

feature of the cane-sugar industry. As most sugar factories in the tropics have chemists in control, or at least managers who have some knowledge of chemistry as applied to sugar manufacture, the author seems to have been unnecessarily generous in devoting space to the description of common apparatus and customary methods of analysis. The opportunity might have been taken to direct attention to new sources of supply of apparatus which have become available since the war. No chemist, even in a neutral country, can wish to return to the pre-war dependence on one country for supplies of these materials. Heating appliances for laboratory use are often a difficulty in the tropics, but the author only refers to electrically heated plates and to an alcohol burner. Where current is available, electrically heated water-baths of the type readily obtainable in this country are often preferable to hot-plates, and where current is not available, petrol-air Bunsen burners are probably the best substitute. There must be few parts of the tropics where petrol is not obtainable, and there are British machines for producing the petrol-air mixture which are being used with success in laboratories in the West Indies, Mauritius, and elsewhere.

As regards materials used in sugar manufacture, it is disappointing to find no adequate discussion of the physical properties of sand and kieselguhr, on which the filtering value of these materials depends.

Beyond the statement in a table on p. 5 that the sugar-cane contains 0.2 per cent. of fat and wax, there is no reference to sugar-cane wax, although this may become an important by-product of the sugar-cane industry in the future, and is, in fact, already a commercial article. Another useful addition to the handbook would be a *résumé* of recent work on the improvement of sugar-canes, on which so much work has been done in recent years.

Some of these omissions are perhaps due to the fact that although the book appeared in 1916, it seems to have taken at least a year to pass through the press. The book is well produced on good paper, but it is difficult to see why 15s. net should be charged for a book of this size.

(2) Mr. Zavalla's book deals with one of the chief industrial uses of sugar, viz. the "canning" of fruits. It is provided with an introduction by the Dean of the College of Agriculture of the University of California, who begins by saying that "human beings may be traced in almost any part of the globe through the tin cans which they leave behind them," and ends with the hope that the labours of the author will contribute to "the realisation of a uniform and satisfactory food supply for the human race." Probably no one but a citizen of the United States could take the "canning" industry so seriously as all that. Mr. Zavalla describes the processes and plant used in preserving fruits and vegetables in California, from the making of the cans to the construction of the wooden cases in which the tins of preserved fruits and vegetables are shipped. He

also discusses and gives a good deal of useful information on the micro-organisms which are found in spoiled tinned goods. This portion of the book would be worth separate and more fundamental treatment by a competent biologist who has given special attention to the subject. The book will, no doubt, be useful to those engaged in this industry, which is rapidly assuming large dimensions and bids fair to become of great importance in British tropical and sub-tropical colonies.

OUR BOOKSHELF.

Herbert Spencer. By Hugh Elliot. (Makers of the Nineteenth Century Series.) Pp. vi+330+1 portrait. (London: Constable and Co., Ltd., 1917.) Price 6s. net.

THIS is a vigorous and discriminating account of Herbert Spencer's contributions to modern intellectual development. It is written by one who saturated himself with Spencer's doctrines (and read all his works) when on service in the South African War, and has had the endurance to repeat the experience since 1914, with the bitter conviction that if Europe had followed Spencer the present war could never have occurred. "The spirit of Treitschke has triumphed over the spirit of Spencer—the metaphysics of Germany over the common sense of England."

Mr. Elliot's earlier discipleship has lost its dogmatism, but his admiration remains strong for the last of the great nineteenth-century apostles of reason and liberty. As is well known, Spencer expressed the larger and better part of his personality in his works, as an artist might in his paintings, and Mr. Elliot recognises this in his biographical sketch. There is a convincing unity—better, we think, than heretofore—in the picture which the author gives us of the synthetic philosopher. "Evolution and Liberty are the two guiding stars of Spencer's philosophy," and in his exposition Mr. Elliot develops the thesis that Spencer was a man of very strong natural penetration, who formed his theories first and established, or sought to establish, them by induction afterwards—which is, truth to tell, a very common mode of scientific procedure.

For much that Spencer achieved, for instance, in making the evolution-idea organic in all our thinking, a new generation is already forgetting to be grateful; many of his arguments, as this appreciation (which has the true Spencerian spirit) well shows, have lost their cogency; some of the foundation-stones, such as the transmissibility of individually acquired somatic modifications, have not borne the weight of the superimposed structure. But we share with the author of this effective and interesting book the hope that one of the rhythms of intellectual opinion spoken of in the "First Principles" may bring many—especially those whose thinking needs vertebration—back to a Spencerian study of Spencer's works. A good introduction is here to hand.