

up to advise on examinations, analysis and, later, research (1918). Since 1922 the Institute has conducted examinations annually on subjects ranging from fundamental physics and chemistry to brewing technologies, engineering, etc.

The research scheme has passed through three phases. At first, problems were investigated in various places by workers maintained there by the Institute: barley at Rothamsted, hops at Wye (new varieties), growing, etc., at East Malling, and the antiseptic constituents at the Manchester College of Technology, nitrogen metabolism of yeast at the Imperial College of Science and Technology, London, and Cadby Hall (J. Lyons and Co., Ltd.), and pH in relation to brewing at W. Younger's and Tetley's breweries. At this time a research organizer coordinated the work. In 1934 all laboratory work except that on hops was concentrated in the Birmingham Brewing School, all the studies being supervised by committees already in being. Finally, after many setbacks, a director was appointed, and all the work was transferred to the present Brewing Industry Research Foundation at Nutfield (1951). This is still the Institute's research scheme, financed on a vastly greater scale.

During the Second World War, contributions to the national effort included experimental work on the use of oats, flaked barley, lupulin, surplus yeast, concentration of beer, pest infestation of barley and vitamins of the B group in beer. A final contribution to brewing science and education has been the Institute's membership and support of the European Brewery Convention (1947).

The book has eight appendixes recording the names of officers of the Institute and forty-nine photographs of some of these and of scientists who have contributed to its success. The index is very comprehensive.

R. H. HOPKINS

## RESEARCH ON TUBERCULOSIS AND LEPROSY

### Experimental Tuberculosis

Bacillus and Host. With an Addendum on Leprosy. Edited by G. E. W. Wolstenholme and Margaret P. Cameron. (A Ciba Foundation Symposium.) Pp. xii+396+24 plates. (London: J. and A. Churchill, Ltd., 1955.) 42s. net.

PRESENT-DAY research in tuberculosis and leprosy continues to attract investigators of widely different disciplines, each interested basically in a limited aspect of the subject regarded from his own scientific point of view. There is thus a danger of the study of these important diseases becoming fragmented into entirely separate domains of chemistry, pharmacology, pathology, bacteriology and immunology. One of the most valuable contributions of the Ciba Foundation is its rare facility for organizing symposia in which all these separate approaches to what is fundamentally one coherent study can be blended. Reports which would normally be heard only by workers of the same scientific background are here presented in an informal atmosphere for consideration by those equally expert in other branches of the selected subject. Thus, in the published symposia, the most striking feature is not the undoubted excellence of the main contributions, but the unusually stimulating discussion on each paper,

which is reported verbatim. In a symposium of this type there is far less preoccupation with specialized knowledge than is usual at any sectional meeting; the exchange of ideas, and the cross-fertilization of one speciality by another gain considerably in the process.

The present symposium begins with a series of papers on the chemical structure of Mycobacteria and the biological activity of various fractions of the bacterial protoplasm. The emphasis here may seem perhaps a little overwhelmingly academic to the medical research worker. However, a very large volume of work is skilfully compressed into short readable accounts, and the implications and objects of the researches are well brought out both in the discussions and in the well-balanced progress of the programme. In the next section attention is gradually focused on the host animal—how the tissues respond to the infecting organism, and which bacterial fractions are important in eliciting such response. Here both hypersensitivity and immune reactions are considered. Equally important is a complementary study of how the bacilli themselves may be affected by biochemical reactions of the host animal. Some of the factors concerned in resistance to infection are illustrated by *in vitro* studies with infected tissue cultures, and by observations of the immunity of animals previously exposed to non-lethal infections; indirect evidence obtained by interference with the normal host-parasite relationship by cortisone or by chemotherapy is also presented. In the addendum on experimental leprosy, the common denominators in the two diseases and in the tissue responses of the infected host to either organism are underlined.

In a symposium of this size, it is perhaps invidious to select individual contributors for special mention. It suffices to say that, whatever the special interest of the reader, here he will find his acknowledged leaders; however well he considers he 'knows the literature', he will still learn much from reading each contributor undergoing the only satisfactory test—trial by his peers.

DEREK HOBSON

## METEOROLOGY OF THE FALKLAND ISLANDS AND DEPENDENCIES

### The Meteorology of The Falkland Islands and Dependencies

By J. Pepper. Pp. vi+249. (London: Crown Agents for Oversea Governments and Administrations, 1954.) 42s.

THIS large, beautifully produced book contains a discussion and tabulated summaries of the surface meteorological observations made between 1944 and 1950 at Port Stanley, Falkland Islands, and at nine stations in the Dependencies constituted by the Graham Land Peninsula on the Antarctic Continent and the islands in the Antarctic Ocean to the north of Graham Land. The station farthest south, Marguerite Bay on Graham Land, is some nine hundred miles from Port Stanley. All are at or near sea-level. Besides meteorological data, the book includes a description of the sea-ice variations observed in 1950.

The Dependencies stations, except for the one at South Georgia operated by an Argentine whaling company until 1949, were originally set up by the