

The Chemical Testing of Plant Nutrient Solutions
By G. S. Fawcett and Dr. R. H. Stoughton. Pp. 86.
(Salisbury: The Tintometer, Ltd., 1944.) 8s. 6d.

THE routine testing of plant nutrient solutions is undoubtedly an important part of most investigations on the soilless growth of plants, and the genuine investigator must therefore be competent to carry out the necessary chemical operations. In this book, which is essentially a set of directions for carrying out the tests, the authors have succeeded in reducing the operations to as simple a form as possible, to give speed in analysis but yet to retain an accuracy sufficient for the purpose. This result has been achieved by employing, in all cases, colorimetric or nephelometric methods which must be used in conjunction with the 'All-Purpose Lovibond Comparator' and special standard colour and turbidity disks and comparator tubes. The chemical methods have been selected from text-books and the literature, and have been adjusted and critically tested under the conditions existing in plant nutrient solutions. They provide for the estimation of the major plant nutrients and the minor and trace elements manganese, iron, boron, copper and zinc. In some cases the methods are tentative and the authors hope to improve these. As with the simplification of many chemical methods, the applicability is restricted, in this case to plant nutrient solutions only; and the authors are emphatic that all details be adhered to closely. If this advice is followed, the novice can carry out some of the tests by himself, but others involve highly corrosive chemicals; and although ample detail and space is devoted in the early part of the book to the very elementary operations of handling chemical glassware and reagents, those who are inexperienced in chemical technique should, in the opinion of the reviewer, receive a short preliminary training.

This book, together with the specially designed apparatus, should prove a great help to experimenters in the soilless cultivation of plants. R. G. WARREN.

Symposium sobre Raios Cosmicos, Rio de Janeiro, Agosto 4-8, 1941

Pp. 180+19 plates. (Rio de Janeiro: Academia Brasileira de Ciências, 1943.)

IN this volume are reprinted, in English and French, the papers given at a symposium on cosmic rays held in August 1941 at Rio de Janeiro, under the auspices of the Brazilian Academy of Sciences, on the occasion of the visit of a group of American physicists led by Prof. A. H. Compton. The scope of the conference is indicated by the following titles selected from some twenty papers: (1) "On the Fluctuations of Cosmic Rays", by A. H. Compton; a discussion of the sidereal time variation of cosmic rays. (2) "On the Latitude Effect of Cosmic Rays", by B. Gross. (3) "Cosmic Ray Studies in the Andes of Southern Peru", by N. Hilberry and A. H. Hilberry. This paper describes the determination of the variation in the frequency of extensive showers with altitude, up to 5,850 m. above sea-level, for two different counter arrays, and affords an interesting proof that most extensive air showers are initiated by high-energy electrons. (4) "Cloud Chamber Photographs at High Altitudes", by D. Hughes. (5) "The Latitude Effect for the Hard Component of Cosmic Rays and Evidence as to the Nature of the Primary Radiation", by W. P. Jesse. (6) "The Influence of a Solar Eclipse on the Cosmic Ray Intensity", by Y.

Monteux, G. Occhialini and M. D. Souza Santos. (7) "On the Ultra-Soft Component of Cosmic Radiation", by G. Occhialini and M. Schönberg. (8) "Showers of Penetrating Particles under 30 m. of Clay", by P. A. Pompeia, M. D. Souza Santos and G. Wataghin. (9) "On the Production of Mesotrons at High Altitudes", by E. O. Wollan; this interesting paper gives the results of balloon flights to determine the *multiple* production of mesons as a function of altitude. No maximum is found up to a height corresponding to a pressure of 3 cm. of mercury.

It is unfortunate that publication of this report has been so long delayed, for much of the original work presented at the conference has been published in the meantime. G. D. R.

Fitz-James O'Brien

A Literary Bohemian of the Eighteen-Fifties. By Prof. Francis Wolle. (University of Colorado Studies, Series B: Studies in the Humanities, Vol. 2, No. 2.) Pp. xi+309. (Boulder, Colo.: University of Colorado, 1944.) 2 dollars.

IN this painstaking and amply documented study Mr. Wolle follows the fortunes of a young Irishman who arrived in New York in 1852 with nothing but his wit and ready pen for luggage, and in the next ten years poured out a flood of ephemeral literature, reflecting the many facets of contemporary society. Such a chameleon could not escape the mid-nineteenth century interest in scientific discoveries and pseudo-scientific speculation. In his short stories, which rival in horror those of Poe, figure an invisible monster, a glass eye, robot killers, disembodied organs which continue to function normally, a swiftly revolving ball which is impervious to the force of gravity ("How I Overcame My Gravity"), a telepathist and, in his best-known work, "The Diamond Lens", a microscopist. This miscreant, by means of cold-blooded murder, produces the perfect lens, only to discover his ideal woman in a drop of water. Unable to make contact with her, he is doomed to watch her fade as the water evaporates. He goes mad.

Unfortunately science, in the hands of an inept surgeon, was unable to save O'Brien from the result of a pistol shot in the left shoulder, which he got while fighting with a New York regiment during the Civil War. After much needless suffering, a resection of the joint was decided on, tetanus set in, and this gifted but irresponsible Bohemian died at the age of thirty-three. Whether he would ever have fulfilled the fitful promise of his early years seems doubtful, and one wonders if it was worth while so meticulously to disinter his literary remains. They have something of a charnel-house smell, and one can only wonder at the mediocrity of a literary society in which their author ranked with the best. PHYLLIS HARTNOLL.

Studies on Immunisation

Second Series. With Appendices dealing with Antityphoid Inoculation, Chemotherapy, and Statistical and other Operations of Induction. By Sir Almroth E. Wright. (Researches from the Inoculation Department, St. Mary's Hospital, London, W.2, Vol. 4.) Pp. vii+256. (London: William Heinemann (Medical Books), Ltd., 1944.) 25s. net.

THIS volume contains selections from the published works of Sir Almroth E. Wright and his collaborators. The subjects include vaccine therapy, prophylactic inoculation against pneumonia, and other aspects of the field of immunity.