tions) is included in 35 pages with an estimated 1100 entries, all fully documented.

A novel and interesting Section six reproduces the title pages of "classic" articles in the genus Salmonella from Eberth (1880) to Kauffmann (1934).

The index is quite adequate.

The author has collected and well annotated an amazing amount of information relative to the names applied to the accepted species of the Kauffmann-White schema. The Kelterborn volume should find wide acceptance by epidemiologists for its clarity and encyclopedic coverage from the first recognition of Salmonella to its date of publication.

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A Guide to the Identification of the Genera of Bacteria with Methods and Digests of Generic Characteristics, Second Edition. By V. B. D. Skerman. Williams and Wilkins, Baltimore. Price \$9.75. 1967.

The author notes the need for recognition of the advances that have been made in systematic bacteriology since the publication of Bergey's Manual of Determinative Bacteriology, Edition 7, in 1957. The following statement from the Preface to the Second Edition indicates the scope:

"The key to the genera of bacteria has been compiled with the aim of placing in the hands of research workers, teachers and students a volume in which general directives for the identification of the genera of bacteria are supported by a complete list of the methods needed for the purpose."

The volume has five sections and a well organized and comprehensive index. A preliminary chapter is devoted to a straightforward discussion of numerical taxonomy with the heading "Elements of a numerical analysis." The author states:

"It is my intention here to give only a brief but operative outline of the procedures and to emphasize the importance of some of these aspects to the future of systematics."

The special nomenclature of systematics of numerical taxonomy are well developed and outlined. Conventional methods in systematic bacteriology have thus far yielded relatively satisfactory results, which have usually been confirmed by numerical analysis. However, it is emphasized that the conventional methods can no longer deal adequately with the mass handling of cultures.

Next included is essentially a complete revision of the key originally published in the 7th edition of Bergey's Manual. An interesting and valuable inclusion is the attempt to correlate the genera as determined by the key within the Manual and in the publications of Topley and Wilson, of Prévot, and of Krasil'nikov. Notes are frequently inserted, some of them justifiably critical. The 78 pages developing the comprehensive key constitute a mine of useful information.

The "Digest of Genera" (116 pages) puts in form conclusions as to what constitutes the major groups. The 209 genera are recognized in six groups, the photosynthetic bacteria (21 genera), the nonphotosynthetic bacteria (152 genera), the slime bacteria (13 genera), and the long descriptive title which essentially is the Spirochaetales of Bergey's Manual exclusive of the genus Saprosira (5 genera).

The next heading, "Pleuropneumonia or Pleuropneumonia-like organisms," deals with one genus. The last is rather inappropriately termed "Obligate parasites of the animal kingdom" (18 genera) and is essentially the order Rickettsiales.

The usefulness of the treatise is greatly increased by the inclusion of 31 plates with about 185 microphotographs (for the most part) of representative species.

An interesting and very valuable statement of the author's views as to the status of each of the 209 genera is included in the "Digest of Genera." Essentially the characterization of each genus is a valuable commentary by the author on what he regards as its present taxonomic status. In each account the name of the genus is followed by a division of the work into syllables with indication of the syllable having the primary accent. The treatment is not altogether consistent. This is followed by the page number of the 7th edition of Bergey's Manual in which the genus is described, and this by parenthetical citation of the original description of the genus. The succeeding paragraph lists the important differentiating characters. The treatment in general is commendable. Following is the name of the type species. In general these names are correct but are questionable in a few instances. For example, the generic name Xanthomonas proposed by Dowson included the proposal of X. hyacinthi (Wakker) Dowson as the type species. This is probably an error.

Under the heading of "Notes" Dr. Skerman's analysis of the present day situation is in general to the point and should

prove invaluable to those working in the field of bacterial taxonomy. In many cases a list of references to recent literature is given.

Dr. Skerman has found some difficulty in labeling certain groups. For example, he designates so-called myxobacteria by the heading "The Slime Bacteria." Inasmuch as many species of bacteria other than those belonging here produce "slime" it would seem better to have used the designation "The Gliding Bacteria" or, perhaps better yet, "The Myxobacters." The heading for one of the sections in the "Digest of Genera" as noted above is "Pleuropneumonia and Pleuropneumonia-like organisms." One is puzzled to know why this bit of incorrect English laboratory jargon is included. Pleuropneumonia is the name of the disease caused by the type species of the genus Mycoplasma. The phrase "Pleuropneumonia-like organisms" is frequently abbreviated as PPLO. That an organism should be said to resemble the disease it causes is certainly inappropriate.

The heading of the last group in the digest is "Obligate Parasites of the Animal Kingdom." Why should such a heading be used for the well-recognized groups of organisms when the genera included are exactly those placed in the order Rickettsiales in the 7th edition of Bergey's Manual?

The next 74 pages on "Methods" constitute a most valuable revision of the corresponding chapter in Edition 1. The methods listed have been carefully tested. The formulae described should constitute a helpful addition to the present armamentarium in the preparation of the basal mineral salts medium. Not only media but techniques are described clearly.

"A Guide to Study" includes 32 headings outlining the techniques to be used in an advanced technical laboratory in systematic bacteriology where it is desired to acquaint students rather intimately with representatives of each one of the major groups of bacteria.

Skerman's Guide to the Identification of the Genera is well printed and well indexed. It should find wide acceptance in bacteriological laboratories. It is a major step in the eventual elimination of the chaos evident in the bacteriological taxonomy and nomenclature of the past.

- R. E. Buchanan