

graphs had been taken at 20 minutes' intervals and the film speeded up. There are plotted diagrams in Darwin's "Movement in Plants," but none of us had ever seen such extraordinary gesticulations before.

Funds did not allow of printed abstracts in advance, but very successful arrangements were made by the Press Bureau. Proof sheets containing the more popular parts of the day's work were ready at the end of the afternoon and were widely distributed to the press. More technical papers were represented by typed abstracts.

The Chemist and the Fermentation Industries.

STREATFEILD MEMORIAL LECTURE.

THE annual Streatfeild Memorial Lecture was delivered at the Finsbury Technical College on Nov. 6 by Mr. Julian L. Baker, who selected as his subject "The Chemist and the Fermentation Industries." It was pointed out that the revenue from beer and spirits accounts for about one-sixth of the total expenditure, and the materials from which beer and spirits are made are almost wholly derived from agriculture and for the major part from materials grown in Great Britain. It will, therefore, be apparent that the commercial products of fermentation are derived from biochemical industries of vast extent and of enormous economic value. The very small amount of exact knowledge concerning the changes which starch and proteins undergo during the preparation of malt from barley and the mashing process was referred to, also the difficulties which underlie such investigations. An outline was given of work being conducted under the auspices of the Research Scheme of the Institute of Brewing. Much of this is being done at the Rothamsted, Wye and East Malling Research Stations under the direction of Sir John Russell, Mr. Salmon and others. Prof. Pyman, of the Municipal School of Technology, Manchester, is responsible for the chemical work on the constituents of hops, and the direction of other researches is entrusted to certain other college laboratories.

It is not easy to convince the principals of an industry which is essentially empirical in character that, as knowledge increases, the old order *pari passu* changes. The British instinct is to leave well alone. The endowment of research should be regarded by manufacturers as an insurance. Neither is it reasonable for an industry to expect results from scientific researches which will affect immediately manufacturing operations, or an improvement of output. The success of a brewer is gauged by his product, and, as he is essentially a craftsman, his reluctance to experiment on anything but a small scale can be understood. Such considerations as these militate in no small degree against the generous financing of research.

Reference was made to the manufacture of alcohol and to the "Amylo" process, which cannot be used in England owing to regulations enforced by the Board of Customs and Excise; also to the products, such as glycerol, formed by *S. cerevisiæ* from sugar under certain abnormal environmental conditions, and the production of lactic and butyric acids from sugar by bacterial fermentation. The industries based on the activity of micro-organisms are of profound importance to the community, and the fields of investigation both academic and technical in such industries are limitless.

At the conclusion of his lecture, Mr. Julian Baker referred to the recent decision of the City and Guilds

of London Institute to close the College in 1926. The withdrawal of the London County Council grant of 10,000*l.* per annum, to take effect in 1926, was largely responsible for the position. He thought the decline in the number of students, given as a reason for the grant withdrawal, had been unduly exaggerated and was no greater than might be anticipated in view of the action taken in 1920 to close the College and admit no new students in the session 1920-21. Immediate action was necessary on the part of those who valued the real and practical educational facilities offered by the College for the last 46 years, due in the first instance to the curriculum provided in chemistry and engineering by its first teachers, Armstrong, Perry and Ayrton. The practical courses unfettered by any particular examination syllabus should be continued, and it was to be hoped that an influential deputation of manufacturers and educationists would find a way to enable the College to continue its work.

Mr. A. Chaston Chapman considered that the sound practical training, with freedom from examination syllabuses, the great tradition of its past students and teachers, and the service it has rendered should assure the continuance of Finsbury, while Prof. G. T. Morgan pointed out that the goodwill of the College and traditions associated with it could not be continued elsewhere.

Prof. H. E. Armstrong gave an account of his early work at Finsbury with Perry and Ayrton, and emphasised the value which the training had always had in promoting the application of science to industry. The College started under the influence of men like Sir Frederick Bramwell, Lord Halsbury and Sir Owen Roberts, and the courses for training chemists and engineers were unique. Chemical engineering was no new subject at Finsbury. All its chemists received training in the principles of engineering as part of the ordinary course.

Prof. F. G. Donnan, who was unable to be present, sent a letter, in the course of which he said: "The whole cause of higher education in London is suffering at present from the want of autonomy in the principal colleges as regards the examination for the B.Sc. Degree. The old Finsbury system was and is the only one which produces good results, and is in fact the method employed by other civilised countries with the exception of England." Mr. F. H. Carr, who also spoke, agreed that the training offered at Finsbury was of great value to the industries. He considered that we are suffering greatly from what he termed the respectability of degrees.

Mr. A. J. Chapman, president of the Old Students Association, gave an interesting account of the work now being done by the Association to save the College.

University and Educational Intelligence.

CAMBRIDGE.—The Botanic Garden Syndicate reports that with the aid of a further generous gift from Mr. Reginald Cory, it is proposed to provide a house for the Director of the Garden. The Local Lectures Syndicate has presented its fifty-first and last report, it having been superseded by the new Board of Extramural Studies. The report makes reference to the loss suffered by the cause of adult education through the death on Mount Everest of Mr. Leigh-Mallory, Assistant Secretary for Lectures, and also through the death of Prof. H. V. Stanton and Prof. R. G. Moulton.

The Lees-Knowles lectures on military science are being given by Lieut.-Col. F. Nosworthy, on Russia before, during, and after the Great War.

Mr. D. R. Hartree and Mr. E. A. Watkins have been elected to fellowships at St. John's College.

The following have been elected to serve on the