynthesis (excluding macromolecular substances),
- (4) Chemical taxonomy.

Over four hundred papers have been provisionally submitted to the symposium. The following main lectures will be given:

- G. O. Aspinall: The Exudate Gums and Their Structural Relationship to other Groups of Plant Polysaccharides,
A. R. Battersby: Aspects of Biosynthesis,
E. J. Corey: New Methods for the Construction of Complex Molecules,
K. Folkers: The Impact of Natural Product Chemistry in Medicine,
R. Hegnauer: Chemical Characters in Plant Taxonomy; some Possibilities and Limitations,
R. W. Jeanloz: The Chemical Structure of the Cell Wall of Gram Positive Bacteria,
P. Karlson: On the Chemistry of Insect Hormones and Insect Pheromones,
F. Lynen: Biosynthetic Pathways from Acetate to Natural Products,
K. Nakanishi: Structure and Chemistry of the Ginkgolides,
B. L. Turner: Chemosystematics and Phylogeny.

The second circular is expected to be ready for distribution in October. It will include forms for final applications. Their return is requested before February 1.

Correspondence: Dr (Mrs) G. Aulin-Erdtmann, General Secretary, Natural Product Symposium, Drottning Kristinas väg 53, Stockholm ö, Sweden.

Two smaller symposia will precede the meeting:

"Naturally Occurring Sulphur Compounds", Denmark, June 22-24 (ref. Prof. A. Kjaer, Bülowsvej 13, Copenhagen V, Denmark) and

"Carotenoids other than Vitamin A", Norway, June 23-25 (ref. Prof. N. A. Sorensen, NTH, Trondheim, Norway).

The 36th International Congress on Industrial Chemistry will be held in Brussels, Belgium, from September 10-21, 1966. The scientific programme includes papers on the organisation of research, technical problems of chemical industry, fuels, nuclear sciences, metallurgy, and industrial and social organisation. Sections will be included for the silicates, photographic, pharmaceutical, food, agricultural, and miscellaneous industries, as well as for petrochemistry and coal chemistry.

Further information may be obtained from: General Secretariat of the 36th International Congress on Industrial Chemistry, 49 Square Marie-Louise, Brussels, 4, Belgium.

**ORGANIC CHEMIST, DEPARTMENT OF SCIENTIFIC AND
INDUSTRIAL RESEARCH, FRUIT RESEARCH DIVISION,
AUCKLAND**

Applications are invited for the above post. The minimum qualification is an Honours degree in Chemistry, but research experience or a Ph.D. would be an advantage. Applicants completing a degree shortly will definitely be considered. An interest in synthetic methods is essential.

The applicant would be required to synthesise new compounds with potential activity in promoting cell division in plant tissues. Collaboration in the isolation and identification of naturally-occurring stimulants of cell division might also be undertaken.

Commencing salary would be in the range £1100-£2045 according to qualifications and experience. An outstanding officer could in time proceed to a maximum of £3100.

Applications, which close on 14 January 1966, should be addressed to:

The Director
Fruit Research Division,
D.S.I.R., Private Bag,
AUCKLAND, NEW ZEALAND.

Applicants should preferably use form PS.17A, obtainable from Post Offices, and should enclose copies only of testimonials and quote vacancy number 4712+.

Assistance towards expenses will be given to a married man required to move his household.

LIST OF
MEMBERS
1965

LIST OF MEMBERS, 1965

This year the "List of Members" has been reset. The opportunity has been used to tidy up an increasing number of inconsistencies. Some members will find that their degrees, titles, and addresses have been rearranged. Academic honours have been ranked in ascending order, as has been the membership of learned bodies. Any member who considers the ranking a little arbitrary is asked to protest in time for the 1966 list.

Wherever possible the business address has been the preferred listing, followed by the member's position within the organisation. There has been some difficulty with those who have asked that their various directorships be detailed. This has been done but there is some concern over the principle of listing a multiplicity of occupations. It also seems inconsistent to list a member as retired then to quote a fresh occupation. Comments on these points would be welcomed.

Changes are surprisingly numerous. This year's 160 or so requested changes are no more than usual. Revisions are made up to the time the galley proofs are corrected.

The changes often reveal interesting trends. Visits to industry by management consultants produce rushes of new titles. Witness the growing collection of chemists who have become "Assistant to Manager", "Production Manager", and "Technical Manager". Only vigorous protest saved this chairman from transmogrification into a "Development Manager". Management consultants love "Development" almost as much as "Manager". Members who may be curious about this increasingly influential body of people will find that Parkinson treats consultants' activities very sagely in his book "In-laws and Out-laws".

The State Services Commission appellations are no better. The List of Members aims at showing the member, the qualifications, the employer, and the nature of the employment. For the latter requirement "Development Engineer" is vague enough but "Scientist" is useless.

Members who are inspired to invention by this homily are reminded that they must forward their corrections of their own free will for 1966. Not until 1967 will they again be confronted with their proposed listing in cold print on a neat card.

J. S. POLLARD, Chairman, List of Members Committee.

ABBREVIATIONS USED

- A. Aust. I. M. M.—Associate, Australasian Institute of Mining and Metallurgy.
- A. C. G. I.—Associate, City and Guilds Institute, London.
- A. G. I. T.—Associate, Gordon Institute of Technology, Geelong, Victoria, Australia.
- Agr. L.—Licentiate of Agriculture.
- A. I. B.—Associate, Institute of Brewing.
- A. I. M.—Associate, Institution of Metallurgists.
- A. J. M. L. T.—Associate, Institute Medical Laboratory Technology.
- A. J. M. M.—Associate, Institution of Mining and Metallurgy.
- A. Inst. P.—Associate of the Institute of Physics.
- A. M. I. Chem. E.—Associate Member, Institution of Chemical Engineers.
- A. M. I. Mech. E.—Associate Member, Institution of Mechanical Engineers.
- A. M. Inst. F.—Associate Member, Institute of Fuel.
- A. M. Inst. Gas E.—Associate Member, Institution of Gas Engineers.
- A. M. N. Z. I. E.—Associate Member, New Zealand Institution of Engineers.
- A. M. T. C.—Associate, Melbourne Technical College.
- A. N. Z. E. I.—Associate, New Zealand Electronics Institute.

- A.N.Z.I.M.—Associate, New Zealand Institute of Management.
A.N.Z.I.R.E.—Associate, New Zealand Institute of Refrigeration Engineers.
A.N.Z.I.W.—Associate, New Zealand Institute of Welding.
A.N.Z.L.A.—Associate, New Zealand Library Association.
A.O.S.M.—Associate, Otago School of Mines.
A.R.A.C.I.—Associate, Royal Australian Chemical Institute.
A.R.A.N.Z.—Associate, Registered Accountant, New Zealand.
A.R.C.S.—Associate, Royal College of Science.
A.R.I.C.—Associate, Royal Institute of Chemistry.
A.S.T.C.—Associate, Sydney Technical College.
A.T.I.—Associate, Textile Institute.
- B.A.—Bachelor of Arts.
B.Agr.Sc.—Bachelor of Agricultural Science.
B.Agr.Sc. (Dairy Tech.)—Bachelor of Agricultural Science, Dairy Technology Option.
B.Chem.E.—Bachelor of Chemical Engineering.
B.Com.—Bachelor of Commerce.
B.E.—Bachelor of Engineering.
B.E. (Chem.)—Bachelor of Chemical Engineering.
B.H.Sc.—Bachelor of Home Science.
B.Med.Sc.—Bachelor of Medical Science.
B.Sc.—Bachelor of Science.
- Cand. and Doct. Exam.—Candidaats and Doctoraal Examination (Amsterdam).
C.B.E.—Commander of the Order of the British Empire.
Ch.B.—Bachelor of Surgery.
C.O.P.—Certificate of Proficiency.
C.O.P.H.L.P.—Certificate of Proficiency, Hospital Laboratory Practice.
- Dip.Bact.—Diploma in Bacteriology.
Dip.Chem.Eng.—Diploma in Chemical Engineering.
D.D.S.—Doctor of Dental Surgery.
Dip.Ed.—Diploma in Education.
Dip.Ind.Chem.—Diploma in Industrial Chemistry (University of Canterbury).
Dip.Eng.Chem.—Diploma in Chemical Engineering.
Dip.N.Z.Lib.Sch.—Diploma, New Zealand Library School.
D.Crim.—Doctor of Criminology, University of California.
D.I.C.—Diploma, Imperial College of Science and Technology.
D.Phil.—Doctor of Philosophy.
D.Sc.—Doctor of Science.
- E.D.—Efficiency Decoration.
- Fil.dr.—Doctor of Philosophy.
F.I.M.—Fellow, Institution of Metallurgists.
F.I.P.H.E.—Fellow, Institute of Public Health Engineers.
F.Inst.F.—Fellow, Institute of Fuel.
F.Inst.S.P.—Fellow, Institute of Sewage Purification.
F.N.Z.I.M.—Fellow, New Zealand Institute of Management.
F.R.A.S.—Fellow, Royal Astronomical Society.
F.R.I.C.—Fellow, Royal Institute of Chemistry.
F.R.S.A.—Fellow, Royal Society of Arts.
F.R.S.N.Z.—Fellow, Royal Society of New Zealand.
- Ing.—Ingenieur. i.e. a University Practical Diploma at the Masterate level.
K.B.E.—Knight Commander of the Order of the British Empire.
LL.M.—Master of Laws.

- M.A.—Master of Arts.
 M.A.I.M.E.—Member, American Institute of Mining and Metallurgical Engineers.
 M.App.Sc.—Master of Applied Science.
 M.Aust.I.M.M.—Member, Australian Institute of Mining and Metallurgy.
 M.B.—Bachelor of Medicine.
 M.D.—Doctor of Medicine.
 M.H.Sc.—Master of Home Science.
 M.I.Chem.E.—Member, Institution of Chemical Engineers.
 M.I.Min.E.—Member, Institution of Mining Engineers.
 M.Chem.Eng.—Master of Chemical Engineering.
 M.Inst.F.—Member, Institute of Fuel.
 M.P.S.—Member, Pharmaceutical Society.
 M.R.S.H.—Member, Royal Society of Health.
 M.S.A.Chem.I.—Member, South African Chemical Institute.
 M.Sc.—Master of Science.
 Mus.B.—Bachelor of Music.
 O.B.E.—Officer of the Order of the British Empire.
 Ph.D.—Doctor of Philosophy.
 R.P.I.—Rensselaer Polytechnic Institute.

A

- ABERNETHY, Maxwell Henry, B.Sc., Pathology Department, Christchurch Hospital, Christchurch. (*Assistant Biochemist*). A.'65.
 ADAMS, Arthur Francis Reginald, M.Sc., Lincoln College, Lincoln. (*Senior Lecturer in Soil Science*). A.'39, F.'64.
 ADAMS, Dennis Beaumont, B.Sc., A.N.Z.I.M., BALM Paints (N.Z.) Ltd, P.O. Box 1009, Auckland. (*Works Manager*). A.'51.
 ADAMS, Dudley Erne, M.Sc., Auckland Grammar School, P.O. Box 9046, Newmarket, Auckland. (*Senior Chemistry Master*). A.'35.
 ADCOCK, David Smith, M.Sc., Ph.D., N.Z. Refining Co. Ltd, P.O. Box 44, Whangarei. (*Head, Operations Department*). A.'55.
 ADDIS-SMITH, Laurence Frederick, M.Sc.(Lond.), A.R.C.S., F.R.I.C., D.I.C., M.S.A.Chem.I., H. W. Lawrence and Son Ltd, Chemical Service Laboratory, P.O. Box 33, Johnsonville, Wellington. (*Managing Director*). F.'55.
 AGGETT, Frederick John, M.Sc., Ph.D., Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Lecturer*). A.'63.
 AIYAR, Krishna Ramchandran, B.Sc. (Nagpur), B.Agr.Sc. (Dairy Tech.), 16 Dharampet Extension, N. Ambazeri Road, Nagpur, India. A.'63.
 ALCHIN, John David, M.Sc., R. & W. Hellaby Ltd, P.O. Box 2193, Auckland. (*Industrial Chemist*). A.'63.
 ALCORN, Norman Patrick, M.Sc., A.R.I.C., Chemistry Division, D.S.I.R., Box 2112, Christchurch. (*Government Analyst*). A.'39.
 ALEXANDER, John Keith, B.Sc., B.E.(Chem.), Chief Mechanical Engineer's Office, New Zealand Railways, Wellington. (*Chemical Engineer*). A.'64.
 ALLAN, James Eric, M.Sc., Ruakura Agricultural Research Centre, Private Bag, Hamilton. (*Senior Principal Scientific Officer*). A.'51.
 ALLISON, Russell Morris, M.Sc., Ph.D.(Wis.), Plant Chemistry Division, c/o Crop Research Division, D.S.I.R., Private Bag, Christchurch. (*Officer in Charge*). A.'45, F.'62.
 ANDERSON, Bryan Frederick, M.Sc., Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Temporary Junior Lecturer*).
 ANDERSON, Colin McDonald, B.Sc., c/o Australian National Biological Standards Laboratory, Canberra A.C.T., Australia. A.'55.
 ANDERSON, Miss Roberta May, B.Sc., B.H.Sc., Dip.Ed., 20 Hamilton Avenue, Christchurch. (*Retired*). A.'47.

- ANDERSON, William Edwin, B.Sc., G. L. Bowron & Co. Ltd, King Edward Terrace, Christchurch 2. (*Chemist*). A.'52.
- ANDREW,, David Henry, B.Sc., Kiwi Fertilizer Co. Ltd, P.O. Box 105, Mccrinsville. (*Chief Chemist*). A.'62.
- ANDREWS, Ernest David, M.Sc., Wallaceville Animal Research Station, Private Bag, Wellington. (*Senior Principal Scientific Officer*). A.'46.
- ANDREWS, James, B.E.(Chem.), Skellerup "Rotocure", P.O. Box 9553, Woolston, Christchurch. (*Assistant Manager*). A.'65.
- ANDREWS, John Clark, M.Sc., Ph.D., F.R.I.C., A.M.I.Chem.E., Ivon Watkins Dow Ltd, P.O. Box 144, New Plymouth. (*Works Director*). Watkins Gardinol Chemicals Ltd. (*Director*). United Chemicals Ltd. (*Director*). A.'31, F.'36.
- ANGUS, Colin William, B.Sc., Unilever N.Z. Ltd, Petone. (*Chief Chemist*). A.'64.
- ANNETT, Harold Edward, O.B.E., B.Sc.,Agric.(Lond.), D.Sc.(Lond.), F.R.I.C., 21 Berkley Avenue, Hillcrest, Hamilton. (*Retired, formerly Indian Agricultural Service*). A.'31, F.'43.
- ANSLEY, Desmond Reginald, B.Sc., P.O. Box 1171, Hamilton. A.'59.
- APPLEYARD, Robert Ian, B.Sc., Union Carbide New Zealand Pty, Ltd, Gabador Place, Mt. Wellington, Auckland. (*Works Manager*). A.'54.
- ARCUS, Alexander Colvin, M.Sc., Ph.D., Medical Unit, The Princess Margaret Hospital, Christchurch. (*Research Biochemist*). A.'62.
- ARMSTRONG, Alan George, B.Sc., Ngata Memorial College, Ruatoria, via Gisborne. (*Teacher*).
- ASKEW, Henry Oscar, O.B.E., M.A., Ph.D.(Lond.), D.I.C., F.R.I.C., F.R.S.N.Z., New Zealand Breweries Ltd, Box 211, Wellington. (*Research Chemist*). A.'36, F.'37.
- AUSTIN, John Maurice, M.Sc., Ph.D., Chemistry Department, University of Canterbury, Private Bag, Christchurch. (*Senior Lecturer*). A.'53.
- AYLING, Herbert Sydney, M.Sc., Industrial Chemicals (N.Z.) Ltd, Panmure, Auckland. (*Chemist*). A.'46.

B

- BAILEY, Maurice Ross, M.Sc., 133 Salford Street, Invercargill. (*Science Teacher, James Hargest High School*). A.'58.
- BAILEY, Raymond Wellesley, M.Sc., Ph.D.(Birm.), Plant Chemistry Division D.S.I.R., Private Bag, Palmerston North. (*Senior Principal Scientific Officer*). A.'46, F.'62.
- BAIRD, Walter Norman, B.Sc., Dip.Ind.Chem., Shirley Boys' High School, Christchurch. (*Assistant Master*). A.'63.
- BAKER, Lewis Charles, M.Sc., W. Gregg & Co. Ltd, P.O. Box 956, Dunedin. (*Works Manager*). A.'46.
- BARCLAY, John Bernard, B.Sc., A. C. Hattrick (N.Z.) Ltd, P.O. Box 2359, Auckland. (*Factory Manager*). A.'58.
- BARKER, Geoffrey Herbert, M.Sc., Reid (N.Z.) Rubber Mills Ltd, Private Bag, Auckland. (*Chemist*). A.'48.
- BARNES, Fred, M.Sc., The Fletcher Industries Ltd, Mandeville Street, Riccarton, Christchurch 1. P.O. Box 1168, Christchurch. (*Development Officer*). A.55, F.'62.
- BARNES, James Francis, B.Sc., Alliance Freezing Co., P.O. Box 845, Invercargill. (*Works Manager*). A.'60.
- BARNICOAT, Cuthbert Richmond, D.Sc., Ph.D., (Minnesota), F.R.I.C., F.R.S.N.Z., Cawthron Institute, P.O. Box 175, Nelson. (*Director*). A.'31, F.'43.
- BARR, William Lyall, B.A., M.Sc., F.R.I.C., N.Z. Forest Products Ltd, Private Bag, Auckland, C.1. (*Research Chemist*). A.'31, F.'49.
- BARRACK, Bruce Graburn, B.Sc., c/o Nicholas Products Ltd, P.O. Box 12,061, Penrose, Auckland. (*Production Manager*). A.'57.

- BARTON, Allan Francis Murray, M.Sc., Ph.D., The University, Southampton, England. (*Post Doctoral Fellow*). A.'63
- BARTRUM, Miss Margaret Patricia, M.Sc., Chemistry Division, D.S.I.R., P.O. Box 2224, Auckland. (*Scientific Officer*). A.'41.
- BATHURST, Noel Anslow, M.Sc., Plant Chemistry Division, D.S.I.R., Private Bag, Palmerston North. (*Chemist*). A.'45.
- BATT, Richard Dean, M.Sc., Ph.D., M.A.(Oxon.), D.Phil.(Oxon.), F.R.I.C., Biochemistry Department, Massey University of Manawatu, Palmerston North. (*Professor of Biochemistry*). A.'55, F.'62.
- BAYLISS, Stuart Patrick, B.Sc., Ocean Beach Freezing Co. Ltd, Invercargill. (*Chemist*). A.'60.
- BEACHEN, John Frederick, M.Sc., Samson Paints Ltd, Patiki Street, Avondale, Auckland. (*Head Chemist*). A.'56.
- BEATH, George Bentley, M.A., Dip.Ed., A.I.Ed.(Lond.), Dunedin Teachers' College, Dunedin. (*Principal*). A.'33.
- BEATSON, Ian David, M.Sc., Watkins Gardinol Chemicals Ltd, P.O. Box 611, New Plymouth. (*Production Manager*). A.'65.
- BECK, John Richard, B.Sc., A.N.Z.I.M. (Dip.Ind.Management), N.Z. Breweries Ltd, Box 23, Auckland. (*Production Manager and Assistant Technical Manager*). A.'50.
- BELL, Muriel Emma, C.B.E., M.D., F.R.A.C.P., F.R.S.N.Z., 22 Ravenswood Road, Dunedin, S.W.I. (*Retired, formerly Director Nutrition Research Unit, Medical School*). F.'41.
- BELL, Raymond Douglas, B.Sc.(N.S.W.), Pinchin, Johnson & Co. Ltd, P.O. Box 7564, Kilbirnie, Wellington. (*Technical Manager*). A.'64.
- BETTY, Stewart Morris, B.Sc., Dip.Ind.Chem., Empire Rubber Mills Ltd, c/o Woolston P.O., Christchurch. (*Manager*). A.'52.
- BIELSCHOWSKY, Marianne, Ph.D.(Freiburg), Medical School, University of Otago, Dunedin. (*Chemist to Cancer Research Department*). A.'51.
- BIRRELL, Kenneth Stewart, M.Sc., A.R.I.C., Soil Bureau, D.S.I.R., Private Bag, Lower Hutt. (*Senior Soil Physicist*). A.'41.
- BLACKIE, William John, M.Sc., F.R.I.C., United Nations Mission, D.I.T. Building, Dacca 2, East Pakistan. (*F.A.O. Leader*). A.'33, F.'35.
- BLACKMAN, John Gary, M.Sc., Ph.D., Department of Pharmacology, Medical School, P.O. Box 913, Dunedin. (*Senior Lecturer*). A.'56.
- BLANC, Albert Damer Gibson, B.Sc., M.B., Ch.B., P.O. Box 91, Wanaka. (*Medical Practitioner*). A.'39.
- BLIGHT, Margaret Mary, M.Sc., c/o D. R. Blight, 1 Fortunatus Street, Wellington. (*Temporarily Overseas*). A.'62.
- BLOOM, Harry, Ph.D.(Lond.), D.Sc.(Melb.), D.I.C., F.R.A.C.I., Chemistry Department, University of Tasmania, Box 252C, Hobart, Australia. (*Professor*). A.'48, F.'60.
- BLUCK, Ross Steele, M.Sc., Mobil Oil New Zealand Ltd, P.O. Box 73, Petone. (*Chemist, Seaview Terminus*). A.'63.
- BODY, Denis Roger, M.Sc., Fats Research Division, D.S.I.R., P.O. Box 8021, Wellington. (*Scientific Officer, temporarily overseas*). A.'63.
- BOLLARD, Edward George, B.Sc., Ph.D.(Cantab.), F.R.S.N.Z., Fruit Research Station, D.S.I.R., Auckland. (*Plant Physiologist*). A.'53.
- BORREN, Albert Marinus, Chem. Doctorandus (Utrecht), Philips Electrical Industries of N.Z. Ltd, P.O. Box 5023, Naenae. (*Technical Director*). A.'63.
- BORTHWICK, Edwin Sloan, M.Sc., A.R.I.C., Shell Oil N.Z. Ltd, Box 2091, Wellington. (*Assistant Technical Adviser*). A.'36.
- BOSWELL, Colin Ralph, M.Sc., Biochemistry Department, Massey University of Manawatu, Palmerston North. (*Junior Lecturer*). A.'64.
- BOUSTRIDGE, William, B.Sc., Winstone Ltd, Auckland. (*Market and Economic Analyst*). A.'61.
- BOWYER, Stephen Bernard, 280 Mill Road, Otaki. (*Retired*). A.'31.

- BRASCH, Donald James, M.Sc., Ph.D.(Queen's), Chemistry Division, D.S.I.R., Private Bag, Petone. (*Senior Scientific Officer*). A.'59.
- BREACH, Barrie Hayes, B.Sc. A.'64.
- BREEN, John Newman, Stratford Dairy Co. Ltd, P.O. Box 97, Stratford. (*Chemist*). A.'61.
- BREWERTON, Hugh Victor, M.Sc., A.R.I.C., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Principal Scientific Officer*). A.'63.
- BREWIS, Andrew Strachan, B.E. (Chem.), B.Sc., Challenge Phosphate Co., Otahuhu. (*Works Manager*). A.'64.
- BRIDGMAN, Michael John, B.Sc., F.N.Z.I.M., N.Z. Wallboards Ltd, Christchurch. (*Manager*). A.'60.
- BRIGGS, Lindsay Heathcote, D.Sc., D.Phil.(Oxon.), F.R.S.N.Z., F.A.N.Z.A.A.S., Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Professor of Chemistry*). A.'33, F.'36.
- BROAD, Mrs. Patricia Wyndham, M.Sc., Marsden College, Wellington. (*Chemistry Teacher*). A.'63.
- BROOKER, Edgar George, M.Sc., Ph.D., Ivon Watkins Ltd, New Plymouth. A'48.
- BROOKER, Stanley George, M.Sc., Abels Ltd, Box 9012, Newmarket, Auckland. (*Chief Chemist*). A.'42, F.'48.
- BROOKS, Robert Richard, B.Sc.(Hons)(Bristol), Ph.D.(Capetown), A.R.I.C., Department of Chemistry and Biochemistry, Massey University of Manawatu, Palmerston North. (*Senior Lecturer*). A.'61.
- BROUGHTON, George Wilfred, B.Sc., McLeod Bros. Ltd, P.O. Box 908, Dunedin. (*Factory Manager*). A.'46.
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- BROWN, Mrs Kathleen Elizabeth, B.Sc., M.H.Sc., Nelson Girls' College. A.'49.
- BROWN, Lindsay Russell, B.Sc., Dip.Ind.Chem., Kempthorne Prosser Ltd, Wanganui. (*Assistant Works Manager*). A.'63.
- BROWNE, Gavin Fair, M.Sc. Chem Industries (N.Z.) Ltd, P.O. Box 5071, Naenac. (*Technical Manager*). A.'61.
- BROWNE, William Edward, B.Sc., Box 12,084, Auckland. (*Purchasing Officer, Lincoln Industries Ltd*). A.'49.
- BROWNING, Allen Ransome, B.Sc., c/o Fiji Development Co. Ltd, P.O. Box 161, Suva, Fiji. (*Company Manager*). A.'51.
- BRUCE, James Arthur, "Montrose", Kimpton Road, Papatoetoe, Auckland, P.O. Box 31, Papatoetoe. (*Technical Consultant, Fertilisers and Farmers' Raw Materials etc.*). A.'32.
- BRUCE, Leonard Wainwright, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Senior Scientific Officer*). A.'51.
- BRUNDELL, James Evans, M.Sc., A.R.I.C., Auckland Grammar School. (*Senior Chemistry Master*). A.'41.
- BURNETT, Kenneth Robert, B.Agr.Sc.(Dairy Tech.), Albertland Dairy Co. Ltd, Private Bag, Wellsford. (*Manager*).
- BURNS, Gary Robert, M.Sc., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Lecturer*). A.'62.
- BURNS, Mrs Janet Raby, M.Sc., 217 The Terrace, Wellington. A.'64.
- BURNS, Malcolm McRae, C.B.E., M.Sc., Ph.D.(Aberd.), F.R.S.N.Z., Lincoln College, Canterbury. (*Principal*). A.'37, F.'43.
- BURTON, Hugh Stephen Nicholas Hay, B.Sc., A.N.Z.L.A., National Library Service, Private Bag, Wellington. (*Head, Bibliographical Section*). A.'44.
- BUTCHERS, John Barnard, M.Sc., Hutt Valley High School, Lower Hutt. (*Head of Science Department*). A.'51.
- BUTLER, Graham Wesley, M.Sc., Fil.dr.(Lund.), F.R.S.N.Z., Plant Chemistry Division, D.S.I.R., Private Bag, Palmerston. (*Director*). A.'54, F.'63.

C

- CAIN, Bruce Frank, M.Sc., Ph.D., D.Phil.(Oxon.), British Empire Cancer Research Laboratory, Cornwall Geriatric Hospital, Auckland. (*Senior Cancer Research Fellow*). A.'53, F.'63.
- CALDER, Alfred John, M.Sc., Central Institute of Technology, Petone. (*Senior Chemistry Tutor*). A.'64.
- CAMBIE, Richard Conrad, M.Sc., Ph.D., D.Phil.(Oxon.), D.Sc., Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Associate Professor*). A.'57, F.'64.
- CAMPBELL, Alistair Shand, M.Sc., P.O. Box 52, Lincoln College, Canterbury. (*Lecturer in Chemistry*). A.'59.
- CAMPBELL, Arthur Derek, M.Sc., Ph.D., A.R.I.C., Chemistry Department, University of Otago, Dunedin. (*Reader and Microanalyst*). A.'49, F.'62.
- CAMPBELL, David Franklin, B.Sc., Rangiora High School, Rangiora, (*Head of Science Department*). A.'63.
- CANDY, Bruce James, M.Sc., Kelston High School, New Lynn, Auckland. (*Science Master*). A.'60.
- CARNEGIE, Patrick Robert, B.Sc.(Hons)(St. Andrews), Ph.D.(Aberdeen), The Russell Grimwade School of Biochemistry, University of Melbourne, Parkville, N.2., Vic., Australia. (*Senior Lecturer in Agricultural Biochemistry*). A.'59.
- CARR, Malcolm David, M.Sc., Ph.D.(Lond.), Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Lecturer*). A.'64.
- CARR, Robert Melville, M.Sc., Ph.D., D.I.C., Chemistry Department, University of Otago. (*Lecturer*). A.'58.
- CARRIE, Maxwell Stuart, M.Sc., F.R.I.C., A.M.I.Chem.E., The Canterbury Frozen Meat Co., Ltd, P.O. Box 2, Belfast, Christchurch. (*Chemist*). A.'36, F.'58.
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- CARTER, Denver Milton, B.Sc., Tokoroa High School, Tokoroa. (*Head of Science Department*). A.'60.
- CARTER, Garrick Neville, B.Sc., Professorial Unit, National Women's Hospital, Claude Road, Auckland S.E.3. (*Biochemist*). A.'64.
- CASTAING, Denis Reginald, M.Sc., Auckland Hospital, Auckland. (*Scientific Officer*). A.'65.
- CAUGHLEY, Frank Gordon, B.A., M.Sc., N.Z. Leather and Shoe Research Association, Private Bag, Lower Hutt. (*Research Officer*). A.'32.
- CAWLEY, Robert William, M.Sc., Wheat Research Institute, P.O. Box 1489, Christchurch. (*Director*). A.'49, F.'64.
- CHAMBERLAIN, George, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Chemist*). A.'44.
- CHAPMAN, Lewis Peter James, M.Sc., A.R.A.N.Z., Dairy Research Institute, P.O. Box 1204, Palmerston North. (*Chemist*). A.'48.
- CHAPPELL, Peter Lyndsey, M.Sc., A.R.I.C., Glaxo Laboratories (N.Z.) Ltd, P.O. Box 624, Palmerston North. (*Pharmaceutical Production Manager*). A.'51.
- CHARLTON, Philip Lewis Raymond, B.Sc., Department of Agriculture, Suva, Fiji. (*Senior Chemist*). A.'39.
- CHEESEMAN, Trevor Percival, M.Sc., Ph.D.(Auckland), Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Overseas*). A.'62.
- CHILDS, William Edward, B.Sc., B.A.L.M. Paints Pty, Ltd, P.O. Box 60, Clayton, Victoria, Australia. (*Chemist*). A.'50.

- CHRISTENSEN, Max Theodore, M.Sc., Ph.D., Department of Chemistry, University of Canterbury, Private Bag, Christchurch. (*Senior Lecturer*). A.'50.
- CLARE, Norman Trevor, M.Sc., LIN/SF Sheep Diseases Research Laboratories, Veteriner Bacteriologji Enstitusio, Pendik, Istanbul. A.'35, F.'47.
- CLARK, Percival James Comfort, M.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Deputy Director and Dominion Analyst*). A.'32, F.'61.
- CLARKE, John Graham, M.Sc., Dairy Research Institute, P.O. Box 1204, Palmerston North. (*Research Chemist*). A.'63.
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- COLEBROOK, Lawrence David, M.Sc., Ph.D., Chemistry Department, University of Rochester, Roch. 27, New York, U.S.A. A.'59.
- COLLETT, John Brian, B.Sc., Dip.Ed., Otaki College, Otaki. (*Teacher*). A.'65.
- COLLINS, Alfred Drew, J.P., M.Sc.(Manc.), Reckitt and Colman (New Zealand) Ltd, 71 Melrose Road, Mt. Roskill, Auckland, S.E.3. (*Chief Chemist*). A.'36.
- CONE, Edgar, M.Sc.(Lond.), D.I.C., A.R.C.S., A.R.I.C., H. W. Lawrence and Son Ltd, Chemical Service Laboratory, P.O. Box 33, Johnsonville, Wellington. (*Chemist*). A.'39.
- COOKE, Miss Alison Peavor, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Scientific Officer*). A.'48.
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- COOPER, David Edward, M.Sc., 7 Crescent Road, Epsom, Auckland S.E.3. (*Chemist, Auckland Farmers Freezing Co-op. Ltd*). A.'56.
- CORBAN, George Annis, B.Sc., Shortland Freezing Co. Ltd, Auckland. (*Chief Chemist*). A.'60.
- CORBETT, Robert Edward, M.Sc., Ph.D.(Cantab.), Chemistry Department, University of Otago, Dunedin. (*Reader*). A.'53, F.'60.
- CORDNER, George Denis, M.Sc.(Melb.), A.R.A.C.I., Fibremakers (N.Z.) Ltd, P.O. Box 3384, Auckland. (*General Manager*). A.'65.
- CORNES, John Julian Stephen, B.A., B.Sc., 148 Washington Avenue, Wellington. (*Retired*). A.'40, F.'49.
- CORNISH, John Edwin, B.Sc., A.R.A.C.I., I.C.I. (N.Z.) Ltd, P.O. Box 1592, Wellington. (*Technical Manager*). A.'63.
- COSGROVE, Mark McElroy, B.Sc., Central Institute of Technology, Petone. (*Biochemistry Lecturer*). A.'64.
- COTTON, Stephen Richard James, Laboratory, Auckland City Council, Town Hall, Auckland. (*Chief Analyst and Filtration Supervisor*). A.'53.
- COUP, Mestyn Robert, B.Sc., Ruakura Agricultural Research Centre, Private Bag, Hamilton. (*Biochemist*). A.'45.
- COUSINS, Frederick Barrie, M.Sc., Ph.D., University of Otago Dental School. (*Assistant Professor of Biochemistry*). A.'65.
- CRAIG, John Thorburn, B.Sc., Ph.D.(Edin.), Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Lecturer*). A.'63.
- CRAIGHEAD, Pat Wylie, M.Sc., N.Z. Plywood (S.I.) Ltd, Mandeville Road, Riccarton. (*Manager, Particle Board Factory*). A.'59.

- CREAMER, Lawrence Kenneth, M.Sc., Ph.D. (Cantuar.), The Dairy Research Institute, Palmerston North. (*Chemist*). (*Temporarily Overseas*). A.'62.
- CROTTY, Francis Patrick, M.Sc., Southland Frozen Meat Co., P.O. Box 839, Invercargill. (*Chief Chemist*). A.'63.
- CROWLEY, Bernard John, B.Sc., Merck, Sharp and Dohme (N.Z.) Ltd, P.O. Box 30342, Lower Hutt. (*General Manager*). A.'60.
- CROZIER, Henry William, M.Sc., Marathon Rubber Footwear Ltd, Christchurch. (*Chief Chemist*). A.'31.
- CRUMP, Miss Fay Hilton, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Scientific Officer*). A.'63.
- CURTIS, Neil Ferguson, M.Sc., Ph.D., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Senior Lecturer*). A.'65.
- CURTIS, Mrs Yvonne Margaret, M.Sc., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Junior Lecturer*). A.'63.

D

- DACRE, Jack Craven, M.Sc., Ph.D.(Lond.), Pathology Research Unit, Medical School, University of Otago, Dunedin. (*Senior Research Officer, M.R.C.*). A.'45, F.'58.
- DARBY, Francis Joseph, B.Sc., Ph.D.(Lond.), Chemistry Department, Victoria University of Wellington. (*Lecturer in Biochemistry*). A.'64.
- DASENT, Wilfred Effingham, M.Sc., Chemistry Department, Victoria University of Wellington, Box 196, Wellington. (*Senior Lecturer*). A.'51.
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- DAVIES, Miss Alma Margaret, M.Sc., New Plymouth Girls' High School, New Plymouth. (*Head of Science Department*). A.'64.
- DAVIES, Brian Edward, B.Agr.Sc.(Dairy Tech.), Kaipara Co-op. Dairy Co., P.O. Box 20, Helensville. (*Assistant Manager/Chemist*). A.'65.
- DAVIES, Edwin Braithwaite, M.Sc., Ph.D.(Aberd.), A.R.I.C., Ruakura Agricultural Research Centre, Private Bag, Hamilton. (*Senior Principal Scientific Officer*). A.'31, F.'52.
- DAVIES, Mrs Marjorie June, B.H.Sc., c/o Karitane Products Society, Melrose, Wellington. (*Chemist*). A.'58.
- DAVIS, Brian Reeve, M.Sc., Ph.D., D.Phil.(Oxon.), Chemistry Department, University of Auckland, P.O. Box 2175, Auckland. (*Senior Lecturer*). A.'55.
- DAVIS, Graeme Frear, M.Sc., C.O.P. (Hospital Laboratory Practice), Medical Laboratory, 127 Grafton Road, Auckland. (*Biochemist*). A.'55.
- DAVIS, Leslie Harold, M.Sc., 1 Lucknow Terrace, Wellington, N.5. (*Retired*). A.'31.
- DAWES, Stuart Neil, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Scientific Officer*). A.'54.
- DEADY, Leslie William, M.Sc., Ph.D.(Cantuar.), Chemistry Department, University of Otago, P.O. Box 56, Dunedin. (*Lecturer*). A.'65.
- DEARSLEY, William Leif Oram, B.Sc., N.Z. Breweries Ltd, Auckland. (*Brewing Chemist*). A.'64.
- DEARSLEY, William Leonard Melville, M.A.(Cantab.), Dominion Yeast Co. Ltd, Box 2106, Christchurch. (*Chief Chemist and Works Manager*). A.'31, F.'46.
- De BOER, Pieter Johannes, M.Chem.Eng.(Delft), International Paints of N.Z. Ltd, P.O. Box 7520, Kilbirnie, Wellington, E.5. (*Senior Chemist*). A.'54.

- DEMCHENKO, Mrs Zinaida, Ing. Chemist (Kharkov), N.Z. Pottery and Ceramics Research Assn, Private Bag, Lower Hutt. (*Scientific Officer*). A.'53.
- DEMCHENKO, Zosim, Ing. Chemist (Applied Sc.) (Kharkov), Griffin and Sons Ltd, P.O. Box 327, Lower Hutt. (*Chief Chemist*). A.'53.
- DEMPSEY, Basil John, Bitumix Ltd, Lunn Avenue, Auckland, E.2. (*Chief Chemist*). A.'63.
- DENMEAD, Colin Frank, B.Sc., Meat Industry Research Institute of N.Z. (Inc.), P.O. Box 617, Hamilton. (*Chemist*). A.'43.
- DENNIS, Rodney Arthur, B.Agr.Sc. (Dairy Tech.), Rangitaiki Plains Dairy Co., Edgcumbe, Bay of Plenty. (*General Manager, Production*). A.'57.
- DENNISON, Donald James, B.Sc., Wellington Meat Export Co. Ltd, P.O. Box 190, Wellington. (*Chief Chemist*). A.'65.
- DENNISON, John Scott, M.A., B.Sc., Dip.Ed., Otago Boys' High School. (*Science Teacher*). A.'60.
- DEVEREUX, Ian, M.Sc., Institute of Nuclear Sciences, D.S.I.R., Private Bag, Lower Hutt. (*Scientific Officer*). A.'64.
- DEVINE, Carrick Erskine, M.Sc., Wellcome Research Institute, Medical School, P.O. Box 913, Dunedin. (*Research Officer*). A.'65.
- DICK, David Andrew, M.Sc., Wilson's Malt Extract Co., Willowbank, Dunedin. (*Chemist and Brewer*). A.'32.
- DINGLEY, George, M.Sc., M.B.T. Products (N.Z.) Ltd, P.O. Box 12114, Auckland. (*Manager*). A.'40.
- DIXON, Joseph Keith, M.Sc., Ph.D. (Lond.), D.I.C., F.R.I.C., F.R.S.N.Z., Soil Bureau, D.S.I.R., Private Bag, Lower Hutt. (*Director*). A.'36, F.'41.
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- DOLBY, Richard Malcolm, M.Sc., Ph.D. (Lond.), The Dairy Research Institute (N.Z.), P.O. Box 1204, Palmerston North. (*Chief Chemist*). A.'48, F.'63.
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- DOROFÆFF, Francis Desmond, B.Sc., Ruakura Agricultural Research Centre, Private Bag, Hamilton. (*Senior Scientific Officer*). A.'47.
- DOWNES, Colin James, B.Sc. (Hons), Chemistry Department, University of Otago. (*Ph.D. Student*). A.'64.
- DRYDEN, John Willoughby, B.Sc., M.I.Chem.E., The Lactose Company of N.Z. Ltd, Kaponga R.D., Taranaki. (*Factory Manager*). A.'46.
- DUNCAN, James Francis, M.A., M.Sc., D.Phil., D.Sc., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Professor of Inorganic and Theoretical Chemistry*). F.'62.
- DUNCKLEY, Geoffrey Gordon, B.Sc., Nutrition Research Department, Medical School, P.O. Box 913, Dunedin. (*Research Officer*). A.'62.
- DUNCKLEY, James Vivian, B.Sc., Medical School, Pathology Department, University of Otago, Dunedin. (*Biochemist*). A.'51.
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E

- EARL, William Brian, B.Sc., B.E. (Chem.) (Hons), Chemical Engineering Department, University of Canterbury, Private Bag, Christchurch. (*Lecturer*). A.'62.
- EDSON, Norman Lowther, B.Med.Sc., M.B., Ch.B., Ph.D. (Cantab.), F.R.S.N.Z., Medical School, University of Otago, Dunedin, C.I. (*Professor of Biochemistry*). A.'37, F.'43.

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- ELDER, William Ross, M.Sc., Linwood High School, Aldwins Road, Christchurch. (*Head of Department of Biology*). A.'44.
- ELLIOTT, Malcolm John, M.Sc., BALM Paints (N.Z.) Ltd, P.O. Box 1009, Auckland. (*Head Chemist*). A.'63.
- ELLIS, Albert James, M.Sc., Ph.D., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Senior Principal Scientific Officer*). A.'54, F.'62.
- ELLISON, Miss Dorothy Jean, M.Sc., A.R.A.C.I., Abbotsleigh School, Wharoonga, Sydney, N.S.W. (*Senior Chemistry Mistress*). A.'32.
- ELPHICK, John Oliver, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Fuel Chemist*). A.'43.
- EMERSON, George West, M.Sc., Biochemistry Department, Medical School, P.O. Box 913, Dunedin. (*Lecturer*). A.'64.
- ENGEL, Graham Bernard, M.Sc., M.P.S., Department of Pharmacy, Medical School, P.O. Box 913, Dunedin. (*Lecturer in Pharmaceutics*). A.'64.
- ENGLAND, Brian Daysh, M.Sc., Ph.D.(Lond.), Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Associate Professor*). A.'60.
- ENTWISTLE, Mrs. Evelyn Ruth, B.Sc.(Hons), Ph.D.(St. Andrews), A.R.I.C., Chemistry Department, School of Home Science, University of Otago, P.O. Box 56, Dunedin. (*Lecturer in Textiles*). A.'62.
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- ESCHER, Wallace Lee, B.Sc., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Scientific Officer*). A.'63.
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F

- FARNSWORTH, Kenneth Richard, M.A., B.Sc.(Oxon.), Christ's College, Christchurch. (*Teacher*). A.'65.
- FASTIER, Frederick Noel, M.Sc., D.Phil.(Oxon.), F.R.I.C., Medical School, University of Otago, Dunedin, C.I. (*Associate Professor in Pharmacology*). A.'44, F.'61.
- FERGUSON, Jack Eric, M.Sc., Ph.D.(Lond.), Chemistry Department, University of Canterbury, Private Bag, Christchurch. (*Senior Lecturer*). A.'60.
- FIELDES, Morice, D.Sc., Soil Bureau, D.S.I.R., Private Bag, Lower Hutt. (*Senior Principal Scientific Officer*). A.'37.
- FIFE, Clifford Valment, M.Sc., Ph.D., Soil Science Department, Massey University of Manawatu, Palmerston North. (*Reader and Head of Department*). A.'33, F.'63.
- FISCHER, Alfred, M.Sc., Ph.D., Chemistry Department, University of Canterbury, Private Bag, Christchurch. (*Reader*). A.'55, F.'65.
- FITZGERALD, David Gerald, B.Sc., Imperial Chemical Industries (N.Z.) Ltd, P.O. Box 275, Lower Hutt. (*Production Supervisor*). A.'55.
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- FORRESTER, Alan McCallum, B.Sc., N.Z. Refrigerating Co. Ltd, Islington, Christchurch. (*Assistant Chemist*). A.'53.
- FORSYTH, John Charles, N.Z. Refrigerating Co. Ltd, Islington, Christchurch. (*Chief Chemist*). A.'31.

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- FREEMAN, Colin George, B.Sc.(Hons)(Cantuar.), Chemistry Department, University of Canterbury, Private Bag, Christchurch. (*Ph.D. Student*). A.'65.
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- FRIEBERG, George Frederick, A.R.A.C.I., 81 West End Road, Westmere, Auckland, W.2. (*Retired*). A.'31, Hon.M.
- FREITAG, Walter, M.Sc., B.P. (New Zealand) Ltd, Laboratory, P.O. Box 892, Wellington. (*Chief Chemist*). A.'60.
- FREYBERG, Ernest, B.Sc., Dip Chem.Eng.(Vienna), Batavian Rubber Co. Ltd, Birdwood Street, Featherston. (*Technical Manager*).
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- FUTTER, John Herbert, M.Sc., H. W. Lawrence & Son Ltd, P.O. Box 33, Johnsonville. (*Director*). A.'59.

G

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- GALE, Mrs Muriel Bertha, A.S.T.C.(Chem.), Reckitt & Colman Ltd, Rosebank Road, Auckland. (*Chemist*). A.'64.
- GALLAGHER, Ian Henderson Christopher, M.Sc., Low Temperature Research Station, Downing Street, Cambridge, England. (*Research Fellow*). A.'64.
- GALLAHER, Philip James, B.Sc., Fertiliser Manufacturers' Research Association, Otara Research Station, Otahuhu, Auckland. (*Chemist*) A.'48.
- GALLOWAY, Warren John, M.Sc., Ph.D.(Cantuar.). (*Overseas*). A.'62.
- GAMBLE, Thomas Palmer Jackson, B.Sc.(Hons)(Belfast), Pinchin, Johnson & Co. Ltd, Miramar, Wellington. (*Research Chemist*). A.'59.
- GAPPER, Harry Richmond, M.Sc., Peach Products Ltd, Otahuhu, Auckland, S.E.7. (*Chief Chemist*). A.'49.
- GARDNER, Kennett Hurst, N.Z. Standards Institute, Department of Industries and Commerce, Wellington. (*Technical Officer, Chemical*). A.'62.
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- GAY, Selwyn Roy, Southland Co-op. Phosphate Co., Box 849, Invercargill. (*General Manager*). A.'31.
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- GOODEY, John Hill, M.Sc., Consolidated Chemicals Ltd, New Lynn, Auckland. (*Chief Chemist*). A.'53.
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- GREGERSEN, Ben, B.Sc.(Dairy Tech.)(Copenhagen), M.S.A.(Toronto), Bacteriological Laboratory, Thos. Borthwick (A'sia) Ltd, Box 198, Feilding. (*Bacteriologist*). A.'63.
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H

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- HALL, Rorison Alexander, B.Sc., N.Z. Co-op. Dairy Co. Ltd, Matangi. (*Chemist*). A.'64.
- HALLIBURTON, Gavin Jack, M.Sc., A.N.Z.I.M., Johnson Wax (N.Z.) Ltd, P.O. Box 1673, Christchurch. (*Chemist and Factory Manager*). A.'50.
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- HINDMARSH, William Ewan, B.Sc., Export Leather Industries Ltd, Box 486, Taupo. (*Managing Director*). A.'60.
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- HOLLOWAY, John Thorpe, M.Sc., F.R.S.N.Z., Forest and Range Experimental Station, N.Z. Forest Service, Rangiora. (*Director*). A.'44.
- HOLMES, Alexander Colin, B.Sc., M.I.Chem.E., The Lactose Company of N.Z. Ltd, P.O. Box 424, Hawera. (*General Manager*). A.'39.
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- HORN, Alexander Huntly, M.Sc., Lincoln College, Canterbury. (*Officer-in-charge, Chemical Services*). A.'52.

- HORNBLOW, Marc Ferenc, B.Sc., S. W. Peterson and Co. Ltd., P.O. Box 19,041, Avondale, Auckland. (*Chemist*). A.'65.
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- HOUSE, Donald Alexander, M.Sc., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Temporarily Overseas*). A.'61.
- HOWARD, Bernard Hugh, B.Sc.(Hons)(Manc.), Ph.D.(Lond.), F.R.I.C., Lincoln College, Canterbury. (*Professor of Biochemistry*). F.'64.
- HOWARD, Dene Grenville, M.Sc., Shell Oil N.Z. Ltd, P.O. Box 1084, Auckland. (*Sales Technical Adviser*). A.'46.
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- HUBBARD, Peter John, B.Sc.(Lond.), G. W. Wilton Ltd, P.O. Box 1980, Auckland. (*Technical Officer*). A.'64.
- HUGHSON, Walter Gordon Mackenzie, M.Sc., F.Inst.F., Chemistry Division, D.S.I.R., Private Bag, Petone. (*Senior Fuel Chemist*). A.'31, F.'43.
- HUGILL, Archie James, B.Sc., Ph.D.(Birm.), Plastic Sheeting Division, Alex. Harvey & Sons Ltd, Ross Road, Otara. (*Chief Chemist*). A.'61.
- HULLETT, Ernest William, M.Sc., 10 Sunnyside Crescent, Pakuranga, Auckland. (*Retired, formerly Director Wheat Research Institute. Consultant*). A.'31, F.'43.
- HUNGERFORD, John Sealy, B.Sc., A.M.Inst.Gas.E., M.Inst.F., Wellington Gas Company Ltd, P.O. Box 6070, Wellington. (*Production Engineer*). A.'55.
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- HUNT, Ian Sinclair, M.Sc., A.N.Z.I.W., A.I.M., F.R.I.C., Chief of Division of Wood Preservation and Seasoning, National Forest Products Laboratory, Faculty of Forestry, University of the Andes, Apartado 231, Merida, Venezuela. A.'41, F.'61.
- HUNTER, George John Ernest, M.Sc., F.R.I.C., Medical School, University of Otago, Dunedin. (*Senior Lecturer in Biochemistry*). A.'40.
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J

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- JACKSON, Douglas Wright, B.Sc., Challenge Phosphate Co., Otahuhu, Auckland. (*Chief Chemist*). A.'57.
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- JOHNSON, Alexander Lawrence, M.Sc., Ph.D.(Rochester), Central Research Department, E. I. Du Pont de Nemours and Co. Inc., Wilmington 98, Del., U.S.A. A.'58.
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- JOHNSON, Colin Truscott, M.Sc., Union Carbide N.Z. Pty Ltd, Wellington. (*Project and Development Chemist*). A.'62.
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- LAWRY, Robert Courtney, M.Sc., Brightwater, Nelson. (*Managing Director, W. L. Lawry Ltd, Lime Manufacturers*). A.'44.
- LAWS, George Frederick, B.Sc., Ph.D.(Lond.), F.R.I.C., Hydatid Research Unit, Medical School, P.O. Box 913, Dunedin. (*Senior Research Officer*). F.'64.
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- LEONARD, John Henry, M.Sc., N.Z. Forest Products Ltd, Private Bag, Auckland. (*Research Chemist*). A.'60.
- LE QUESNE, Philip William, M.Sc., Ph.D.(Auckland), Chemistry Department, University of British Columbia, Vancouver 8, Canada. (*Post-doctoral Research Fellow*). A.'62.
- LETHAM, David Stuart, M.Sc., Ph.D.(Birm.), Fruit Research Division, D.S.I.R., Private Bag, Auckland. (*Principal Scientific Officer*). F.'65.
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- LLEWELLYN, Frederick John, B.Sc., Ph.D., D.Sc., Hon. LL.D. (Cantuar.), F.R.C., F.R.S.A., F.R.S.N.Z., P.O. Box 8035, Wellington. F.'47.
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- PITCAITHLY, Ngata Prosser, M.A., Dip.Ed. (*Retired, formerly Principal, Selwyn College*). A.'31.
- PICKERING, Frank Sydney, A.R.I.C., Ruakura Agricultural Research Centre, Private Bag, Hamilton. (*Scientific Officer*). A.'65.
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- POPPELWELL, Kenneth Bruce, Patent Office, Wellington. (*Patent Examiner*). A.'64.
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- RANKIN, Hugh McDougall, Dip.Ind.Chem. and Chem.Eng., A.S.T.C., N.Z. Breweries, P.O. Box 23, Auckland. (*Brewer*). A.'54.
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- RICHARDS, Nolan Earle, M.Sc., Ph.D., Reduction Research Division, Reynolds Metals Co., P.O. Box 191, Sheffield, Alabama, U.S.A. (*Director, Basic Research*). A.'54.
- RICHARDS, Peter Russell, M.Sc. (*Temporarily Overseas*). A.'64.
- RICHARDSON, George Maxwell, M.Sc., Ph.D.(Lond.), D.Sc.(Lond.), D.I.C., National Health Institute, 52-62 Riddiford Street, Wellington, S.1. (*Research Officer*). A.'49.
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- RIGG, Sir Theodore, K.B.E., M.Sc., M.A.(Cantab.), Hon.D.Sc.(W.A. and N.Z.), F.R.I.C., F.R.S.N.Z., 5 Taupata Street, Stoke, Nelson. (*Retired, formerly Director, Cawthorn Institute*). A.'31, F.'41, Hon.F.'56.
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- SINHA, Anandi Prasad, Vill Sosandi, P.O. Sonsa, Patna District, Bihar State, India. A.'61.
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- SLATER, Stanley Nelson, M.Sc., D.Phil.(Oxon.), F.R.I.C., Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Professor of Chemistry*). A.38, F.'49.
- SLEEMAN, Geoffrey Russel, M.Sc., Chemical Products (N.Z.) Ltd, (*Director*). A.'60.
- SMALL, Charles William, M.Sc., A.N.Z.I.M.L.T., Pathology Department, Greenlane Hospital, Auckland. (*Biochemist*). A.'63.
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- SMITH, John Norman, B.Sc.(Hons), Ph.D., D.Sc.(Liverpool), Chemistry Department, Victoria University of Wellington, P.O. Box 196, Wellington. (*Professor of Biochemistry*). F.'64.
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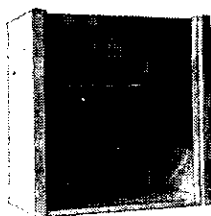
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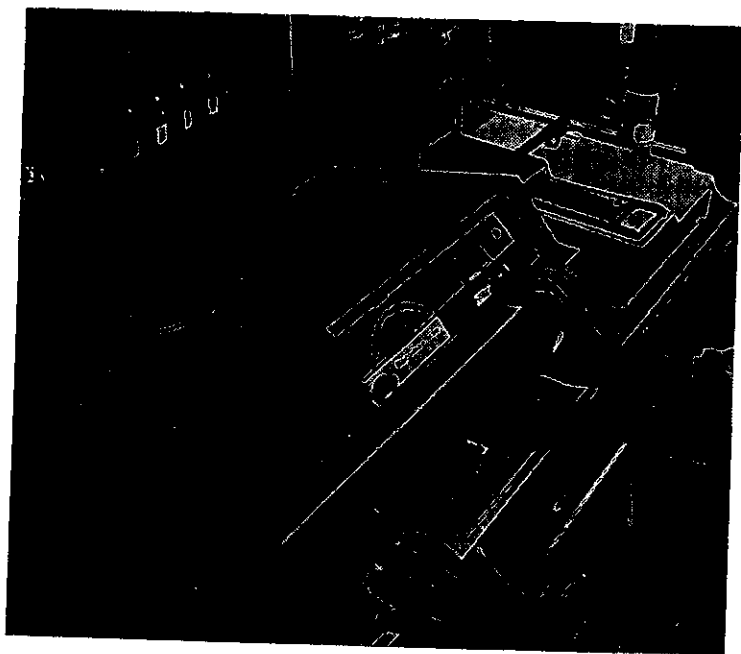
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