BOOK REVIEWS

An Introduction to Atmospheric Physics. By Robert G. Fleagle and Joost A. Businger. Vol. 5 of Internat'l Geophysics Series, edited by J. Van Mieghem. 346 pp. Academic, New York, 1963. $12.00.
Reviewed by S. Fred Singer, University of Maryland.

Atmospheric physics has traditionally been a part of a meteorology curriculum; however it is rapidly becoming a part of the undergraduate physics curriculum as well, taking its place with nuclear physics, solid-state physics, optics, acoustics, etc. But the number of suitable and up-to-date texts is small.

While the other volumes in the International Geophysics Series are monographs, the present book is a text, pure and simple. It is an elementary treatment, suitable for undergraduate students after their basic course of physics; it is simpler for example than the well-known text by John C. Johnson on *Physical Meteorology*, published in 1954.

The subject matter covers those meteorological phenomena not directly concerned with the circulation of the atmosphere: thermodynamics of atmospheric gases; growth and electrical behavior of cloud particles; radiation transfer; infrared absorption and emission in the atmosphere; and a short section on photochemical processes. Next, various energy transfer processes are described, including nonradiative ones.

There follows a very brief account of some geomagnetic phenomena, and finally a discussion of optical, radio and radar, and acoustical propagation effects in the atmosphere. Each chapter is followed by a List of Symbols, Problems, and General References. The Appendix deals with elementary vector analysis and similar topics.

It is fairly clear that the text will find its greatest appeal among undergraduate students in meteorology or engineering. Physicists may find the treatment of certain topics too brief to be satisfying. Of course, it is always a matter of individual taste what topics to include and to what depth to treat them. I would prefer to leave Maxwell's equations to a course on electricity and magnetism, to leave geomagnetic phenomena (including magnetosphere and aurorae) to a separate course on space physics, and concentrate more attention on Rayleigh and Mie scattering. On the other hand, the treatment of the topics which are peculiar to atmospheric physics, such as transfer processes, are excellently handled.

Science in the College Curriculum. Conf. Proc. (Oakland U., May 1962). Robert Hoopes, ed. 211 pp. Oakland University, Rochester, Mich., 1963.
Reviewed by Richard Schlegel, Michigan State University.

Any physicist who by inclination or committee assignment has taken the least thought about the content of the college curriculum will surely have wrestled with the problem of science education for the non-science student. In the conference which was held at Oakland, the newest of Michigan's state universities, a group of distinguished scholars and science-educators came together to discuss the problem. The report of their proceedings contains both a due amount of material on the needs for science education and on general approaches that may be taken, and also many comments that reflect earned experiences from teaching in classroom and laboratory. There is a useful appendix in which the general education requirements, in all fields, not just science, at sixty-five American colleges and universities are listed.

The conference group did come to some definite recommendations. It was felt that two year-courses are the minimum college time that should be devoted to science education, and many felt that there should be some additional course time in mathematics. The two years seem generally to divide along the lines of one of physical and one of biological science. But, with a few exceptions, the conferees felt that the traditional introductory course programs are not satisfactory, and that special courses must be devised for the non-science student. Considerable attention was given to the importance of presenting historical, philosophical, and social-economic-political aspects of science in teaching these courses. Everyone agreed, apparently, that some laboratory work, preferably not of the formal, follow-the-instruction-sheet type, is essential in teaching students something of science. There was no defense of the use of television or motion pictures in place of actual laboratory work or demonstrations.

I finished reading this report with a renewed sense of the need for the assimilation of science into our general culture, and also with a sense of the debt we owe to the too small group of able people who are devoting themselves to the task. I think, too, that we should not feel that it is only the non-science student who profits from their labors. Inevitably, the attention they give to the history of science, to its philosophical significance (and validity), and to its social effects, will come back in various ways to the science student, and he will be all the better for that.

Recent Progress in Microcalorimetry. By E. Calvet and H. Prat. Edited and Translated from French by H. A. Skinner. 177 pp. (Pergamon, Oxford) Macmillan, New York, 1963. $8.50.
Reviewed by Joseph G. Hoffman, State University of New York at Buffalo.

A more appropriate title for this survey might be: "Selected Topics In Microcalorimetry". The recent progress alluded to is that which has occurred in the authors' work. Instead of being a survey of current literature, it is a presentation of the authors' recent work with the Tian-Calvet microcalorimeter and its applications to physico-chemical and biological objects. The bibliography is limited almost exclusively to the work of the authors. There are numerous footnote references to the larger treatise by the same authors published in 1956, and to which this book is really an addendum. The new material is somewhat improved over the older treatise in that one can tell what the units are.