

With a few notable exceptions the articles are neither impartial reviews nor critical summaries of recent work—with full analyses of the international literature—but rather disquisitions on particular aspects of the various subjects which happen to interest the particular authors concerned. Much that is said is therefore to be found in earlier publications by the same writers, while much relevant research by others is ignored (or merely included, without discussion, in the appended references). Evidence may even be found, in more than one passage, that the “specialist” or “authority” is not himself always familiar at first hand with all the matters of which he treats. In general, American work is emphasized, and the pictures presented are thus not always complete or satisfying to a British worker in the same field. Two glaring instances will illustrate these points sufficiently. (1) The senior editor, in his introductory chapter, rehearses “some historical facts” about the Protozoa. Their discovery is here attributed to “Anton von Leeuwenhoek”—as it was in the same author’s treatise of 1901. He thus appears to be still unaware that a vast amount of work has been done on Antony van Leeuwenhoek—especially in England and Holland—during the last forty years, so that there is no longer any excuse for germanizing his name or misquoting his words. Moreover, “Ludwig Hamm”—cited both in 1901 and in 1941 as the discoverer of the spermatozoa—is now a notorious ghost. (2) On p. 572 there is a figure of “the life cycle of *Endamæba coli* (= *Councilmania lafleurii*, Kofoid and Swezy, 1921)”. But the real and very different life-history of *E. coli* is now known; and “*C. lafleurii*”, as here depicted, is not recognized outside the author’s own laboratory in California.

On matters of history, and on general biological principles, other authors also appear to be sometimes strangely misinformed. Moreover, their individual views are not always consistent; though this is to be expected, and perhaps welcomed. Yet it seems curious that not one of them appears to understand the interpretation of Protozoa as non-cellular organisms: so that while the editors (and some others) still regard them as “unicellular”, we are told (on p. 578) that “it is biologically medieval to refer, as do many textbooks and other works, to *Paramecium* as a unicellular organism”. Unfortunately, the writer then concludes that it must be “multicellular”—being unable, apparently, to appreciate the difference between cells and nuclei. For him the terms “multicellular” and “multinucleate” are seemingly synonymous. Such confusion of ideas may surely be called biologically prehistoric rather than medieval.

It would be easy to find fault with many another inconsistency in this book, and to criticize its lack of coherence and direction; for it appears to enunciate no new general principles, and scarcely succeeds—if that is its intention—in correlating recent research on the Protozoa with general biological concepts. Yet for my part I am grateful to my American colleagues, both old and young, for stating—or restating—their own views; and, with other British protozoologists, I envy them their ability to spread themselves so lavishly and unconcernedly in these difficult and disturbing days. All the same, I doubt whether this kind of publication will encourage further research of any real value—the one thing we all have at heart. I can only hope that my own misgivings are unjustified, and that other workers—younger and better and less constrained—may find inspiration where I have sought it in vain.

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FORMULÆ AND TABLES FOR THE BOTANICAL LABORATORY

Plant Science Formulæ

A Reference Book for Plant Science Laboratories (including Bacteriology). By Prof. R. C. McLean and Dr. W. R. Ivimey Cook. Pp. vii+203. (London: Macmillan and Co., Ltd., 1941.) 7s. 6d. net.

IN botanical laboratories each individual worker tends to introduce modifications of methods of fixation, staining, etc., according to the particular requirements of his material and investigation; the result of this is that descriptions of methods become so multiplied as to be very confusing to an occasional worker in that branch of the subject, and much time may be wasted in looking up and deciding between the many possible methods of carrying out any one procedure. In course of time most workers tend to collect their own card index of selected methods and the authors state that this book is in fact their card index put into a more convenient form. For specialized methods the index will still be required, but in “Plant Science Formulæ” may be found the receipts, in the generally accepted form, of the commonly used fixatives, stains, culture media, etc., given in the simplest form and with the minimum of inessential detail. It is inevitable in such a book that any specialist worker is liable to find certain methods omitted or differing from those he is accustomed to use, and for this reason blank pages are inserted at the end of each section for additions.

As the authors point out, this is essentially a book to have at hand in the laboratory and would lose much of its purpose if put away on the library shelf. The receipts for technique are followed by sections on the various necessary accompaniments of laboratory work, either of the laboratory steward, research worker or teacher, as, for example, information on photographic work and preparation of lantern slides and museum specimens, odds and ends of information for the workshop, tables of weights and measures, atomic weights, various physical formulæ and constants and logarithm tables, so that the authors have made a very real attempt to collect into one book all the miscellaneous facts and formulæ which are continually being required in the laboratory and are scarcely ever readily available.

The authors stress the point that the aim of the book is also to help the teacher who commences work in a school or technical institution with nothing more than the usual college training in the use of certain methods with reagents supplied ready prepared. It is hoped that such students have had sufficient training to enable them to make up reagents, culture media, etc., given the receipts and sufficient directions, and to such as these, who also often have little access to books and little time for searching out directions, this book should prove extremely useful. For this class of reader there are also included lists of the general requirements for the laboratory and the addresses of suitable firms who supply chemicals, microscopes and biological materials.

In some cases reference to sources of the methods would have proved useful for further details as to methods, but probably the book in its present size and price will meet a wider need than a larger and more expensive volume. The book will certainly prove of very considerable value if used, as the authors intend, essentially as a laboratory book to which constant reference may be made.