THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND

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PROCEEDINGS,

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PART III.

Issued under the supervision of the Proceedings Committee.

RICHARD B. PILCHER,
Registrar and Secretary.

30, RUSSELL SQUARE, LONDON, W.C. 1.
July, 1919.

Proceedings Committee, 1919-20.

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Proceedings of the Council.

APRIL—JUNE, 1919.

Ministry of Munitions.—The following letter has been received from Sir W. Graham Greene, of the Department of Explosives Supply, Ministry of Munitions :—

MINISTRY OF MUNITIONS OF WAR,
WHITEHALL PLACE, S.W. 1.
29*th April*, 1919.

SIR,—I am directed by the Minister of Munitions to state that he desires to take the opportunity, afforded by the termination of the activities of many of the Ministry Departments, to express his appreciation of the valuable assistance rendered to the Ministry by the Institute of Chemistry of Great Britain and Ireland. The task of the Department of Explosives Supply, especially in the early and more difficult stages of the organisation of His Majesty's Explosives Factories, was greatly facilitated by the aid given by the Institute in the recruiting of candidates suitable for training to fit them for the work of the Department; and the Ministry is also indebted for the assistance of the Institute in the recruitment of personnel qualified to undertake duties connected with the chemical side of the manufacture of explosives.

Lord Inverforth, in conveying on behalf of himself and his predecessors his thanks to the President of the Institute, desires to place on record his appreciation of the valuable services rendered by the Secretary.

I am, Sir,
Your obedient servant,
(Signed) W. GRAHAM GREENE.

To the Registrar and Secretary,
Institute of Chemistry of Great Britain and Ireland,
30, Russell Square, W.C.

General Purposes Committee.—The General Purposes Committee have had under consideration many matters of interest to Fellows and Associates, including a number of suggestions received from Local Sections.

BYE-LAWS.—The revision of the Bye-Laws has been under discussion, and the proposed alterations have been referred

to the Solicitors of the Institute. The revised draft will be forwarded to the Committees of Local Sections before it is submitted to an Extraordinary General Meeting of the Institute.

POLICY OF THE INSTITUTE.—The Council have received, through Dr. John McCrae, Honorary Corresponding Secretary of the Institute, Johannesburg, a letter expressing the opinions of Members in South Africa on the recent policy of the Institute, especially with regard to the admission of Fellows and Associates without examination and the fees applying to such cases. A reply has been forwarded to Dr. McCrae, dealing in detail with the points raised, which are summarised in the following abstract :—

Attention was directed to the publications of the Institute, in which reference is made to the new policy : (1) Proceedings : Part IV., 1917, pp. 7—15 ; (2) Part I., 1918 : the Report of the Council, pp. 9—12 ; (3) Part II., particularly Sir James Dobbie's Address (pp. 28—41) and the discussion at the Annual General Meeting (pp. 9—23) ; (4) Part III., the account of the Extraordinary General Meeting, pp. 9—46 ; and (5) Regulations (July, 1918), which embody the decisions of that meeting.

These publications show that the Institute in General Meeting decided to organise trained and competent British chemists in one body, both in their own interests and in those of the public. To effect this object, the Institute decided to elect to the Associateship candidates who had obtained approved degrees with honours in chemistry, or who produced evidence of having attained an equivalent standard of qualification in chemistry, physics, and allied subjects, and had subsequently proved their claim to be chemists by practical experience in one of the recognised branches of the profession. As a result there has been a very considerable access of strength to the Institute, which will undoubtedly add to its prestige and influence.

The applications are considered by the Nominations and

Examinations Committee before they come to the Council. The Committee consists largely of Fellows who have themselves been examined and who may be relied on to regard jealously the standard of evidence demanded.

The aim of the Institute in the whole matter has not been to acquire funds, but to organise the profession. Candidates elected to the Associateship are not required to pay Examination Fees, for the reason that they will be required to fulfil the new Regulations for the Fellowship, which (it may be anticipated) in most cases will necessitate passing an Examination, with payment of fees for the same, in addition to the usual Entrance Fees.

The increase of Members will not affect the finances of the Institute in such a way as to provide material surplus funds. Increased membership means additional expense, and even with the increased subscription, the balance of income over expenditure will be small under the present economic conditions and having in view the extension of the activities of the Institute.

There appeared to be an impression that the amount of the Life Compositions had been increased to pre-war Members of the Institute, but such was not the case.

The Council could hardly adopt the suggestion of imposing a levy on new Members, even if such levy were not outside the conditions stipulated when they made their applications, and no distinction could be made in the entries in the Register.

In the revision of the Bye-Laws the Council propose to consider the possibility of providing for voting powers to Members in Overseas Dominions or elsewhere abroad.

Advisory Work of the Institute.—The Council have directed that the Committees of Local Sections be informed from time to time with regard to educational and professional matters on which advice is sought by the public and by members of the profession from the office of the Institute. It is hoped that the Committees of Local Sections will be able in their respective districts to take an active part in making

known the aims of the Institute and in maintaining uniformity of procedure in professional matters.

RULES FOR LOCAL SECTIONS.—The rules for Local Sections are now about to be printed, and copies will be sent to each Local Section for distribution among its respective members.

CHEMISTS IN WAR.—The Chairman of the Proceedings Committee has been requested to investigate the possibility of preparing an account of the services of British chemists during the war. The General Purposes Committee have had before them a schedule of possible contents of a book on the subject, and preliminary arrangements have been made with Messrs. Constable & Co. to act as the publishers for the Institute. All chemists who are in a position to assist in this matter are invited to communicate with the Registrar.

Bearing on the subject of the services rendered by professional chemists in war, and having in view the discussion which took place at the Annual General Meeting, and questions raised in correspondence since received, the Council have appointed a Committee to consider jointly with a Committee of the Institute of Metals the position of chemists and metallurgists in the services and in the Reserve and the action to be taken towards securing for them due recognition and adequate status.

PROFESSIONAL CHEMISTS AND THE WHITLEY COUNCILS.—The General Purposes Committee have also dealt with this matter. Following on the correspondence reproduced in this Part of the Proceedings (pp. 15—17), Sir Robert Robertson, Vice-President, Mr. E. W. Voelcker, Honorary Treasurer, Mr. William Macnab and Mr. William Rintoul, Members of Council, and the Registrar were received, as representatives of the Institute, by Mr. G. J. Wardle, M.P., on behalf of Sir Robert Horne, at Montague House, Whitehall, on July 30th. The interview was arranged for a preliminary conference on the means to be adopted whereby the Institute may be of service to the Ministry and the Industrial Councils in connection with technical questions arising under the Whitley

Report, and at the same time act in an advisory capacity on matters affecting the interests of chemists. The views of the Committee were sympathetically received by Mr. Wardle who promised to discuss them with the Minister.

Public Appointments Committee.—(See p. 18.)

CHEMICAL APPOINTMENTS IN INDIA.—Chemists contemplating the acceptance of official appointments in India should be made aware of the circumstance that great importance is placed on the maintenance of the social standing of gazetted officers. The initial rate of pay should not in any case be less than Rs. 500 a month, and provision should be secured for annual increments of Rs. 50 a month up to Rs. 700, and thereafter the rate of pay should be not less than Rs. 750 a month with increments of Rs. 50 up to at least Rs. 1,500. The conditions generally should correspond with those of other professional appointments in the Indian Civil Service.

Canadian Institute of Chemistry.—The attention of the Council has been directed to the inauguration of the Canadian Institute of Chemistry, with headquarters at Montreal and with aims very similar to those of the Institute of Great Britain and Ireland. The founders proposed originally to adopt the style of the Institute of Chemistry of Canada. The Council, on hearing of the movement, conveyed their good wishes for the success of the new Institute, but suggested that, in order to avoid possible misunderstandings in the use of distinctive initials indicating membership, the title should be changed to the "Canadian Institute of Chemistry," to which the founders of the new Institute have cordially agreed. The Council congratulate the new organisation on its inauguration, and will be ready at all times to co-operate with it in the interests of chemists.

Nominations and Examinations Committee.—The Committee have discussed a suggestion that Colloid Chemistry should be introduced as a Branch of the Examination for the Associateship. The Committee held, that every properly trained chemist should have a good knowledge of this branch

of work, and that it would be possible for a Candidate to present himself for examination in Branch (*g*), Chemical Technology, offering a subject such as the technology of leather, rubber, etc., in which colloid chemistry plays an important part. The further consideration of the matter has been postponed for the present.

INTERVIEWING COMMITTEES.—In collaboration with the Committees of Local Sections, the Council have appointed Interviewing Committees to interview candidates who have presented applications to the Institute, and to report to the Nominations and Examinations Committee thereon. Such Committees have already conducted interviews at Birmingham, Glasgow, Edinburgh, Liverpool, Manchester and Newcastle-on-Tyne. The Nominations and Examinations Committee and the Council desire to acknowledge the valuable help which has thus been rendered.

REGULATIONS FOR ELECTION TO THE FELLOWSHIP.—(See p. 23.)

APPOINTMENT OF EXAMINERS.—The Board of Examiners for the present year has been appointed as follows :—

Chairman: Sir Herbert Jackson, K.B.E., F.R.S., President.
General Chemistry : Harold G. Colman, D.Sc.; Prof. Arthur W. Crossley, C.M.G., F.R.S.
Mineral Chemistry : G. Nevill Huntly, B.Sc., A.R.C.S.
Metallurgical Chemistry : Prof. Cecil H. Desch, D.Sc.
Physical Chemistry : J. E. Coates, O.B.E., M.Sc.
Organic Chemistry : Prof. J. F. Thorpe, C.B.E., F.R.S.
Chemistry (and Microscopy) of Food and Drugs, etc. : Bernard Dyer, D.Sc.
Therapeutics, Pharmacology and Microscopy : Prof. F. Gowland Hopkins, D.Sc., F.R.S.
Biological Chemistry : Arthur Harden, D.Sc., F.R.S.

The Examinations in Branch (*g*), Chemical Technology, will be conducted by the Chemical Technology Examinations Board.

House Committee.—The House Committee have put in hand necessary redecorating and have arranged for further fitments, both for the laboratories and for the office.

WAR MEMORIAL.—A design has been prepared for a memorial to Fellows, Associates and Students who have died in the service of their country, and the work will be put in hand when the Roll of Honour is known to be correct. Members and Students are requested to notify the Registrar of any error in or omission from the following list :—

James Watson Agnew.
John Love Strathearn Allan.
James Duncan Archibald.
James Scott Bainbridge.
Montague Samuel Baker.
John Edmund Bishop.
Gavin Boyd.
Joseph Arthur Brown.
Clarence Edward Butcher.
Norman Phillips Campbell.
George MacLellan Carruthers.
Stephen Hepworth Dennett.
Ralph John Dunn.
William Vivaish Eastman.
Kenneth Gordon Garnett.
Alexander Gemmell.
Stuart Wycliffe Goodwin.
Joseph Walter Harris.
Edward Frank Harrison.
Charles Oswald Haywood.
John Robertshaw Hill.
Richard Hofmeyr.
Simon James Jones.
Robert Gordon Kind.
Herbert King.
George William Moore.
Cyril John Nixon.
Thomas McIlvean Paterson.
Arnott Andrew Patterson.
John Howard Potter.
Julius Sefton Prince.
Albert Alexander Robinson.
Lawton Keir Rodger.
Kenneth Ross.
Ferribee Sadler.
Francis William Sanderson.
William Gilbert Saunders.
George Evanston Smith.
James Salsbury Smith.
Leslie Phillips Smith.
Guy Somerville Stewart.
Oliver John Stone.
John Holder Stearn.
Allan Robert Steele.
Edward Leslie Johnson Stockdale.
William Currie Taylor.
Arthur Guthrie Tye.
Harold Vernon.
Joshua Biram Crossley Wigfield.
Cyril George Williamson.
Thomas Wright.

Library Committee.—The Library Committee have been empowered to purchase books to the value of £50. A list of the recent addition is given in this Part (p. 34). The books are mainly standard works of reference and works on analytical chemistry required by candidates for the examinations at the Institute.

Metric Committee.—The Committee appointed by the Council to consider a pamphlet on the Metric and Decimal System prepared by the Conjoint Board of Scientific Societies has reported that they felt that chemists were brought perhaps more than other professional men into touch with the great advantages which the Metric System presents in that all the units are derived from and related to the fundamental unit of length. The great simplification of calculation and saving of time due to this appeared to the Committee to be of very great importance, and to form a very strong argument for the general adoption of the Metric System; and, whilst they hesitated dogmatically to state that its immediate compulsory adoption would be in all respects advantageous, they regarded it as eminently desirable that all possible steps should be taken to widen the sphere of its use.

In scientific work the metric system is already in general use, and the Committee recommended that chemists be urged to exert their influence to promote its extension.

As chemists, the Committee did not feel called upon, however, to make any pronouncement on the question of the adoption of a decimal system of coinage.

A copy of the Report has been forwarded to the Conjoint Board.

Lectures Committee.—Arrangements will be made for resuming the Lectures of the Institute in October. The chief object of the Lectures Scheme is to indicate to advanced students the scope and object of work actually carried out by professional chemists in various branches of practice.

Standards Committee.—With the sanction of the Council the Standards Committee convened a Conference, held at the

Institute on June 26th, to consider whether it is desirable to provide for the preparation and distribution of samples of pure chemical substances, ores, metals, etc., of ascertained composition, for use as standards in analytical work. The Conference was attended by representatives of the Federal Council for Pure and Applied Chemistry, the Chemical Society, the Society of Public Analysts, the Society of Chemical Industry, and the Institute of Metals.

On the understanding that the provision of standard samples of steel and iron had already been taken in hand by the Iron and Steel Institute, in conjunction with the National Physical Laboratory, and that the Institute of Metals and the National Physical Laboratory have under consideration the same problem with regard to non-ferrous metals, the attention of the Conference was directed mainly to the advisability of providing authoritative standard samples of other chemical substances and the steps to be taken to attain that object.

The President, in opening the Conference, related how the matter had been originally raised by Mr. Ridsdale in connection with the preparation of standard samples of iron and steel, and how the Standards Committee had thereupon been appointed. Dr. Dunn, the Chairman of the Committee, gave a *résumé* of the proceedings of the Committee, and referred to the provision of standard samples of various substances by the U.S.A. Bureau of Standards. Mr. Ridsdale informed the Conference of the progress made with regard to standard samples of iron and steel, and showed how they had not only been useful in practice, but had materially assisted in settling differences with regard to analytical results and had conduced to improvement in analytical methods. Dr. Rosenhain indicated that the National Physical Laboratory would probably take the matter up so far as it related to metals, both ferrous and non-ferrous, but that the Laboratory would not, for the present, be able to deal with other chemical standards. He mentioned also that the U.S.A. Bureau of Standards intended to extend its scheme.

In the course of the discussion which followed, the Conference agreed to the following conclusions :—

That the provision of standard chemical substances was desirable, for the general use of both chemists in practice and students ;

That, having regard to the fact that such standards could not be provided without reference to methods of analysis, the scheme should not aim at restricting the choice of methods, but always at their revision and improvement, thereby diminishing the chances of discrepancy in results. Incidentally, by this means, science will be advanced and accuracy more generally attained ;

That, in view of the importance of analysis in carrying out the scheme, the whole matter should be referred in the first place to the Society of Public Analysts, with the suggestion that the Society should

form a special Committee, on which representatives of the allied Bodies should be co-opted;

That the Society be asked to frame a scheme for the consideration of the Federal Council for Pure and Applied Chemistry, reporting on its practicability, the cost of the investigations involved, and the organisation generally;

That ultimately the scheme be submitted to the Department of Scientific and Industrial Research, and, if necessary, the support of the Conjoint Board of Scientific Societies should be asked to secure the co-operation of the Government in its fulfilment;

That, in the event of the Government placing the matter under official control, provision should be made for the co-operation in the scheme of the recognised Bodies concerned with chemistry and their respective members;

That copies of this Report be forwarded to the Federal Council for Pure and Applied Chemistry and the Councils of the Chemical Society, the Society of Chemical Industry, the Society of Public Analysts, and the Institute of Metals.

The Register.—The publication of the Register of Fellows, Associates and Students, which has been suspended during the war, has been unavoidably delayed owing to heavy pressure of other business; but it will be corrected to August 1st, and should be ready during that month. Alterations in addresses, etc., should be notified to the Registrar without delay.

Honorary Corresponding Secretaries.—The Council have appointed additional Corresponding Secretaries in Overseas Dominions. The complete list is as follows:—

British East Africa.—Vincent Henry Kirkham, B.Sc.

The Commonwealth of Australia.—Thomas Cooksey, B.Sc., Ph.D.: New South Wales; John Brownlie Henderson: Queensland; Edward Henry Rennie, D.Sc.: S. Australia; Arthur Edgar Leighton: Victoria.

The Dominion of Canada.—Walter Charles Carter: Nova Scotia; Frank Thomas Shutt, M.A.: Ontario; William Robert Lang, D.Sc.: Ontario; Frederick Murray Godschall Johnson, Ph.D.: Quebec.

Egypt.—Alfred Lucas.

The Empire of India.—John Charles Burnham, C.S.I., B.Sc.: Madras; Gilbert John Fowler, D.Sc.

Mauritius.—Harold Tempany, D.Sc.

Dominion of New Zealand.—Thomas Hill Easterfield, M.A., Ph.D.; John Kenneth Harold Inglis, M.A., D.Sc.; William Rest Mummery.

The Straits Settlements and the Far East.—Frankland Dent, Ph.D., M.Sc.

The Union of South Africa.—Charles Frederick Juritz, M.A., D.Sc.: Cape Province; John McCrae, Ph.D.: Transvaal; James Sprunt Jamieson: Natal Province.

British West Indies.—John Pedrozo D'Albuquerque, M.A.: Barbadoes; John Burchmore Harrison, C.M.G., M.A.: British Guiana; Sir Francis Watts, K.C.M.G., D.Sc.: Barbados.

Watt Centenary.—At the request of the Council, Dr. E. W. Smith, Chairman of the Birmingham Local Section, is acting as the representative of the Institute on the Committee formed in connection with the Celebration of the James Watt Centenary.

Death of Sir Boverton Redwood, Bart.—The Council record with much regret the death of Sir Boverton Redwood, an Original Fellow of the Institute, a Member of Council from 1889—91, 1892—95, 1897—1900, 1910—13, and a Vice-President from 1913—16.

The Peace Treaty—The following Articles are quoted from the Conditions of Peace, published by *The Times*, June 28th, 1919 :—

> " 171. The use of asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices, being prohibited, their manufacture and importation are strictly forbidden in Germany.
>
> " The same applies to materials specially intended for the manufacture, storage and use of the said products or devices.
>
> " The manufacture and the importation into Germany of armoured cars, tanks, and all similar constructions suitable for use in war are also prohibited.
>
> " 172. Within a period of three months from the coming into force of the present Treaty, the German Government will disclose to the Governments of the Principal Allied and Associated Powers the nature and mode of manufacture of all explosives, toxic substances, or other like chemical preparations used by them in the war, or prepared by them for the purpose of being so used."

German Trade Overtures.—In the issue of *The Times* for June 18th attention was directed, under the above heading, to correspondence which had passed between Messrs. Schering

and Glatz, of New York—formerly connected with concerns at Berlin, Radebul, and Leipzig—and a firm in Australia. Messrs. Schering and Glatz solicited inquiries for business, offering their products, " with a few exceptions, at pre-war prices " and at " special export prices for larger quantities."

The firm in Australia, in reply, referred to their former relations with Messrs. Schering and Glatz, stated in frank and scathing terms their views on the methods of warfare adopted by Germany, and concluded— " None of us here want your products, your countrymen, nor your communications."

The following is quoted from a leading article in the same issue of *The Times*, referring to this and other efforts on the part of German concerns to " organise sympathy " with a view to the renewal of " peaceful penetration," ranging from pious appeals to attractive business propositions: " Trade with Germany no doubt will be gradually resumed, subject to such restrictions and regulations as the Allies and Associates may from time to time decide. But it will never be trade upon the old terms or upon any terms resembling them. Germany will not be allowed for a second time to fasten her poison fangs upon just those ' key ' industries which are vital to all nations at war."

Chemists and the Whitley Councils.

The Council of the Institute have been in correspondence for some time with the Ministry of Labour with reference to the possible representation of qualified chemists on Industrial Councils. The following letter received from the Minister was referred to the General Purposes Committee, and was under discussion at two meetings :—

H.Q. 12107-6.

MINISTRY OF LABOUR,
MONTAGU HOUSE, WHITEHALL,
LONDON, S.W.
9 *May*, 1919.

SIR,—I am directed by the Minister of Labour to refer to your letter of 30th April, and to inform you that the question of the representation of technical and scientific workers upon Joint Industrial Councils has for some time been the subject of careful consideration in the Ministry.

I am to state that while Sir Robert Horne is of opinion that it is desirable in order that the Councils should be able to deal with the very important technical and other matters referred to in paragraph 16 of the first Whitley Report, that technical and scientific experts should be associated on the Council and its Committees with the representatives of employers' associations and trade unions, he feels that, as the setting up of a Council is the voluntary act of the industry concerned, it is for the various associations of the classes of workers in question to take the necessary steps, and to approach the Councils and their constituent associations and trade unions in the matter.

In this connection, I am to point out that, as a broad principle, representation upon Joint Industrial Councils is confined to associations representing employers and workpeople, and, further, that limitations in the size of the Councils render it difficult to secure direct representation for certain sections, which, although they may be important by reason of the nature of their work, etc., are numerically small. Provision has, however, been made in the constitutions adopted by Councils for the co-option of persons of special knowledge and experience, not being members of the Council, by means of which it is anticipated that the services of technical and scientific experts will be utilised to a considerable extent.

I am, Sir,
Your obedient servant,
(Signed) H. B. BUTLER.

R. B. Pilcher, Esq.,
Registrar and Secretary, Institute of Chemistry,
30, Russell Square, W.C. 1.

At the second meeting the Committee had the advantage of the views of Mr. John Rogers, F.I.C., Chairman of the Explosives Trade Employers' Association, and of Major Adrian Dingli, barrister-at-law, to both of whom the thanks of the Council have been accorded for their help and advice. The Committee, in their Report to the Council, expressed the opinion that, in any case, the Institute should not seek representation, in the capacity of a trades union, on any Industrial Council under the Whitley Scheme. They stated that in many of the more important industries Industrial Councils had not, as a matter of fact been formed; and the number of chemists affected in the less important industries was so small that they could not be expected to secure representation. In the majority of the Councils, moreover, it would be impossible to secure representation of every profession, trade and craft employed in any one industry.

The Committee felt, however, that the Institute could be of great assistance to such Councils in technical matters, and that it would be desirable to find some means whereby the Institute could be rendered easily available as an impartial referee body, both in the interests of the employers and of their chemists: thus, in the event of the formation of a Council (corresponding to the Whitley Councils) in connection with the Civil Service, the Institute might represent chemists in Government employ.

After full discussion, the Committee decided to recommend:

> "That the Council consider the desirability of setting up a Special Committee which should endeavour to secure recognition as an advisory authority in connection with difficulties affecting the interests of qualified chemists (Fellows and Associates) in their professional appointments; such Committee to investigate the steps to be taken to secure such recognition, to define more closely its functions and the method of procedure to be adopted, and to report to the Council thereon."

The General Purposes Committee was thereupon authorised to proceed with the matter, and the following letter was forwarded to the Minister of Labour on June 4th:—

THE RT. HON. SIR ROBERT S. HORNE, K.C., M.P.,
MINISTRY OF LABOUR, MONTAGU HOUSE, WHITEHALL, S.W. 1,
4th June, 1919.

SIR,—I am directed by the Council of the Institute of Chemistry to Great Britain and Ireland to thank you for your letter of the 9th May.

The Council of the Institute have discussed the suggestion that chemists in various industries should approach the Industrial Councils and their constituent associations and trade unions with regard to securing representation on the Industrial Councils. They have also considered the statement that provision has been made for the co-option of persons with special knowledge and experience, not being members of Councils, by means of which the services of technical and scientific experts will be utilised.

The Institute is not seeking representation in a capacity corresponding with that of a trade union on the Councils under the Whitley Scheme.

It is the chartered professional body duly authorised to grant certificates of competency to chemists and to register persons qualified to practise chemistry. Its aims include the elevation of the profession of chemistry and the maintenance of the efficiency, integrity and usefulness of persons practising the same, by compelling the observance of strict rules of membership, by setting up a high standard of scientific and practical efficiency, and, generally, in the words of the Charter, by advancing the attainments, character and status of its members. It includes as Fellows and Associates both employers and employed : works chemists, controlling plant or working in laboratories, private consultants, Government and municipal chemists, and professors and teachers of chemistry, as well as managers, directors and owners of factories.

To secure direct representation of professional chemists on the Whitley Industrial Councils commensurate with the importance of the science of chemistry to industry would be difficult. The Institute, however, as the chartered professional authority for chemists, could be of assistance to the national and higher sectional Councils as an impartial referee in the interests both of employers and their chemists, when questions arise in which chemists are concerned.

There is no organisation so fully representative of the interests of qualified chemists as the Institute of Chemistry. The Council believe that the Institute's prestige and character are such that both employers and the qualified chemists on their staffs would approve of the above proposal, while its assistance in a consulting and advisory capacity would be valuable in all matters of technical importance such as those referred to in the Whitley Report (para. 16, especially sections (vii.) to (x.)).

The Council of the Institute will be glad, therefore, of your advice as to the best means for securing representation in an independent advisory capacity on the various higher Joint Councils, including those for the Civil Service, when matters affecting the interests of chemists are under consideration. They are prepared to nominate delegates to discuss the matter with you if you consider it would be helpful and will kindly make an appointment at your convenience.

I am, Sir,
Your obedient servant,
(Signed) RICHARD B. PILCHER,
Registrar and Secretary

Ministry of Health and Scottish Board of Health.

Ministry of Health.—The Public Appointments Committee, jointly with representatives of the Society of Public Analysts, have carefully watched the progress of the various Bills for the establishment of a Ministry of Health, and have kept in touch with the promoters. With the approval of the Councils of the Institute and the Society the following memorandum was prepared and forwarded to Dr. Addison in March :—

THE RIGHT HON. CHRISTOPHER ADDISON, M.D., M.P.,
MINISTRY OF RECONSTRUCTION,
2, QUEEN ANNE'S GATE BUILDINGS, WESTMINSTER, S.W. 1,
24th March, 1919.

SIR,—Realising that the institution of a Ministry of Health affords an opportunity of securing for the nation the adequate utilisation of chemical science in the service of the new department, a Joint Committee of the Councils of the Institute of Chemistry and of the Society of Public Analysts has had under consideration the question how the Institute and the Society may best co-operate with the Health Ministry in the work which lies before it.

The Institute of Chemistry is a body incorporated under Royal Charter, and, thereby empowered to examine and grant qualifications to properly trained chemists ; the Society of Public Analysts is a recognised association of analytical chemists. The majority of qualified British chemists belong to these two bodies, who can, therefore, speak authoritatively on their behalf. Both bodies are well known to Government authorities.

It is obvious that chemistry has a very direct bearing on the health and welfare of the community. Every public authority is faced by problems which can be solved only by its aid. Among these problems the following may be mentioned :—

1. Control of the purity of food and drugs (Sale of Food and Drugs Acts, 1875—1907).
2. Control of water supplies.
3. Treatment and disposal of sewage and trade refuse.
4. Examination and control of disinfectants.
5. Control of gas supply.
6. Detection of poisons in criminal and other cases.

Moreover, chemical knowledge and experience are indispensable to the efficient administration of a number of Acts affecting the health of the com-

munity, such as those relating to factories, chemical manufactures, dangerous trades, rivers pollution, etc.

In all these matters the responsibility rests ultimately on the chemist, and he must, therefore, be efficiently trained and highly skilled in his profession. In connection with the Sale of Food and Drugs Acts, it may be recalled that the Local Government Boards, by whom the appointments of Public Analysts under Local Authorities must be confirmed, specifically accept the Diplomas and Examinations of the Institute of Chemistry as proof of competency.

The control of the purity of food supplies and of the drugs sold to the public is essentially the function of the Public Analyst, while the present knowledge of the analysis of food and drugs is mainly due to the investigations which have been made by the professional chemists of this country, who, on their own initiative and at their own expense, have studied in their laboratories the problems involved and have worked out their solution.

That the work of Public Analysts has not in the past been properly appreciated is, the Committee is convinced, largely due to the fact that there has not been sufficient co-operation between them and the departments concerned with such questions. It is hoped that this lack of contact may be remedied, since it has even gone so far that Orders have recently been promulgated under Government authority without ascertaining from Public Analysts whether there was any possibility by chemical, or other means, of determining whether such Orders could be complied with.

Although a few years ago the Local Government Board for England and Wales took the very commendable step of establishing a chemical laboratory and engaged the services of an able chemist, yet the fact remains that the Board possessed no chemical officer occupying a position corresponding with that of the Chief Medical Officer of the Board.

The Committee recognise, of course, the importance of the work carried out in the Department of the Government Chemist, and in laboratories attached to other Departments, but they feel, speaking generally, that the services of professional chemists, other than those engaged in such Departments, have never been utilised to full advantage.

For these reasons the Joint Committee recommend that a Consultative Council, consisting of professional chemists, including representatives of the Institute of Chemistry and the Society of Public Analysts, should be established to advise the Ministry on all matters on which chemistry has a direct bearing, and that such a Council shall have direct access to the Minister of Health.

We would ask you to give this recommendation your very careful consideration, and we hope to be favoured with your reply at your early convenience.

We are, Sir,
Your obedient servants,
HERBERT JACKSON,
President of the Institute of Chemistry.
SAMUEL RIDEAL,
President of the Society of Public Analysts and other Analytical Chemists.

The Councils of the Institute and the Society expressed their readiness to send delegates to confer with Dr. Addison on the relations of chemistry to matters of public health, and

the Federal Council for pure and applied chemistry agreed to send representatives to support the views expressed in the memorandum on the general ground of the importance of chemistry in public affairs. Although Dr. Addison was unable to make an appointment to receive a deputation before the Bill became law, the Councils have learned that two chemists will be appointed to the Consultative Council on Medical and Allied Services. The Council of the Institute having been requested to nominate representatives, have forwarded the names of Sir William Tilden, Past President, and Mr. A. Chaston Chapman.

Scottish Board of Health Bill.—In response to a memorial presented by the Association of Public Analysts of Scotland, Mr. Robert Munro, K.C., M.P., Secretary for Scotland, received a deputation of professional chemists at the Scottish Office, Whitehall, on Saturday, May 3rd, 1919, when the importance of chemistry in relation to the Scottish Board of Health Bill was discussed. The deputation consisted of: Mr. R. M. Clark, B.Sc., F.I.C., President, and Dr. J. F. Tocher, F.I.C., representing the Association of Public Analysts of Scotland; Mr. A. Chaston Chapman, F.I.C., Dr. J. T. Dunn, F.I.C., Members of Council, and Mr. Richard B. Pilcher, Registrar, representing the Institute of Chemistry; Mr. B. D. Porritt, B.Sc., F.I.C., representing the Scottish Local Sections of the Institute; and Dr. Samuel Rideal, F.I.C., President, and Mr. P. A. Ellis Richards, F.I.C., Hon. Secretary, representing the Society of Public Analysts.

Mr. R. M. Clark (Glasgow) introduced the deputation. He said that the Institute of Chemistry represented professional chemists, and that its qualifications were formally recognised by the Local Government Board for Scotland in connection with the appointment of Public Analysts. He explained that the Society of Public Analysts was the representative organisation of Public Analysts generally. He said that the Public Analysts were in favour of the Bill as a whole. He referred to the unanimous request of the whole of the Public Analysts of Scotland and to the memorial which had been forwarded by the Association of Public Analysts of Scotland. In view of the importance of chemistry to matters of State, and especially matters of health, it was highly necessary in the public interest that the Secretary for Scotland should consider the inclusion of a qualified professional chemist on the proposed Board of Health. Since the Food and Drugs Acts were not

properly administered, it was necessary in any case that a professional chemist should be attached to the Board, and that the profession of chemistry should be represented on the Consultative Councils under the Board. Mr. Clark mentioned many health questions in which chemical advice and assistance were necessary, and gave particulars which evidenced improper administration. Referring to the Sale of Food and Drugs Acts, which would come under the control of the new Board, he showed that the lack of closer touch between the Local Government Board and Public Analysts in the past had resulted in inadequate and uneven administration. Public Analysts had no proper security of tenure of office, and were inadequately remunerated for their services. In many places the Acts were entirely ignored.

Dr. J. F. Tocher said that it was against the public interest to overlook the importance of chemistry in public health matters. Chemists were required, not only for the administration of the Sale of Food and Drugs Acts, but also in connection with the administration of the Alkali, etc., Works Regulation Acts, the Rivers Pollution Acts, and other Statutes. He noted also that the Scottish Board of Health Bill embodied proposals for the conduct of research, which included research in chemical problems. He summarised the qualifications of a chemist as defined by the Regulations of the Institute of Chemistry, and claimed that the profession of chemistry should be accorded adequate recognition. The administration of the Sale of Food and Drugs Acts in Scotland had never been satisfactory, owing to the fact that there had been no chemical officer associated with the Local Government Board. In the public interest it was highly desirable that Public Analysts should always be consulted by local authorities in matters relating to the administration of the Sale of Food and Drugs Acts, and that they should be properly recognised as officers of the local authorities employing them. A principal chemical officer should be appointed as the adviser of the Board in all chemical matters, including, of course, those connected with food and drugs. There appeared to be an impression in the minds of the authorities that medical officers of health were properly qualified to advise in chemical matters, and that, therefore, they should control the local administration of the Sale of Food and Drugs Acts. The position of the Medical Officer of Health under these Acts, however, was that of a sampler, and, in this respect, he was in a similar position to that of a police officer and an inspector of weights and measures. It was highly necessary that a chemical officer should be appointed, either as a member of the Board of Health or as a responsible officer of the Board, to advise on chemical matters relating to the health of the community.

Dr. Rideal supported the two previous speakers in their remarks with regard to the lack of proper contact between the Local Government Boards and Public Analysts. The latter were hardly ever informed of regulations issued by the Board having a direct bearing on their work under the Sale of Food and Drugs Acts. There was a definite need for chemical authority at headquarters. At present the Boards looked to their medical officers for chemical information, but there should be professional chemical officers with a proper knowledge of chemical technique, and there should be proper co-ordination of the work.

Mr. Chaston Chapman said that the war had made every one realise the increasing importance of chemistry in governmental affairs. The public was beginning to realise its bearing on all technical processes. Its relation to public health matters was no less important. If the great aim of the Board of Health was to create a healthy environment, it was absolutely necessary

that chemists should be intimately associated with this work. All matters relating to the purity of water, air, food and drugs, came essentially within the function of the chemist. He emphasised, therefore, the necessity of having a chemical officer attached to the Board. If it was found impossible, for administrative reasons, to increase the number of members of the Board, he urged the extreme desirability of the representation of chemistry on the Consultative Councils.

Mr. Munro said that he was glad to know that professional chemists supported the measure as a whole. The Bill would be before the House of Lords on Tuesday (May 6th). He had listened with care and attention to the comprehensive and cogent arguments which had been advanced. The remarks of the deputation might be divided into two sections: (i.) the connection of chemists with the Scottish Board of Health, and (ii.) the amendment of the present Sale of Food and Drugs Acts. In the first, they had concentrated on the importance of the profession of chemistry being represented on the Board of Health. It was obviously impossible to include representatives of all interests—or even of all important interests—as in that case it would not be a Board, but a mob. Science would be represented—if not adequately represented—by two medical men. The Government was not able to add even one more member without raising further claims. Dentists, veterinary surgeons, pharmacists, sanitary inspectors, and so forth, would all wish representation on the Board. While, however, there was no possible chance of a Government amendment giving effect to the proposal made by the deputation to include a professional chemist on the Board itself, he thought that the objects of the deputation would be attained (i.) if a professional chemist was included on the staff as a consultative officer, with suitable standing, and (ii.) by ensuring that chemistry was properly represented on the Consultative Councils. He would confer with his colleague, Dr. Addison, on the whole matter.

With regard to many of the remarks which had been made with reference to the Sale of Food and Drugs Acts, he would be glad to reconsider them when future legislation in that connection was under consideration.

Dr. Dunn, on behalf of the deputation, cordially thanked the Secretary for Scotland for granting the interview. The deputation then withdrew.

A letter was subsequently received from Mr. Clark thanking the Institute for the support afforded his Association in the matter.

The Fellowship of the Institute.

The Council are still receiving a steady flow of applications for the Associateship and Fellowship of the Institute under the Regulations based on the decision of the Extraordinary General Meeting held in April, 1918.

Letters of recommendation from Members of the Institute in favour of Candidates for admission as Fellows under the new Regulations indicate that there is still some misapprehension of the policy of the Council in this matter.

Previous to 1917 Associates by examination were admitted to the Fellowship provided they showed to the satisfaction of the Council that they had been continuously engaged for three years since their admission to the Associateship in the practice and application of chemistry, and were recommended by a Fellow. These Associates had passed the Institute's own examinations, and the three years' approved experience entitled them to admission to the higher grade.

When it was decided by the Institute, in the interests of organisation of the profession, to elect trained and competent chemists to the Associateship without examination, the Regulations for admission to the Fellowship were amended. In future all Associates, other than those admitted prior to August, 1917, who wish to become Candidates for the Fellowship, must satisfy the Council that they have complied with the Regulations now in force, *i.e.* :—

"Every such Associate will be required to pass an examination, or to produce evidence :—

"(i.) That he has carried out original research of sufficient merit in the opinion of the Council ; or

"(ii.) that he had devised processes or inventions of sufficient merit in the opinion of the Council ; or

" (iii.) in special circumstances, that he is possessed of knowledge and ability equivalent, in the opinion of the Council to having fulfilled the conditions contained under (i.) or (ii.) above."

The examination referred to will be on the lines of the examination for the Associateship, with such modifications in each individual case as the Council may deem desirable in gauging the value of the experience of the Candidate or of a thesis or published record of original work.

In the interpretation of (i.) the expression " original research of sufficient merit " is used in a wide sense, but the Candidate will be required to show that he has materially contributed to the advancement of chemical knowledge.

It is intended to maintain a high standard for the Fellowship, and it is the considered opinion of the Council that, in general, all Members of the Institute should first pass through the Associateship stage.

In certain circumstances, however, where Candidates have acquired eminence in the profession and have reached a certain age, the Council are prepared to elect such Candidates direct to the Fellowship. Such Candidates are elected only if they show that they have complied with the conditions laid down in the Regulations for election of Associates to the Fellowship with regard to both the quality of their work and the responsibility of their positions.

To those who may feel aggrieved that they have been recommended to apply for the Associateship after applying for the Fellowship, it may be pointed out that there are many grades of Candidates : some, perhaps, are approaching the standard necessary for the Fellowship; but the Council hold that no injustice is done by delaying the grant of the higher diploma.

Local Sections.

Ireland.—The first general meeting of the Irish Local Section was held at the Royal College of Science, Dublin, on November 26th, 1918, when the Officers and Committee were appointed. Two general meetings have been held, at the first of which the Chairman, Dr. W. E. Adeney, delivered an address on "The Bio-chemical Examination of Water for Technological Purposes." The address dealt more particularly with the value of the five-day oxygen absorption test, and the lecturer demonstrated experimentally the method of carrying out the test. At the second meeting, Mr. J. W. Parkes, Chief Chemist, Messrs. Kynoch-Arklow, Ltd., delivered a lecture on "The Manufacture of Fuming Sulphuric Acid (Oleum) by the Ferric Oxide Contact Process." The lecture, which was illustrated by slides of the plant employed, was followed by an interesting discussion as to the feasibility of combining the process with the manufacture of superphosphate.

Hon. Sec.: A. G. G. LEONARD, A.R.C.S.I., B.Sc., Ph.D., F.I.C., 18, Belgrave Road, Rathmines, Dublin.

Edinburgh and East of Scotland.—Since the inauguration of the above Section two ordinary meetings have been held at which papers were read by the Chairman (Dr. Drinkwater) and Dr. A. Lauder respectively. The Committee has met on several occasions, and matters of local and general interest have been discussed.

At the request of several members information is being collected regarding the facilities afforded for consulting chemical literature in the various libraries established in the city.

At an interview with the Secretary for Scotland concerning the Scottish Board of Health, in which the Institute took part, the East of Scotland Section was officially represented by Mr. B. D. Porritt.

Hon. Sec. : B. D. W. LUFF, F.I.C., 85, Ashley Terrace, Edinburgh.

Glasgow and West of Scotland.—Steps are being taken to prepare an interesting programme for the forthcoming session, and it is hoped that all Fellows and Associates within the district will join the Section and attend its meetings.

Hon. Sec. : T. A. WILSON, F.I.C., 91, New Road, Ayr.

Liverpool.—Altogether eighteen monthly meetings have been held at Liverpool, and a strong interest has been developed among the members of the Section in the affairs of the Institute and the profession generally. The Hon. Secretary reports that "it appears to us that the formation of Local Sections has proved a distinct advance in policy of the Institute. Better contact with our *confreres* was sorely needed, and the development of our social activities which we are now devising, *e.g.*, our annual dinner and a joint picnic with the Manchester Section, will still further assist fusion of men who for some peculiar reason seem very reticent at first. During the consideration of the social activity, one of our younger members accidentally revealed that he is engaged on a quest for a catalyst to effect social reactions, solutions and fusions." New members will be welcomed, and the Section is looking forward to holding a dinner in October, when the President and Lady Jackson, and the Registrar and Mrs. Pilcher are expected to be present.

Hon. Sec. : JOHN HANLEY, F.I.C., 7, University Road, Bootle.

London and South Eastern Counties.—A social meeting of the London and South-Eastern Counties Section was held at the Institute on May 17th, Prof. Patrick H. Kirkaldy in the chair. About 200 members and visitors were present.

In opening the proceedings the Chairman outlined the

objects of the Section, emphasising the desirablity of promoting social intercourse among the members of the Institute, and affording opportunities for the discussion of matters affecting the welfare of chemists generally. Sir Herbert Jackson, President, in wishing success to the Section, said it was a pleasure to him and the older Fellows to meet the younger members of the profession and to hear their views on the matters which came up for discussion.

A meeting of the Section was held on June 25th, 1919, to discuss the economic position of chemists.

Mr. C. S. Garland moved a resolution to the effect that the Council should be asked to take action with a view to securing a minimum salary of £300 per annum for members of the Institute in the London district. After discussion, it was finally decided, on the proposition of Prof. J. S. S. Brame, to invite the views of the other Local Sections on the matter before further action be taken.

Dr. Brady moved a resolution to the effect that the Council should be asked to collect information, which would be regarded as strictly confidential, as to the salaries of members of the Institute, with a view to preparing an analysis of the remuneration of chemists in various classes of employment. It was agreed that the matter be left in the hands of the proposer to be brought before the Council.

The membership of the London Section now stands at 181. It is earnestly requested that all Fellows and Associates living in the London area will join and take part in the meetings to be held during the forthcoming session.

Hon. Sec.: WILLIAM BACON, B.Sc., F.I.C., 27, Walbrook, London, E.C. 4.

Manchester.—Meetings of the Manchester Section have been well attended, about forty members usually being present.

A very successful "Social" afforded an excellent opportunity for members to become better acquainted, and was much appreciated.

The Hon. Secretary desires to make the Local Register as complete as possible and will be glad to receive the names of any members in the Manchester district who were not advised of meetings held during last winter.

Hon. Sec.: D. CARDWELL, M.Sc., F.I.C., 50, Alexandra Road, South Manchester, S.W.

Swansea.—The South Wales Section at its inaugural meeting consisted largely of members engaged at H.M. Factory, Pembrey, many of whom have been drafted to other districts. The Section has, therefore, suffered considerable loss in members, but it is hoped that all members in the district will support the Local Section by their presence at meetings whenever possible.

Hon. Sec.: A. J. SHELTON, A.C.G.I., F.I.C., 10, Park Road, Clydach S.O., Glam.

The Constitution of the Institute.

The argument is occasionally brought forward that the Institute of Chemistry was founded to advance the profession of Consulting and Analytical Chemistry only, and that its membership should be confined to chemists engaged in consulting and analytical practice.

The petition for the Institute's Charter, and the Charter itself, however, show that there is no ground for this narrow interpretation of the ideas of the Founders.

When the Charter was granted (1885) the number of chemists was much smaller than now, and the profession of chemistry was less recognised; the Pharmacy Act of 1868 had to some extent, for the purposes of that Act, attached the title *chemist* to qualified persons engaged in the sale and dispensing of poisons; and it was necessary to distinguish chemists in the true sense of the word from those engaged in pharmacy.* The term *Analytical and Consulting Chemist* was used, therefore, in the petition and in the Charter of the Institute. The petition pointed out the importance of "Analytical and Consulting Chemistry" in its bearings on legal investigations, public health, food adulteration, agriculture, arts, and manufactures; and referred to persons competent to practise analytical chemistry and to advise in technological chemistry, and to their training. It specifically mentioned that the Institute comprised not only the "leading analysts in the Kingdom," and the "chemical advisers of various departments of the Government," but also

* "III. Chemists and Druggists within the Meaning of this Act shall consist of all Persons who at any time before the passing of this Act have carried on in Great Britain the business of a Chemist and Druggist in the keeping of open shop for the compounding of the prescriptions of duly qualified medical practitioners, also of all assistants and associates who before the passing of this Act shall have been duly registered under or according to the provisions of the Pharmacy Act, and also of all such persons as may be duly registered under this Act."—*Pharmacy Act*, 1868.

" nearly all the Professors and Teachers of theoretical and applied chemistry in the Kingdom," and stated the intention of the petitioners to include all the members of the old Institute as members under the Charter of the new Institute, if it should be granted. The statement was made that no person was admitted a member without producing evidence satisfactory to the Council that he was proficient in the Science of Analytical and Applied Chemistry and in the allied Sciences.

" A high standard of scientific and practical proficiency " was what the Institute was expected to demand of its members; and it sought the Charter because it wished, among other things, to be competent to certify to the attainment of that high standard.

In a letter written by Sir Edward Frankland, the first President, to the *Chemical News*, in December, 1885, the statement is made that the great mass of the Members of the Institute " consists of chemists in factories, public analysts, and chemists in Government departments and in the employ of the corporations of our large towns. These are supplemented by professors, teachers, manufacturers, and others who consider that the better training of young chemists, most of whom must of necessity earn their livelihood by the exercise of their profession, is an object which it is desirable to encourage."

The " History of the Institute " (1877—1914)—published in August, 1914—contains an abstract of a speech by Sir William Tilden, during the first year of his presidency (1891) bearing on this subject.

Sir William, who was a Member of the Council when the Charter was granted, said that there appeared to be a strong impression that the Institute was founded mainly in the interests of the analytical and consulting chemists. It would be very difficult to maintain a hard and fast division between professorial and professional chemists, and he deprecated any conflict between branches of the profession. The Institute had not been founded for the benefit of the analytical chemist only. The term " analytical and consulting chemists " was

used in the Charter chiefly to distinguish such chemists from the pharmaceutical chemists and druggists. The Institute was intended to embrace the whole profession.

Some Fellows and Associates who admit that the petitioners for the Charter contemplated the inclusion of chemists engaged in industry, object to the admission of teachers and others who, though properly qualified, do not derive their professional remuneration from analytical, consulting, or technological work. The quotations already made from the Petition, and the fact that the proposals of the Petition were carried out in the Charter, show clearly that the intention was to include teachers in the membership, provided that they gave proof of the required competence; and the experience of the war has abundantly shown that many chemists, previously engaged solely in teaching, were able to apply themselves with skill and success to the operations of analytical and industrial chemistry. Moreover, the qualifications for the Fellowship, as given in Section 5 of the Charter, recognised the admission of "a Professor or Demonstrator of Practical Chemistry at some known University, College, or Medical School"—which expression also occurred in the original Articles of Association (1877).

Competence in analytical and applied chemistry and in the allied sciences is the requisite foundation for the practice of the profession in any branch, and the Institute is required to ensure that every member possesses that foundation. At the time of his admission the future career of a candidate for membership may be yet undetermined, and the Council does not attempt to determine it, further than to retain the power of removing a member if he becomes engaged in an occupation inconsistent with membership. To hold that the teaching of chemistry is such an occupation, would stultify the whole work of the Institute as a body claiming to set the mark of competence on the chemist, and it would be a contradiction of the ideals of the Institute to exclude a class of chemists so intimately associated with the prosecution of chemical research and the advancement of chemical science.

Obituary.

PERCY WATSON COPELAND died at Derby on February 22nd in his thirty-fifth year. Educated at the Municipal Secondary School and the Technical College at Derby, he graduated as B.Sc. with Honours in chemistry at London University, and passed the Intermediate Examination of the Institute in 1908, and the Final, in mineral chemistry, in 1909. After acting for a time as student assistant and research student at the Derby Technical College, he joined the staff of Mr. Archbutt in the Chemical Department of the Midland Railway Company, where he remained five years until 1914, when he was appointed Chief Chemist to the Derby Gas Company, which position he held at the time of his death. He was elected a Fellow of the Institute in 1914.

LIEUT. STEPHEN HEPWORTH DENNETT, R.A.F., after service in France and Salonika, was accidentally killed in May, 1917. He was born on May 12th, 1893, educated at Handsworth and Atherstone Grammar Schools, and, having entered the University of Birmingham for his professional training, became a registered Student of the Institute in 1910. At the time of his enlistment he was working with Mr. R. P. Page, F.I.C., Public Analyst, Portsmouth, in preparation for the Examination for the Associateship of the Institute.

DOUGLAS RAYMENT KELLER was born on September 27th, 1886, and educated at St. Albans Grammar School. Having matriculated at the University of London, he studied under Prof. Armstrong at the City and Guilds Central Technical College, gained the College Diploma, and graduated as B.Sc. with Honours in Chemistry. Subsequently he was engaged with Mr. R. H. H. Stanger, in Westminster, and from 1913 as chemist to the Plaissetty Manufacturing Company, at Leyton, and the London Thorium Company, at Bow; but he returned to Mr. Stanger in July, 1918, and died in the month of October following. He was registered as a Student of the Institute in 1908.

FREDERICK WILLIAM DYSON MARSHALL died at Ealing on March 27th, 1919. The son of Mr. William Marshall, F.I.C., he was born at Radcliffe, near Manchester, on August 7th, 1885, was educated at the Rochdale and Manchester Grammar Schools, and matriculated at the University of Manchester in 1902, where he took the degree of B.Sc. in 1905, and M.Sc. in 1906. After some experience in his father's laboratory he went to Cambridge, where he graduated as B.A. in 1910, proceeding to M.A. in 1915. In 1910 he was appointed Assistant Master at the Westminster City School. He enlisted in October of 1915, and became a corporal in the R.A.M.C. (T.), but was transferred to reserve in April, 1917, and returned to his appointment which he still held at the time of his death. He was

registered as a Student of the Institute in 1902, and was elected an Associate in 1918.

Sir Boverton Redwood died of heart failure, following diphtheria, at The Cloisters, Regent's Park, London, on June 4th, 1919, in his seventy-fourth year. The eldest son of Prof. Theophilus Redwood, F.I.C., he was born at Boverton, Glamorganshire, was educated at University College School, London, and received his training in chemistry in the laboratories of the Pharmaceutical Society under his father. In 1869 he was appointed Secretary to the Petroleum Association, and from that time devoted special attention to the petroleum industry, with the early history and development of which his name is intimately associated. He was a witness before the Select Committee on Petroleum of the House of Lords in 1872, and worked with Sir Frederick Abel in determining the close test for the flash point of petroleum, 73° F., which was adopted in 1879. With Sir Vivian Majendie, then Chief Inspector of Explosives, he travelled in Europe and America, during 1883 and 1886, investigating the methods of handling, storage and use of petroleum oil and spirit. Also, in 1886, he devised the Redwood viscometer. In 1892 he visited Egypt to advise on the transport of oil through the Suez Canal. He held appointments as Adviser on Petroleum to the Admiralty, the Home Office, the India Office, and the Colonial Office, was Consulting Adviser under the Petroleum Acts to the Corporation of London, and Adviser in Petroleum Transport to the Port of London Authority and to the Thames Conservancy. On many occasions he acted on Commissions and Juries of International Exhibitions, both at home and abroad. He was a member of the Delegacy of the City and Guilds (Engineering) College, Imperial College of Science and Technology, and served on the Royal Commission on Oil-Fuel, the War Committees of the Board of Trade, the Ministry of Munitions (Petroleum Supplies Branch), and the Admiralty Board of Inventions and Research. He delivered Cantor lectures before the Royal Society of Arts on "Petroleum and its Products," 1886, and on "Petroleum: Its Production and Use," 1887; was the author of many reports and articles, and, jointly with the late Captain J. H. Thomson, of a handbook, on the same subject. The third edition of a larger treatise, in three volumes, written jointly with Major A. Cooper-Key, was published in 1913. He was knighted in 1905, and received a baronetcy in 1911. He was also a Chevalier of the Order of Leopold. He was the first President of the Institute of Petroleum Technologists, a Past President of the Society of Chemical Industry, Past Vice-President of the Institute, and a Past Member of Council of the Chemical Society.

He was buried at Hampstead Cemetery on June 7th, when the Institute was represented by the Registrar.

Ferribee Sadler was born on May 5th, 1895, and educated at Tamworth Grammar School and Rydal Mount, Colwyn Bay. Having matriculated at London University, he entered on his professional training, and was registered as a Student of the Institute at the University of Birmingham in 1912. He was reported missing on April 21st, 1917, when he was serving as a Lieutenant in the Durham Light Infantry, attached to the Royal Flying Corps.

The Library.

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Chemistry of Food and Nutrition. Henry C. Sherman. 2nd Edition. *New York*, 1918.

The Chemistry of Colloids. W. W. Taylor. 3rd Impression. *London*, 1918.

Soil Conditions and Plant Growth. Edward J. Russell. 3rd Edition. *London*, 1917.

FELLOWS, ASSOCIATES, STUDENTS AND CANDIDATES FOR EXAMINATION WHO ARE SERVING OR WHO HAVE SERVED WITH H.M. FORCES.

(Supplementary List.)

FELLOWS.

Kinnersley, H. W., Lieut, R.A.O.C.

ASSOCIATES.

Browne, W. L., Corporal, Lincoln Regiment.
Gibson, S., Captain, A.C.C.

STUDENTS.

Burtt, A. W., Friends' Ambulance Unit (B.R.C.S.).
Evans, T. I. J., Lieut.
Taylor, J. G., Mechanic, R.N. Experimental Station.
Ward, H., Lieut., R.G.A.

Since the publication of the List given in Proceedings, Part II., 1919, entries have been altered in the following cases :—

FELLOWS.

Campbell, L. E., Captain, R.A.O.C.
Carruthers, G. M., Lieut., Lancashire Fusiliers (killed in action).
Elliott, Stanley, Major, R.A.M.C., M.B.E.
Frazer, D. R., Captain, M.G.C.
Gemmell, A., Captain Commandant, Command School of Gas Defence (deceased).
Harrison, E. F., Lieut.-Colonel, C.M.G., R.A.M.C., Officer of the Legion of Honour (deceased).
Hawley, Herbert, Lieut., R.A.O.C.
Hinks, Edward, Acting-Major, A.O.D., M.B.E.
Jones, G. C., Lance-Corporal, United Arts Anti-Aircraft.
Ladell, W. R. S., Acting-Major, A.O.D.
Levy, L. A., Captain, R.E.
Monier-W lliams, G. W., Major, R.E., O.B.E. (Military Cross).
Murphy, Paul, Major, R.E.
Rideal, Eric K., Lieut., General List, M.B.E.
Smith, T. A., Lieut., R.A.F.
Thompson, James, Captain, General List.
Walker, F. G. C., Brevet-Major, R.E. (Military Cross).

ASSOCIATES.

Georgi, C. D. V., Captain, R.E., O.B.E. (mentioned in despatches).
Hampson, R. E. V., Captain, R.E.
Macintyre, E. G., Lieut., R.A.F. (Officier de l'Ordre du Nichan Iftakar).
Miller, J. B., Captain, R.E. (Military Cross).

HONOURS.

FELLOWS.

Mr. Samuel Jackson, Superintending Chemist, Buckingham and Carnatic Mills, Madras, has been appointed an Officer of the Order of the British Empire.

Colonel William Robert Smith, Sheriff of London, has received the honour of Knighthood.

The Register.

Since the publication of Proceedings, Part I., in April, 1919, the Council have elected 29 new Fellows and 292 new Associates; 10 Associates have been elected to the Fellowship, and 61 Students have been admitted; 1 Fellow and 1 Associate have been re-elected. Additions since July 1st will be reported in Part IV.

The deaths of 2 Fellows, 1 Associate, and 3 Students have been reported.

New Fellows.

S. = Naval, Military, or Air Service.

Adam, Matthew Atkinson, B.Sc. (Glas.), 57 & 58, Lincoln's Inn Fields, London, W.C. 2. [Consultant; Research; Patents.]

Adie, Richard Haliburton, M.A. (Cantab.), B.Sc. (Lond.), 130, Huntingdon Road, Cambridge. [Lecturer in Chemistry, St. John's Coll., Cambridge; Research.]

Blackshaw, Captain George Neville, O.B.E., B.Sc. (Wales), Government Laboratory, Department of Agriculture, Salisbury, Rhodesia. [S.; Chief Chemist, Govt. Lab., Rhodesia.]

Browning, Kendall Colin, M.A. (Cantab.), 11, Barton Terrace, Dawlish, South Devon. [Govt. Analyst and Prof. of Chemistry, Ceylon; Research.]

Colley, Alfred, "Fairfield," Albert Road, Wolverhampton. [Over thirty years' experience; Chemist, Messrs. Alfred Hickman, Ltd.]

Crocker, James Codrington, M.A. (Cantab.), D.Sc. (Lond.), 11, Lavengro Road, West Norwood, London, S.E. 27. [Senior Demonstrator and Lecturer, S.W. Polytechnic; Research.]

Davies, Samuel Henry, M.Sc. (Vict.), "Ryecroft," New Earswick, York. [Head Chemist, Messrs. Rowntree & Co., Ltd.; Research.]

Dhar, Nil Ratan, M.Sc. (Calcutta), D.Sc. (Lond.), D. ès Sc. (Paris), Professor of Chemistry, Muir Central College, Allahabad, India. [Researches examined.]

Dorée, Charles, M.A. (Oxon.), D.Sc. (Lond.), 103, Borough Road, London, S.E. 1. [Head of Chemistry Dept., Borough Polytechnic; Research; Inventions.]

Egerton, Captain Alfred Charles Glyn, B.Sc. (Lond.), 29, Wilton Crescent, London, S.W. 1. [Dept. of Explosives Supply, Ministry of Munitions; Research.]

Forster, Robert Benjamin, A.R.C.S.I., Ph.D. (Berlin), D.Sc. (N.U.I.), Glenside, Prestwich Park, Manchester. [Chemist, Messrs. Levinstein, Ltd.]

Grey, Egerton Charles, B.Sc. (Sydney), D.Sc. (Lond.), 6, Place Sainte Sulpice, Paris, VI^{me} [S.; Public Analyst, New South Wales; Bio-Chemist; Research.]

Griffith, David Agnew, "Silver Leigh," Poll Hill Road, Heswall, Cheshire. [Univ. Coll., Liverpool; Asst. to Works Manager, Vauxhall Chemical Works, Liverpool.]

Henshaw, Samuel, Dimsdale House, Wolstanton, Staffs. [Merchant Venturers' Tech. Coll., Bristol; Managing Director, New Acid Co.]

Hodgson, Herbert Henry, M.A. (Cantab.), Ph.D. (Heid.), B.Sc. (Lond.), 136, Paley Road, Bradford. [Head of Dept. of Coal-Tar Colour Chemistry, Huddersfield; Research.]

Jackson, Ernest Wilfrid, "Godrevy," Saltburn-by-the-Sea, Yorks. [Over twenty-one years' experience with Messrs. Pattinson and Stead; Research.]

Jenkins, Henry Charles, A.R.S.M. (Lond.), 815—817, Salisbury House, London, E.C. 2. [Consulting Engineer and Chemist, Nitro-Fixation, Ltd.]

Longstaff, James Patrick, D.Sc. (Edin.), Central House, Finsbury Square, London, E.C. 2. [General Secretary, Society of Chemical Industry.]

Lowry, Thomas Martin, D.Sc. (Lond.), F.R.S., 17, Eliot Park, Lewisham, S.E. 13. [Lecturer on Chemistry, Guy's Hospital Medical School; Research.]

Marshall, Joseph, D.Sc. (Leeds), 11, George Road, West Bridgford, Notts. [Research Chemist, Messrs. Boot's Pure Drug Co.]

McBain, James William, M.A. (Toronto), Ph.D. (Heid.), The University, Bristol. [Lecturer, University of Bristol; Research.]

Prideaux, Edmund Brydges Rudhall, M.A., B.Sc. (N.Z.), D.Sc. (Lond.), 6, Arboretum Street, Nottingham. [Lecturer and Demonstrator, University College, Nottingham; Research.]

Murray, Thomas Jenkins, Ph.D. (Leipzig), M.Sc. (Birm.), Municipal Technical School, Wolverhampton. [Head of Chemical Department, Technical School, Wolverhampton; S.]

Paterson, John Hamilton, D.Sc. (Dun.), 3, Park Villas, The Green, Wallsend-on-Tyne. [Chief Chemist, Swan, Hunter and Wigham Richardson, Ltd.]

Redpath, George Christie, 76, Eastbourne Gardens, Monkseaton, Northumberland. [Twenty-seven years' experience with Messrs. J. and S. H. Pattinson; Research.]

Romanes, John William, B.Sc. (Edin.), 13, Merchiston Avenue, Edinburgh. [Managing Director, Lothian Chemical Co.]

Rule, Alexander, M.Sc. (Vict.), Ph.D. (Jena), Propellants Branch, Ministry of Munitions of War, Storey's Gate, Westminster, London, S.W. [Administrative Officer, Wood Distillation Sub-section, Ministry of Munitions; Research.]

Storr, Bertram Vincent, M.Sc. (Vict.), 26, The Square, Ilford. [Works and Research Chemist, Ilford, Ltd.]

Wood, Professor Thomas Barlow, M.A. (Cantab.), F.R.S., Gonville and Caius College, Cambridge. [Reader in Agricultural Chemistry and Draper Professor of Agriculture, Cambridge University; Research.]

Fellow Re-elected.

Bedford, Sir Charles Henry, D.Sc., M.D. (Edin.), LL.D. (St. Andrews), The Burmah Oil Co., Ltd., 25, Great Winchester Street, London, E.C. 2.

Associates Elected to Fellowship.

Bennett, George Macdonald, B.A., B.Sc. (Lond.), St. John's College, Cambridge.

Brightman, Rainald, M.Sc. (Lond.), c/o Messrs. Levinstein, Ltd., Blackley, Manchester.

Croad, Robin Bruce, "The Coppice," Abbey Road, Rhos-on-Sea, Colwyn Bay.

Dawson, Daniel Sutherland, B.Sc. (Aberd.), 44, Middleborough Road, Coventry.

Flint, John Walter, B.A. (Cantab.), 2, Wellington Road, Maidstone, Kent.

Hancock, Algie, 2, Ashburn Road, Heaton Norris, Stockport.

Hutchison, George Lewis, B.Sc. (Lond.), 3, Eliot Vale, Blackheath, London, S.E. 3.

Kloot, Alfred Aaron, B.Sc. (Lond.), Box 1,080, Johannesburg, South Africa.

Ritchie, William Stonebridge, B.Sc. (Lond.), 8, West Graham Street, Glasgow.

Wilson, Major Arthur, M.C., 42B, Wickham Road, St. Johns, London, S.E.

New Associates.

Elected under the special provisions of the Regulations adopted by the Council, July, 1917, and July, 1918.

S. = Naval, Military, or Air Service. M. = Munitions.
I.I. = Passed the Intermediate Examination of the Institute.

Anderson, Major John, M.A. (Glas.), B.Sc. (Lond.), Isla Cottage, Bent Road, Hamilton, Scotland. [S.; M.]

Andrews, William Archibald, B.Sc. (Birm.), 33, Lichfield Street, Rugeley, Staffs. [S.; Research.]

Appleby, Bert John, 3, Charleville Road, Handsworth, Birmingham. [Birmingham Mun. Tech, School; Works Chemist; Research.]

Arthur, Captain John Stanley, B.Sc. (Lond.), 99, Southfield Road, Oxford. [S.; Research.]

Ashton, Miss Dorothy, B.Sc. Tech. (Man.), 18, Randlesham Street, Heaton Park, Manchester. [Works Chemist.]

Aston, William George, 30, The Square, Ilford, Essex. [East London Coll.; Research.]

Bachrach, Roland, A.R.C.S. (Lond.), The Chestnuts, 196, Denmark Hill, London. [S.]

Bailes, Henry, B.A. (Cantab.), King's College, Taunton, Devon. [M.]

Balls, Ernest George, M.C., B.Sc. (Lond.), Orford House, Wellington Road, Wanstead, London, E. 11. [S.; Research.]

Barrett, Ernest, B.Sc. (Lond.), 121, Algernon Road, Lewisham, London, S.E., 13. [S.]

Barrett, Frank Leslie, 15, Russell Road, Whalley Range, Manchester. [Bradford Tech. Coll. Dip.; Royal Coll. of Science, Lond.; Research; S.; M.]

Bayley, Frank, M.Sc., Tech. (Man.), 14, Slade Grove, Longsight, Manchester. [M.; Research.]

Bean, Philip Leslie, A.R.C.S. (Lond.), Glengariff, Ashburton Road, Croydon. [S.; M.; Research.]

Beesley, Darrell Webb, 380, Dickenson Road, Longsight, Manchester. [St. Helens Tech. School; Works Chemist.]

Biffen, Frank Moody, B.Sc. (Lond.), 77, Albany Street, Regents Park, London, N.W. 1. [M.; Govt. Lab.; Research.]

Blakey, Walter, 569, London Road, Oakhill, Stoke-on-Trent. [Bradford Tech. Coll. Dip.; M.]

Bousfield, Edward Alexander Robert, B.Sc. (Lond.), 6, de Crespigny Park, Denmark Hill, London, S.E. 5. [S.]

Brash, William, A.R.C.S., B.Sc. (Lond.), 53, Aynhoe Road, West Kensington, London, W. 14. [Govt. Lab.]

Brown, Leslie Norman, A.R.C.S. (Lond.), Aberdour House, Beaconsfield Avenue, Dover. [S.; M.; Research.]

Bull, Frank Henry Charles, B.Sc. (Bris.), 75, North Road, St. Andrews, Bristol. [M.]

Bury, Charles Rugeley, B.A., B.Sc. (Oxon.), Ellfield, Wootton-under-Edge, Gloucestershire. [S.]

Campbell, John, A.R.T.C., 56, Clifford Street, Ibrox, Glasgow. [Royal Tech. Coll., Glasgow; M.]

Carpenter, George Kingsford, B.A. (T.C.D.), 21, Grosvenor Road, Rathmines, Dublin. [Demonstrator in Chemistry, Trinity College, Dublin.]

Carpenter, Leonard, B.Sc. (Lond.), 143, Palmerston Road, Bowes Park, London, N. 22. [S.; M.]

Chappel, Edgar John, 22—30, Graham Street, City Road, London, N. 1. [Tech. Inst., West Ham ; Research.]

Chitty, Edward Charles, M.C., 143, Devonshire Road, Forest Hill, London, S.E. 23. [Finsbury Tech. Coll. ; S.]

Clark, Lieut. Cecil Henry Douglas, B.Sc., A.R.C.S. (Lond.), Narbonne House, 71, Narbonne Avenue, Clapham Common, London, S.W. 4. [S. ; M. ; Research.]

Cockshutt, Captain John Albert, M.Sc. (Manc.), 27, Hornby Street, Oswaldtwistle, Lancs. [S.]

Cohen, Lieut. Morris, B.Sc. (Lond.), 21, St. Kilda's Road, London, N. 16. [S.]

Colles, William Morris, B.Sc. (Lond.), The Chemical Department, Government School of Medicine, Cairo, Egypt. [Asst. Prof., School of Medicine, Cairo ; S.]

Condrup, Carl Oscar, A.R.C.S., B.Sc. (Lond.), 4, Princess Avenue, Muswell Hill, London, N. 10. [S.]

Cowper, Alfred Denys, M.Sc. (Alberta), University of Alberta, Edmonton South, Alberta, Canada. [S. ; M. ; Research.]

Cranston, John Arnold, B.Sc. (Glas.), 16, Belmont Drive, Giffnock, Glasgow. [S. ; Research.]

Crofts, Harold, M.Sc. (Dun.), Myrtle Grove, Penwortham, Preston. [Works Chemist.]

Cronshaw, Harry Brenan, B.A. (Cantab.), Ph.D. (Munich), A.R.S.M., University College, Galway. [Research.]

Cunnington, Lieut. Francis William Buckland, B.Sc. (Lond.), Heytesbury, 88, West End Lane, London, N.W. [S.]

Dalton, Captain John, M.C., 64A, Longridge Road, Earls Court, London, S.W. 5. [Tech. Coll., Berne ; Sir John Cass Tech. Inst. ; S.]

Dancaster, Ernest Augustus, B.Sc. (Lond.), Pleasant View, 101, Merton Hall Road, Wimbledon, London, S.W. 19. [S.]

Davies, James Henry, Pumula, Heswall Hills, near Birkenhead. [Chester School of Science and Art ; Holt Technical School, Birkenhead ; Technical Adviser, Messrs. Lever Bros., Ltd. ; M.]

Davies, Thomas, B.Sc. (Wales), Penbank, Clydey, Llanfyrnach, S.O., Pem. [S.]

Day, James Nelson Edmund, A.R.C.S., B.Sc. (Lond.), 24, Marlborough Road, St. Albans, Herts. [M.]

Dehn, Frank Bernard, Ph.D. (Jena), M.Sc. (Manc.), Bridge House, 181, Queen Victoria Street, London, E.C. 4. [Consultant ; Research.]

Dowdall, Captain John Patrick Mitchell, A.R.C.S., D.I.C., B.Sc. (Lond.), 11, Princeton Mansion, Red Lion Square, London, W.C. 1. [S. ; M. ; Research.]

Druce, John Gerald Frederick, B.Sc. (Lond.), Borough Polytechnic Institute, London, S.E. 1. [M.]

Dyer, Joseph William Ward, B.Sc. (Lond.), 22, Grange Road, Gravesend. [M.]

Ellingham, Harold Johann Thomas, A.R.C.S., B.Sc. (Lond.), 34, Lausanne Road, Hornsey, London, N. 8. [S.]

Ellis, Bernard Albert, B.A. (Cantab.), 4, Mount Adon Park, Dulwich, London, S.E. 22. [S.; M.]

Emerson, Frederick William, A.M.C.T., 178, Heaton Moor Road, Heaton Moor, near Stockport. [Works Chemist; Research.]

Evans, Edgar, B.Sc. (Lond.), 5, St. John's Road, Plumstead Common, London, S.E. 18. [M.]

Figg, Eric Francis, 1, Constitution Hill, Swansea. [King's College, London; S.; M.]

Fleming, Robert, A.R.C.S.I., c/o J. White, Esq., Shankill, Dublin. [Lecturer in Chemistry, Sultania Higher Training College, Egypt.]

Gale, William John, B.Sc. (Lond.), 50, Stanton Road, Wimbledon, London, S.W. 19. [S.]

Garner, John Henry, B.Sc. (Lond.), Sewage Disposal Works, Deighton, Huddersfield. [Research.]

Gatehouse, Frank Brooks, "Maristowe," Butts Green Road, Hornchurch, Romford. [Merchant Venturers' Tech. Coll.; M.; Research.]

Gibbs, Lieut. George Reginald, B.Sc., M.A. (Manc.), Oakleigh, Bath Road, Stonebridge. [S.]

Gibson, Captain Stanton, B.Sc. (Lond.), 3, Oakfield Road, Stroud Green, London, N. 4. [S.]

Gilbert, Captain Lionel Felix, B.Sc. (Lond.), Frogmore, Beaconsfield, Bucks. [S.]

Gilchrist, Miss Elizabeth, B.Sc. (Edin.), 9, Duncan Street, Edinburgh. [Research.]

Gill, Amos, B.Sc. (Manc.), 14, Wilson's Terrace, Broughton Moor, near Maryport, Cumberland. [M.]

Girvan, Captain Arthur Frank, B.Sc. (Lond.), 126, Thornlaw Road, West Norwood, London, S.E. 27. [S.]

Glasstone, Samuel, B.Sc. (Lond.), 65, St. George Street, London, E. 1. [M.]

Glover, Arthur, M.Sc. (Manc.), 37, Grasmere Road, Clerksfield, Oldham, Lancs. [M.; Research.]

Grant, Donald, M.A. (Edin.), 114, Findhorn Place, Edinburgh. [M.]

Gray, Harold Heath, B.Sc. (Manc.), Birdwell, near Barnsley, Yorkshire. [M.]

Gregory, Arnold William, B.Sc. (Lond.), 50, Crooms Hill, Greenwich, London, S.E. 10. [Consultant; Research; Inventions.]

Griffiths, Evan Dalton, B.Sc. (Wales), 9, Wanstead Park Avenue, Manor Park, London, E. 12. [Research.]

Grisenthwaite, Arthur Turner, B.Sc. (Lond.), A.C.G.I., 9, Clairview Road, Streatham, London, S.W. 16. [M.]

Groves, Miss Ruby Caroline, M.Sc. (Birm.), 39, Earlsbury Gardens, Handsworth, Birmingham. [M.]

Haddon, Cuthbert Leslie, B.Sc. (Dun.), Silverhill, Denton Burn, Newcastle-on-Tyne. [S.]

Hall, Archibald Alexander, M.Sc. (Vict.), Ph.D. (Jena), Agricultural Department, Armstrong College, Newcastle-on-Tyne. [S.]

Hall, Edward Herman, B.Sc. (Lond.), 190, Greenvale Road, Eltham, London, S.E. 9. [S.]

Hall, Captain Norman, Ravensdale, Walmersley Road, Bury, Lancs. [S.]

Hamilton, John Campbell, A.M.S.T., 22, Brunel Street, Burnley. [Works Chemist; Research.]

Hardman, Benjamin, 29, Graham Road, Wealdstone. [Royal Tech. Inst., Salford; M.; Research.]

Hardwick, Walter Arthur Nelson, A.R.C.S. (Lond.), 26, West Kensington Mansions, West Kensington, London, W. 14. [M.; Research.]

Harper, Harry, A.R.C.S., B.Sc. (Lond.), 7, Selborne Grove, Keighley, Yorks. [Head of Chemistry Dept., Trade and Grammar School, Keighley.]

Harris, John Edmund Guy, B.Sc. (Lond.), 20, Eltisley Avenue, Newnham, Cambridge. [S.; Research.]

Haselhurst, Major Herbert William Reay, B.Sc. (Dun.), 35, Cyril Mansions, London, S.W. 11. [S.]

Hickman, Kenneth Claude Devereux, A.R.C.S. (Lond.), Southover, Wendover Road, Bromley, Kent. [M.]

Hill, John Isaacs, 75, Claremont Road, Forest Gate, London, E. 7. [Tech. Inst., West Ham; M.]

Hind, Stanley Reginald, B.Sc. A.R.C.S. (Lond., 19, Eardley Crescent, Earls Court, London, S.W. 5. [S.; M.]

Holdcroft, Arthur Douglas, Wavertree, Bradwell Lane, Porthill, Stoke-on-Trent. [Sutherland Institute, Longton, Stoke-on-Trent; Ceramic Chemist; Research.]

Holmes, Edgar William, 4, Mossey Street, St. George's Road, Hull. [Bradford Tech. Coll. Dip.; M.]

Hornby, Arthur John Ward, B.Sc. (Birm.), No. 5 G.H.Q. Chemistry School, B.E.F., France. [S.]

Horner, Thomas, M.Sc., Tech. (Manc.), 9, Elm Bank, Humphrey Street, Crumpsall, Manchester. [Departmental Manager, Messrs. Levinstein, Ltd.; Research.]

Hudson, Frank, B.Sc. (Vict.), 49, Gordon Road, Monton Green, Manchester [M.]

Hughes, John Owen, B.Sc. (Wales), "Satara Vada," Albany Road, Fleet, Hants. [M.; Research.]

Humphreys, Thomas Clement, 76, Gibbins Road, Selly Oak, Birmingham. [Birmingham Mun. Tech. School; M.; Research.]

Hunwicke, Roderick Francis, B.Sc. (Lond.), Hurst Cottage, Hadley Common, Barnet, Herts. [S.]

Hyland, James, Chapeltown, Pudsey, Yorks. [Bradford Tech. Coll. Dip.; S.; Research.]

Jackson, Colin Gyrth, M.Sc. (Leeds), 13, Wemyss Road, Blackheath, London, S.E. 3. [M.]

Jarrard, Captain William John, B.Sc., A.R.C.S. (Lond.), The University, Sheffield. [S.]

Jeffers, Ernest Haynes, 87, Kyrle Road, West Side, Clapham Common, London, S.W. 11. [East London Tech. Coll.; Royal Coll. of Science, Lond.; S.W. Polytechnic; over twenty-four years' experience; Research.]

Jefferson, Robert Ernest, M.Sc. (Manc.), 70, Linwood Road, Handsworth, Birmingham. [M.; Research.]

Johnson, Joseph Robert, The Croft, Langleys Road, Selly Oak, Birmingham. [Aston Manor and Birmingham Municipal Tech. Schools; M.]

Jones, George Bishop, A.M.I.C.E., 2, Reinwood Road, Lindley, Huddersfield. [Mun. Tech. School, Birmingham; School of Science and Art, Chester; Manc. Univ.; M.; Research.]

Jones, Lieut. Leslie Amiel, B.Sc. (Birm.), 16, Livingstone Road, Handsworth, Birmingham. [S.]

Jones, William Owen, B.Sc. (Wales), 4, Adolphus Road, Finsbury Park, London, N. [M.]

Kennedy, Miss Elizabeth Gentle, B.Sc. (Glas.), 11, Carlyle Square, Chelsea, London, S.W. 3. [M.; Research.]

Knapp, Lionel Frederick, B.Sc. (Lond.), Hertcombe, Kingston Hill, Surrey. [S.; M.; Research.]

Lancaster, Miss Jane, A.R.C.S. (Lond.), 1, Amalinda Villas, Burlington Lane, Chiswick, London, W. 4. [Works Research Chemist.]

Lapworth, Morvan, A.R.C.S., B.Sc. (Lond.), 44, Wilton Crescent, Wimbledon, London, S.W. 19. [S.; M.]

Lawson, Wilfrid, B.Sc. (Liv.), 15, Barrington Road, Sefton Park, Liverpool. [M.]

Leaper, Clement J., Nuns' Island, Galway. [Royal College of Science, Ireland; Chemist, Galway Chemical Works; Research.]

Leicester, Thomas Billington, B.Sc. (Manc.), Woodland Avenue, Wolstanton, Stone-on-Trent. [M.]

Levy, Frank, 13, Fairfield Road, Toller Lane, Bradford. [Bradford Tech. Coll.; S.; M.]

Lewis, Bertram Arthur, B.Sc. (Liv.), Clovelly, Avondale Road, Hoylake, Cheshire. [S.; Research.]

Lewis, Miss Iva Gwendoline, B.A. (T.C.D.), 24, Emerson Road, Ilford, Essex. [M.]

Lineham, Oswald Reginald, B.Sc. (Lond.), Douglas Cottage, Shore Road, Stevenston, Ayrshire, Scotland. [M.]

Linton, Thomas Frederick, A.M.S.T., 26, Seymour Road, Cheadle Hulme, near Stockport. [Chemist, Rubber Co.]

Long, Henry Lawrence, B.Sc. (Lond.), 19, Seward Road, Hanwell, London, W. 7. [M.]

Lowe, Captain Harold Newton, B.Sc. (Birm.), Barrister-at-Law, Southbourne, Sheffield. [S.]

MacKechnie, Robert Drysdale, c/o The Clydesdale Bank, Ltd., 30, Lombard Street, London, E.C. 3. [Anderson's Coll. and Royal Tech. Coll., Glasgow; M.; Research.]

Major, Frederick, B.Sc. (Lond.), "Victis," 8, Edgar Road, Sanderstead, Surrey. [Asst., Imperial Institute; Research.]

Mann, William, B.Sc. (Lond.), 84, Inchmery Road, Catford, London, S.E. 6. [Teaching; Research; Inventions.]

Marsh, William Alfred, B.Sc. (Leeds), Cedar House, Hasland, Chesterfield. [S.; M.]

Mason, Miss Helen, B.Sc. (Edin.), Elmbank, Stow, Midlothian. [Teaching.]

McClelland, Ernest Wilson, B.Sc. (N.U.I.), 79, Kansas Avenue, Antrim Road, Belfast. [M.]

McQuillen, Captain William Thomson, B.Sc. (Dun.), Irene Villa, 211, Chesterfield Road, Sheffield. [S.]

Medofski, 2nd Lieut. Samuel, B.Sc., Tech. (Manc.), M.Sc. (Manc.), 249, Cheetham Hill Road, Manchester. [S.; Research.]

Mellon, Douglas, A.R.C.S.I., Elm Lawn, Serpentine Avenue, Dublin. [Fertilisers and Feeding Stuffs.]

Mersan, Ferdinand de, Fairfield, Chestnut Avenue, Boston Spa, Yorks. [Finsbury Tech. Coll. Dip.; M.]

Mitchell, Captain Alec Duncan, B.Sc. (Lond.), 52, Montalt Road, Woodford Green, Essex. [S.; Research.]

Morgan, Idwal, B.Sc. (Wales), 14, Myddleton Street, Carlisle. [M.]

Morrison, Lieut. Norman, B.Sc. (Lond.), San Remo, Wavertree, Liverpool. [S.]

Morton, Mathew, B.Sc. (Glas.), 134, Corkerhill, Cardonald, Glasgow. [M.].

Murdoch, Barclay Brown, M.A., B.Sc. (Edin.), 5, Carlton Street, Edinburgh. [S.; Research.]

Nash, Albert, Holly House, Wath-on-Dearne. [Univ. Coll., Sheffield; fifteen years' experience; Chief Chemist, Colliery.]

Nash, Lieut. William Adrian Thomas, A.R.C.S. (Lond.), 1, St. Barnabas Villas, Guildford Road, London, S.W. 8. [S.]

Newell, Edwin Frank, A.R.S.M. (Lond.), Messrs. The Quasi-Arc Company, The Works, Copperfield Road, London, E. 3. [S.; M.]

Newlands, George, M.A., B.Sc. (Aberd.), 88, Sycamore Road, Smethwick, Staffordshire. [M.]

Nicholls, Noel Albert, B.Sc. (Birm.), The Osborne, Irvine, Ayrshire. [M.; Research.]

Norris, Mrs. Dorothy, M.Sc. (Manc.), Central Research Institute, Kasauli, Punjab, India. [Bio-Chemist; Research.]

O'Brien, Thomas Edwin Hughes, B.Sc. (Liv.), 66, Fern Grove, Liverpool. [S.]

O'Sullivan, Daniel Joseph, B.Sc. (N.U.I.), 5, Knockrea Terrace, Blackrock Road, Cork. [Asst. to Public Analyst.]

O'Sullivan, Jasper Bartlett, B.Sc. (Lond.), Winterton, Finchley Road, Golders Green, London, N.W. 4. [Govt. Lab.]

Oxley, Horace Finningley, B.A. (Cantab.), 28, Perrymead, Prestwich, Manchester. [M. ; Research.]

Palmer, Herbert Charles, B.A. (Cantab.), Emmanuel College, Cambridge. [Research.]

Parker, Captain Horace Victor, B.A. (Cantab.), M.C., 5, Queen's Gardens, Benton, Newcastle-on-Tyne. [S. ; I.I. ; Research.]

Parsons, Arthur Edwin, B.Sc. (Lond.), " Oakhurst," New Wanstead, London, E. 11. [M.]

Paul, David McLaren, B.Sc. (St. Andrews), 69, Russell Road, Whalley Range, Manchester. [M. ; Research.]

Pearman, Sydney Albert, B.Sc. (Lond.), 5, South Hill Park Gardens, Hampstead, London, N.W. 3. [M. ; Research.]

Plumbridge, Douglas Victor, A.R.C.S., Ph.D. (Munich), Holmewood, South Kilworth, near Rugby. [Works Chemist ; Research ; Inventions.]

Ravald, Leonard Allan, B.Sc., Tech. (Manc.), " Fern Bank," Burnage Lane, Withington, Manchester. [S.]

Rial, Lieut. Walter Percy, A.R.C.S., B.Sc. (Lond.), 33, Ventnor Street, Newland Avenue, Hull. [S.]

Richardson, Donald Henry, B.Sc. (Lond.), Fernlea, Mapperley Plains, Nottingham. [Research.]

Rigby, Joe, M.Sc. (Manc.), 9, Harpenden Road, Wanstead, London, E. 12, [Teaching.]

Robertson, John Braithwaite, M.A., B.Sc. (Edin.), 14, Derby Street, Leith, Scotland. [M. ; Research.]

Robinson, George, B.Sc. (Manc.), H.M. Factory, Langwith, near Mansfield. [M.]

Robinson, Captain Percy Harry, M.C., B.Sc. (Lond.), 51, Melrose Avenue, Wimbledon Park, London, S.W. 19. [S.]

Robson, Lieut. William Pawson, Ph.D. (Halle), M.A. (Cape), 26, Brunswick Square, London, W.C. 1. [S. ; M.]

Rosenblum, Alec Armstrong, B.Sc. (Melbourne), H.M. Factory, Avonmouth. [M.]

Scott, Edward Henry, B.Sc. (Dun.), 21, Dalver Avenue, Davyhulme, Urmston, near Manchester. [M.]

Scouller, Walter Daly, M.Sc. (Leeds), Glanteifi, Stocks Lane, Chester. [M.]

Scrase, Frederick John, B.Sc., War (Lond.), 234, Battersea Park Road, London, S.W. 11. [S. ; A.I.D.]

Shankie, Richard Sangster, B.Sc. (Glas.), 52, Airlie Gardens, Hyndland, Glasgow. [M. ; Research.]

Shannan, William Vivian, B.Sc. (Lond.), 13, Woodlands Avenue, Wanstead, London, E. 11. [Research.]

Shroff, Hasmukhlal Bhagvandas, B.Sc., Tech. (Manc.), A.M.S.T., Kala-Bharan Technical Institute, Baroda, India. [Prof. of Chemical Technology.]

Slann, Alfred Ernest Llewellyn, 31, Ranelagh Gardens, Stamford Brook, London, W. 6. [Finsbury Tech. Coll.; M.]

Smith, Captain Alton Ewart Clarence, B.A. (Cantab.), New Forest Hotel, Lyndhurst Road R.S.O., Hants. [S.; Research.]

Smith, Edgar Francis, Hampden Club, Hampden Street, London, N.W. 1. [Regent St. Poly.; M.]

Speakman, Gruffyd Thomas, B.Sc. (Wales), 6, Newton Road, Faversham, Kent. [M.; Research.]

Stanworth, James, B.Sc. (Manc.), 76, Loweshaye Road, Nelson, Lancs. [M.]

Stephenson, James, B.Sc. (Lond.), "Oaklands West," Eltham Road, Lee, London, S.E. [Govt. Lab.]

Stocks, Frederick Arnold, B.Sc. (Manc.), Sonning, Leicester Road, Hale, Cheshire. [S.; M.]

Stokes, Joseph Arthur, B.Sc. (Lond.), Field Cottage, Bradley, near Huddersfield. [Research.]

Straw, Keith Blundell, H.M. Factory, Queensferry. [School of Mines and Univ., Melbourne; M.]

Sumner, Major Andrew Theodore, M.C., B.Sc. (Lond.), 4, Fulham Park Road, London, S.W. 6. [S.]

Taylor, Charles Williams, B.Sc. (Lond.), 24, Elsiedene Road, Winchmore Hill, London, N. 21. [S.]

Thomas, Lieut. Fred, B.Sc. (Wales), Grove House, Kirk Lane, Yeadon, near Leeds. [S.]

Tilley, Cecil Edgar, B.Sc. (Adelaide), H.M. Factory, Queensferry, Chester. [M.]

Tompkin, Albert, 104, Lenton Boulevard, Nottingham. [Univ. Coll., Notts.; Research.]

Toppin, Richmond Douglas, c/o Messrs. Burroughs, Wellcome & Co., Victoria Street, Waterloo, New South Wales, Australia. [Sydney Tech. Coll.; S.; Works Chemist.]

Trippier, Frank, B.Sc. (Manc.), 41, Hamfrith Road, Stratford, London, E. 15. [S.; Research.]

Venn, Hubert John Partridge, B.Sc. (Lond.), "Twyford," Hargate Drive, Hale, Cheshire. [M.]

Walden, Alfred Edward, B.Sc. (Lond.), 71, High Street, Slough, Bucks. [S.; Research.]

Walker, Lieut. Charles, M.Sc. (Vict.), Waterloo House, Leamington Spa, Warwickshire. [S.]

Walker, John Henry, A.R.T.C., Gourepore Works, Naihati, E.B. Ry., Bengal, India. [S. ; I.I.]

Watson, Miss Amy Rose, B.Sc. (Lond.), 27, Union Road, Clapham, London, S.W. 4. [M. ; Research.]

Weaving, Archibald Arthur, B.Sc. (Birm.), 53, Mayfield Road, Moseley, Birmingham. [M.]

Weiss, Augustus Frederick, B.Sc. (Lond.), Sandown Villa, Benhill Road, Sutton, Surrey. [I.I. ; Govt. Lab.]

Wheeler, Walter Charles Gordon, B.Sc. (Q.U.I.), 35, The Common, Woolwich, London, S.E. 18. [M.]

Whitaker, Herbert, M.Sc. (Leeds), A.M.C.T., 30, Avon Road, Hale, Cheshire. [Research.]

Williams, Edward Thomas, M.Sc. (Liv.), 116, Well Lane, Higher Tranmere, Birkenhead, Cheshire. [S. ; M.]

Williams, Harry, B.Sc. (Manc.), 78, The Rand, Eastriggs, Dumfriesshire. [S. ; M.]

Williams, William, B.Sc. (Lond.), Shaftesbury House, Leominster. [M.]

Wilson, Ernest Percival, M.Sc. (Leeds), Coney Moor, Methley, near Leeds. [S. ; M.]

Wood, Frederick Charles, B.Sc. (Lond.), 576, Stretford Road, Old Trafford, Manchester. [S. ; M. ; Research.]

Woods, Captain Greatrex Johnson, 68A, Alexandra Road, St. John's Wood, London, N.W. 8. [Auckland College, New Zealand ; S. ; M. ; Chief Analyst and Works Chemist.]

Yajnik, Narbhishanker Amarji, M.A. (Bombay), Horman Christian College, Lahore, India. [Prof. of Chemistry.]

Yarrow, Lieut. George Ernest, B.Sc. (Dun.), Holyrood House, First Avenue, Heaton, Newcastle-on-Tyne. [S.]

Yeats, Captain Howard, B.Sc. (Lond.), 3, Clock House Road, Beckenham, Kent. [S.]

Associate Re-elected.

Bullock, Edmund Rayner, B.Sc., A.R.C.S. (Lond.), c/o Messrs. The Eastman Kodak Co., Kodak Park Works, Rochester, N.Y., U.S.A.

Students.

Backes, Joseph John Valentin, " Braemar," Harold Wood, Essex.

Baguley, Noel Gregory, 23, The Park, Newark-on-Trent.

Barr, William, 100, Mysore Road, Lavender Hill, London, S.W. 11.

Beardsley, Arnold Reginald, 4, Oxford Street, Long Eaton, nr. Nottingham.

Bilham, Philip Leo, 22, Old Devonshire Road, Balham, London, S.W. 12.

Brearley, George, 46, Blakeridge Lane, Batley.

Brown, Andrew Charles, 26, Springvale Place, Saltcoats, Ayrshire.

Burton, Harold, 22, Barnsley Road, Wath-on-Dearne, nr. Rotherham, Yorks.
Christie, George Herbert, 155, Sharrow Vale Road, Sheffield.
Claudet, Richard Arthur Ormerod, 41, Brunswick Square, Hove, Sussex.
Cocks, Herbert Charles, 89, Cairo Road, Walthamstow, London, E. 17.
Cooper, Harold, " Morning Dawn," Burnt Ash Lane, Bromley, Kent.
Cooper, Horace, Jubilee Street, Clayton-le-Moors, Accrington, Lancs.
Cooper, Nevill Bernard Willis, 113, Preston New Road, Blackburn, Lancs.
Cox, Albert Edward, 27, Athelstan Road, Faversham, Kent.
Cray, Frank Maurice, 36, Thorney Hedge Road, Gunnersbury, London, W. 4.
Crosbie-Oates, Raymond, The Chalet, Park West, Heswall, Cheshire.
Davey, Walter Cecil, 1, Somerset Road, Erdington, Birmingham.
Davis, Miss Mary, B.Sc. (Birm.), 23—24, Western Parade, Southsea, Hants.
Dean, John Norman, The Birches, Durham Road, Bromley, Kent.
Ellis, Percival Francis, 72, Mackintosh Place, Cardiff.
Farrer, William Lynch Hurbow, " Fern Leigh," Wakefield Road, Tanshelf, Pontefract, Yorks.
Fitter, Raymond John, 23, Woodwarde Road, East Dulwich, London, S.E. 22.
Grant, William Thomas, 3, Wells Street, Grays Inn Road, King's Cross, London, W.C. 1.
Griffiths, William Thomas, 178, Cathays Terrace, Cardiff.
Hayhurst, Horace, 57, Preston Old Road, Wilton, Blackburn.
Hindes, Frederic William, 1, Barlow Street, Oldham.
Holden, William Thomas, 22, Earnsdale Road, Darwen.
Huddart, Reginald, 30, Blessington Road, Lee, London, S.E. 13.
Hutton, John Stevenson, 44, Seafield Road, Dundee, Scotland.
Inglis, Alexander Stewart Robertson, 15, Waverley Park, Edinburgh.
Jenkins, Samuel Harry, 138, Bury New Road, Broughton, Manchester.
Jones, Norman Ellathorne, 169, Wanstead Park Road, Ilford, Essex.
Kenyon, Frank, 20, Wellfield Road, Blackburn.
Legg, Vernon Howes, 95, Carter Knowle Road, Millhouses, Sheffield.
Leitch, James Muil, 1, Ormonae Mount, Muirend, Glasgow.
Mason, Denis Clifford, The Firs, Bromsgrove, Worcestershire.
Mathias, Owen, 31, Clarendon Road, Whalley Range, Manchester.
Mellenfield, Alan Keith, Elmstead, 140, Burnt Ash Hill, Lee, London, S.E. 12.
Milford, Harry, 30, Teviotdale Place, Glenogle Road, Edinburgh.
Morris, Fred, 73, Calvert Road, Bolton, Lancs.
Munro, Reginald James, Bankier Villa, Banknock, Bonnybridge, Scotland.
Naylor, Henry, 32, Accrington Road, Blackburn, Lancashire.
Newby, Edward John, 6, Shaw Road, Berkeley Avenue, Reading.
Ollard, Eric Alexander, Salcombe, South Devon.
Patterson, William Stewart, 85, Abbey Road, Barrow-in-Furness.
Perren, Edward Arthur, 70, Denton Road, Hornsey, London, N. 8.
Phillips, Henry, 72, Ferntower Road, Canonbury, London, N. 5.

Pulsford, Arthur Donald, 32, Loring Road, Isleworth, Middlesex.
Quastel, Juda Hirsch, 73, Ecclesall Road, Sheffield.
Reece, William Henry, 113, St. Benedict's Road, Small Heath, Birmingham.
Rossiter, George Friend, 11, Bank Street, Teignmouth, South Devon.
Shimwell, John Lister, 70, Station Road, Harborne, Birmingham.
Singer, Nathan, 147, Upper Clapton Road, London, E. 5.
Smith, John, 31, Dempster Street, Greenock, Scotland.
Taylor, James Gemmell, Calderbank, Baillieston, Glasgow.
Turner, Percival Elisha, Bath Cottage, Bath Road, Beenham, nr. Reading.
Vaughan, Reginald Edward, The Dell House, Wooburn, Maidenhead.
Vince, Alfred Sydney, 30, Ravensbourne Road, Catford, London, S.E. 6.
Warner, Bertrand Thomas, 438, Camden Road, Holloway, London, N. 7.
Young, Edward Bernard, 130, Trinity Street, Gainsborough.

DEATHS.

Fellows.

Percy Watson Copeland, B.Sc. (Lond.).
Henry Owen Huskisson.
Sir Boverton Redwood, Bart., Hon. D.Sc. (Ohio), past Vice-President.

Associate.

Frederick William Dyson Marshall, M.A. (Cantab.), M.Sc. (Manc.).

Student.

Stephen Hepworth Dennett, Lieut., R.A.F., B.Sc. (accidentally killed on service).
Douglas Rayment Keller, B.Sc.
2nd Lieut. Ferribee Sadler (reported missing since April 21st, 1919).

General Notices.

Examinations.—An examination in Biological Chemistry, Bacteriology, etc., will commence on Monday, October 20th, 1919.

The list of candidates for this examination will close on Tuesday, September 9th, 1919.

Further information can be obtained from the Registrar.

The Chemical Technology Examination Board will be prepared to hold an examination in October next. The exact date will be announced later.

The list of candidates will close on Tuesday, September 9th, 1919.

Further information can be obtained from the Registrar.

Notice to Associates.—Associates elected prior to August, 1916, who can produce evidence satisfactory to the Council that they have been continuously engaged in the study and practical application of chemistry for at least three years since their election to the Associateship, can obtain forms of application for election to the Fellowship.

Appointments Register.—A Register of Fellows and Associates of the Institute of Chemistry who are available for appointments is kept at the Offices of the Institute. For full information, inquiries should be addressed to the Registrar.

Fellows and Associates are invited to communicate with the Registrar in any instance in which they are able to assist in securing appointments for qualified chemists.

The Library.—The Library is open for the use of Fellows, Associates and Registered Students, between the hours of 10 A.M. and 6 P.M. on week-days (Saturdays : 10 A.M. to 2 P.M.), except when examinations are being held.

History of the Institute, 1877–1914.—A few copies of the Special Edition of the History of the Institute, printed on hand-made paper and bound in cloth are obtainable at 15s. each net.