Preface

This seventh edition of *Microbiological Applications* is an attempt to upgrade concepts where needed, eliminate experiments or portions of experiments that are no longer appropriate, and to clarify text that seems confusing, To help us decide where changes were needed, we were able to enlist the help of twenty-five individuals from 22 colleges and universities in different regions of the country.

Although no new exercises have been added to this edition, 26 exercises in the manual have been altered in one way or another. Many of the changes are quite minor. In some cases only media changes have been made. In others a change may be as insignificant as providing substitute organisms for an experiment. In many instances the changes simply enable instructors to choose alternate methods of performing experiments.

Our usage of Whittaker's five-kingdom system of classification in Part 2 is justifiably criticized as being outdated. This is acknowledged on the title page of Part 2 that pertains to an overview study of microorganisms. However, instead of abandoning the five-kingdom system for the three-domain system at this time we have elected to alert students to the fact that a new classification system is emerging that will eventually displace Whittaker's system. Doing a complete change over to the three-domain system at this time would have drastically altered the structure of all the exercises in Part 2. Hopefully, the next edition will incorporate the desired information.

The following exercises have been expanded to incorporate new alternate procedures: Ex. 19 (Motility Determination), Ex. 71 (Microbiology of Fermented Milk Products) and Ex. 80 (Urinary Tract Pathogens.).

Exercise 23 (Bacterial Population Counts) has been considerably revised. The procedures involved in pipette handling and spectrophotometry have been improved. Changes have also been made in the manner of recording data on the Laboratory Report. Two other exercises that have been considerably revised are Exercises 53 and 54 that pertain to the Enterotube II and OxiFerm Tube II miniturized multitest systems. The revisions in these two exercises were made specifically to upgrade the techniques to current methods.

A great improvement in Part 8 (Identification of Unknown Bacteria) is the incorporation of *Identibacter interactus,* a computer program developed by Allan Konopka, Paul Furbacher, and Clark Gedney at Purdue University. This program is on a CD-ROM disc and can be purchased from WCB/McGraw-Hill Co. in Dubuque. Appendix F provides an explanation of how this program works.

I am greatly indebted to my editor, Elizabeth Sievers, who conducted a survey of individuals who use this manual in search of suggestions for improvement. In addition, I am deeply indebted to the following respondents who willingly yielded to Liz's requests: Barbara B. Hemmingsen at San Diego State University, Robert W. Phelps at San Diego Mesa College, Donald P. Stahly and Richard Roller at the University of Iowa, Thieron P. Harrison at the University of Central Oklahoma, David W. Essar and Emmanuel E. Brako at Winona State University, Joanne M. Kilpatrick and Angela C. Morrow at Auburn University, Dana Kelly Heiny at the University of Arkansas, Elizabeth Godrick at Boston University, Robert W. Bernlohr at Penn State University, Robyn Haskin at SUNY Delhi, Allen W. Nicholson at Wayne State University, Barbara M. Poole at Bossier Parish Community College, Teresa G. Fischer and Judy Gersony at Indian River Community College (Florida), Kathleen Bobbit at Wagner College, Staten Island. Fredrick M. Krick at Des Moines Area Community College, Jeffrey N. Lee at Essex County College (N.J.), Joseph Michalewicz at Holy Family College, Philadelphia, Fred H. Schindler at Indian Hills Community College, Iowa, Alejandro Viera at Passaic County Community College, Elzbet F. Diaz de Leon at Ventura College and Jeffrey C. Burne at Macon College.

Some of the laboratory experiments included in this test may be hazardous if materials are handled improperly or if procedures are conducted incorrectly. Safety precautions are necessary when you are working with chemicals, glass test tubes, hot water baths, sharp instruments, and the like, or for any procedures that generally require caution. Your school may have set regulations regarding safety procedures that your instructor will explain to you. Should you have any problems with materials or procedures, please ask your instructor for help.