Book Review

Methods of Detection and Identification of Bacteria. Brij M. Mitruka. CRC Press, Cleveland, Ohio, 1976, 256 p., \$52.95.

Something useful will be found in this book for any student or professional microbiologist engaged in identifying bacteria. A review rather than a manual, the book provides the principles, examples of applications, limitations, and literature references to cover a multiplicity of methods for detection and identification, but the precise details of how to perform many of the procedures will generally need to be obtained from other sources. The value of the book lies in its role as a "street map and city guide" to the literature of bacterial identification.

A brief description of the various approaches used for classifying bacteria is given in the introduction, but the basic distinctions between the three facets of bacterial taxonomy, namely, classification, nomenclature, and identification, need to be more clearly delineated. It is important for the reader to realize that identification schemes are not classification schemes and that reliable identification schemes can be constructed only after bacteria have first been suitably classified.

Although the second chapter describes a number of conventional laboratory procedures, it is devoted mainly to presenting various identification schemes and miscellaneous information concerning medically important bacteria. Other current manuals of diagnostic bacteriology provide better-organized and more comprehensive treatments of these organisms, and one wishes that this chapter could have been devoted to the methods themselves, including those useful for soil, water, or food organisms as well as for pathogens, with some discussion of the advantages and disadvantages of alternative ways to perform a given test.

The greatest strength of the book lies in the subsequent chapters, which deal with recent and imaginative methods for sensitive detection and rapid identification of bacteria. Among the methods discussed are ultraviolet spectra of bac-

teria, chemiluminescence for determining extremely small amounts of hematin compounds, adenosine triphosphate assays, gel electrophoresis profiles of bacterial proteins, radioisotope methods for detecting small numbers of bacteria, counterimmunoelectrophoresis of bacterial antigens in clinical samples, multiple test and multiple inoculation techniques, automation of various procedures, computerized identification and probabilistic methods, and many more. One chapter deals entirely with gas chromatography and includes profiles of metabolic products, pyrolysis, and concurrent use of mass spectrometry. (Oddly, an important application of gas chromatography, namely, the acetylene reduction method for detection of nitrogenase activity, is not discussed.) It is largely because these chapters succinctly introduce and explain such methods that many microbiologists will find the book a welcome addition to their library.

Some minor errors detract from the accuracy of the book and should be corrected in future printings. For example, the genus *Vibrio* is no longer included in the family *Spirillaceae* (p. 44); no clear definition of facultative or microaerophilic bacteria is provided (p. 16); there is no mention of *Spirillum* on p. 44 despite an index citation (p. 253); Figure 2.1 has lost much of its value due to poor reproduction (p. 17); a rapid membrane filter staining method is unwittingly discussed twice on p. 92; bacterial flagella are not 0.12 μm thick (p. 15); obsolete bacterial names are occasionally used (*Bacillus dysenteriae* and *Shigella shiga*, p. 15; *Vibrio fetus*, p. 44); and a few spelling errors occur ("quantitated" instead of "quantified", p. 121; "*Linulus*" lysate test instead of "*Limulus*", p. 112 and p. 245; and "Adamson" instead of "Adanson", p. 212).

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