

without afterwards summing up. The reader is left confused.

The book is comprehensive; it has the conventional subdivision into liquid-gas, liquid-liquid, solid-gas, solid-liquid-gas, solid-liquid-liquid, and a final chapter on electric surface phenomena. It is extremely well and thoroughly documented and the international scope of the references is most praiseworthy. Taking a chapter at random, out of 284 references, 23 were to books, 71 to technical journals and, of the remainder to academic publications, 45 were German, 51 British, 23 Russian, 21 American and the remaining 50 assorted European. As usual, of course, this completeness of bibliography has led to lack of critical assessment and to citing papers which will be found to add nothing to accepted statements. It has also led to a curious tendency to cite results obtained from rather exotic systems without enough data upon simple ones and common substances. To give examples, the section of four pages on unimolecular films contains a statement that "Since the length" (of what, is not stated) "does not differ much from the length of an 'oil' molecule, films of a similar or smaller thickness are termed unimolecular". This is all the introduction to this important branch of surface chemistry that the author gives to the industrial worker. No force area curves are reproduced. Shortly afterwards, foams receive 14½ pages.

The section on emulsions is a good example of the second chief fault of the book, namely, that of making an exact statement and following it by a collection of reservations, usually showing noticeable critical thought. The diagrams are unusually well designed and drawn, but the type used for numerals in the text is bad and the '2' is a continuous offence to the eye.

This miscellany should be welcomed by those lecturers who like to enliven their teaching with references to practical applications and perhaps by students wishing to heckle their lecturers. It cannot be recommended to anyone else, which is a pity, because the book does contain much acute and critical thought.

Compilations of this sort are nothing new; they are a sort of crude operational research in technology which has been practised for centuries. Another recent book in this same field—"Emulsions and Foams", by Berkman and Egloff—is an example of work of this character in its extreme form, unadulterated by critical discussion or theoretical foundation. Such authors can properly retort, especially in the case of emulsions, that there exists no such fundamental foundation and that their books are a criticism of, and a challenge to, academic workers. Here the Irishman's definition of a net as a lot of holes tied together with bits of string is apt. Fundamental theory and experiment is the string; somewhere in the holes is the practical application; some of the holes are very large ones, especially in a science of such recent growth as surface chemistry. Applied science cannot alone fill them, and fundamental work must do more to bridge the gaps. Their co-operation, however, is not encouraged by publication of masses of facts and figures not correlated with any organised net-work of knowledge, and not capable of being so correlated because they are observed without any intention of seeking such correlation.

Books of this sort are an indictment of the failure of academic workers to come down from their 'ivory

towers' and help to clean up the mess; but they also indict the applied worker in industry, often engaged as a research worker. There are far more of these in industry than there are in the universities; they are able men; they have more time and often better facilities for research. Why do they not play a more serious part in bridging the gap between pure and applied science? Why is this serious wastage tolerated? Perhaps because the 'practical' man is in charge and he says: "cut out the theoretical stuff and tell me how it works". Bikerman's book will appeal to such so-called practical men.

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THE SCIENCE OF NUTRITION

Science and Nutrition

By A. L. Bacharach. Third edition. Pp. xii+142. (London: Watts and Co., Ltd., 1947.) 6s. net.

THE usefulness of this book, and its success, are now sufficiently well attested by the fact that it has now run into its third edition. The scope is well indicated by Sir Jack Drummond, who in the preface to the first edition published in 1938 wrote that it should be read "not only by the intelligent 'man-in-the-street', whom for no very clear reason one assumes to be a layman, but also by the medical profession, until quite recently lamentably behind-hand in recognizing the significance of experimental dietary studies, and perhaps even by the politicians who are at the moment very timorously testing the strength of 'nutrition' as a party plank".

A second edition, thoroughly revised and in many parts rewritten, was published in 1944, when the author wrote: "The last five years have shown a very marked change in the attitude of the public to the problems of nutrition. An enlightened Ministry of Food of which the effectiveness was no doubt in large measure due to its youth and its freedom from the trammels of precedent; to a Minister who not only understood human nature, but also appreciated the value that science can have for the community; to a scientific adviser—the writer of the Preface to this book—whose grasp of practical possibilities proved as shrewd as his knowledge of nutritional science was wide and flexible, and whose practical and scientific services have, since this book was first published, been fittingly rewarded by Knighthood and the Fellowship of the Royal Society; last, but by no means least, to a Public Relations policy that has been as persistent and enthusiastic as it has, generally, been honest and intelligent: all these factors have helped to make tens of thousands of people realize for the first time that eating and drinking may be as important in their effects on our physical health as a few have always realized them to be on our spiritual well-being".

That is very true, and well said; and what is equally important now is that the ground gained during the War should be extended further, and that public opinion should continue to be enlightened. In that aim, anyone seeking a balanced and interesting introduction to the science of nutrition can be recommended unhesitatingly to study this book. The new edition contains a number of minor changes and corrections and also a brief new allusion to folic acid, research on which has led to such remarkable developments since 1944.