PREFACE

Nearly a decade separates this edition from its predecessor. During this time, progress in Microbiology has been staggering in both quantity and importance. Whereas this is a cause for satisfaction to both practitioners and the consumers of this science, it does accentuate the ancient problem of what to include in a work such as this one. The solution that has presented itself is not new: decide on what can be said to be the most important and central subjects to this science and ask authorities to write about the field of their expertise.

The topics chosen for this edition are not novel but their treatment mirrors the changes in Microbiology. Several themes are becoming more dominant in this science. Among them are the following grand realizations:

- A large proportion of the biosphere is microbial and has a profound influence on nearly all aspects of this planet's metabolism, including its geology, cycles of matter, and even its meteorology.
- Microbes have been the sole, ergo, the dominant force in the first 80% or so of life on Earth and have played a key role in the evolution of all life forms.
- Practically all human activities have a microbial component, including health and food production.

Whereas these developments involve more and more fields of specialization, microbiology has become more unified. Common molecular mechanisms of adhesion to surfaces, quorum sensing, signal transduction, constructing communities, or injecting proteins directly into host cells are found in dissimilar organisms that represent a broad spectrum of microbial life. Microbiologists now tend to speak a common language. Nowadays, a marine microbiologist can easily talk to one studying human pathogens and a food microbiologist can converse effortlessly with one studying evolution. Those studying the microbial world share not just a genomic database but, more profoundly, the realization that microorganisms make use of similar capabilities for diverse purposes.

The most significant outward change in this edition has been its conversion to the Web. This has advantages over the printed versions, including the ability to search for topics and subtopics, linking to the references, and avoiding the back-breaking task of carrying it around. The volumes of the previous edition weighed *in toto* about 15 Kg, these would have topped 20 Kg!

We are grateful to many colleagues who made suggestions and provided help to us. Special thanks go to Mark Jensen, who made highly skillful contributions to our editing process.

Moselio Schaechter