PHYSICS FOR BIOLOGY AND PREMEDICAL STUDENTS, by Desmond M. Burns and Simon G. G. MacDonald. 1970. Addison-Wesley Publishing Co., Reading, Mass. 614 p. $9.50.

This is a well-written book—lucid and succinct. As its title suggests, the book has been written with medical and biologic applications in mind, and many of the illustrative examples come from these fields. However, the emphasis throughout is on physical principles rather than applications: as the authors point out, application may change but the principles do not.

The presentation is factual rather than historical. It is directed to the technically oriented student, not the liberal-arts student. Indeed, but for its slant toward biology it could probably serve equally well as a textbook for engineering students. It devotes very little space to the historical development of physical concepts and no space at all to such "impractical" but interesting (to physicists) topics as Einstein's special theory of relativity and Heisenberg's uncertainty principle. But it does devote considerable space to optical instruments and electrical circuits, with good theoretic discussions of both. It presupposes little background in mathematics and spends several early chapters introducing students to the elements of calculus, probability, and vectors, which are used from then on. The beginning student might be overwhelmed by the quantity of material the book contains; but, having worked his way through it once, he is likely to wish to keep it in his library as a reference to be used when he actually comes face to face with an x-ray machine or a spectrophotometer.

The book does admirably what it sets out to do; namely, to present those principles and applications of physics that are most likely to be of interest to future biologists and medical doctors.

Richard C. Bradley
Colorado College
Colorado Springs

EXPERIMENTAL BIOLOGY, by Richard W. Van Norman. 2d ed., 1971. Prentice-Hall, Inc., Englewood Cliffs, N. J. 282 p. $9.95.

This book was written for students in Van Norman's course in experimental biology, but I assume most of the potential readers will use it as a guide without benefit of formal training when they start undergraduate research. The author gives a comprehensive, succinct introduction to the place of biologic research and some of the personal attributes of the investigator, together with a general description of several popular techniques and the use of mathematics in experimental design and interpretation of data. He also describes how to compose the research report. Each chapter ends with an annotated bibliography. It is the best all-purpose introduction to research for the beginning investigator I have read.

The principle topics include research areas, literature, measurements, selection of techniques, selection and preparation of organisms, centrifugation, microscopy, spectrophotometry, gas exchange, chromatography, use of isotopic tracers, electrical measurements, x-ray crystallography, electrophoresis, curve-fitting, statistics, experimental design, and writing the manuscript.

The author has kept in mind most of the important questions students ask, such as how do I find a problem, what instruments should I use and how do they work, how much data do I need, and what is the purpose of my report. If there are any shortcomings one might be his lack of emphasis on what motivates biologists. Most potential biologists are uncertain as to their suitability for this career, and a description of the wide variety of motivators would be most useful at this stage in their development.

The book does not include as many precautions in the use of instruments as it should. Through improper use of apparatus, too many undergraduate research projects have been thwarted by mechanical breakdown or because inaccurate data have been collected from malfunctioning machines. Manometry is covered extensively; volumenometry, an important technique, is omitted; and the use of polarographic oxygen measurement is treated too briefly.

The most commendable section deals with the handling of data and experimental design. Rather than a bare description of statistical methods, the undergraduate will find reasons why different treatments of data are necessary to make meaningful interpretations. By putting the chapter on experimental design at the end, the importance of creating an experiment that will yield the right observations in the proper quantity is easily apparent.

There are several books on experimental techniques for biologists, but *Experimental Biology* and another of the same title (R. Kay, 1964: *Experimental Biology;* Reinhold Publishing Corp., New York) are the only ones written as comprehensive guides. Of the two, Van Norman's gives the wider coverage.

Donald L. Wise
College of Wooster
Wooster, Ohio

TEXTBOOK OF IMMUNOLOGY: AN INTRODUCTION TO IMMUNOCHEMISTRY AND IMMUNOBIOLOGY, by James T. Barrett. 1970. C. V. Mosby Co., St. Louis. 333 p. $10.50.

This book is written as a textbook for graduate and undergraduate students of biology and health sciences, who approach the study of immunology for a variety of reasons and with widely differing preparation. The book is divided into three sections of four chapters each; the divisions are natural and the continuity is good. An excellent historical chapter is followed by descriptions of antigens and antibodies, including a chapter on immunochemistry. The *in vivo* and *in vitro* aspects of immunology are covered in the second half of the book.

Throughout, theory and practice are well integrated; thus the material should be extremely helpful as a background for laboratory work in immunology. Clear, easily interpreted diagrams accompany the explanations of various phenomena and techniques. (A few more of these would have been useful.)

There are general references at the end of each chapter, and there are appendices. The first appendix is a concise review of macromolecular chemistry—a very useful addition. The second is one of the best features of the book. It consists of a series of selected readings in immunology. Chosen with great care, they present some of the most important recent advances in immunology in their original form. This gives pertinent background material and demonstrates how ideas develop and how material gets from the laboratory bench to the textbook. It gives students an opportunity to read and comprehend material printed in journalistic form and will, perhaps, lead them to pursue the topics in the current literature.

This text should be very useful to teachers and students of immunology. It is clear, concise, up-to-date, and very readable.

Sister Rosemary Connell, C.S.J.
Fontbonne College
St. Louis, Mo.

BIOSPHERE: A STUDY OF LIFE, by N. M. Jessop. 1970. Prentice-Hall, Inc., Englewood Cliffs, N.J. 954 p. $11.50.

A major problem in textbook selection has always been that of avoiding the rocky shoals of inadequate coverage without floundering in the unfathomable depths of content overkill. *Biosphere: a Study of Life* is presented on the assumption that the latter is the lesser danger. Ironically the book falters and stumbles into the trap it would claim is the easier to avoid.

There is much that is good about this book. Ecology and evolution are introduced early and provide the major theme for the chapters that follow. Within this arrangement the presentation is topical, and Jessop has been quite successful in integrating structure and function for a wide selection of organisms. Zoologic topics are treated well, with the emphasis somewhat on vertebrates. Man is frequently cited as