growth. The three-volume series should set a standard for years to come.

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Atmospheric Physics

J. V. Iribarne, H. R. Cho
224 pp. Reidel, Hingham, Mass., 1980. $19.95

Atmospheric Physics aims to present a brief but comprehensive review of our knowledge about the terrestrial atmosphere in a student text. The authors, Julio Iribarne and Han-Ru Cho, come reasonably close to achieving that goal.

The book is principally concerned with the physical and chemical theory underlying weather phenomena rather than detailed description of the phenomena. In the beginning of the book the authors carefully discuss the extensive vocabulary of the atmospheric sciences. They then devote a chapter to air chemistry, describing the sulfur, nitrogen and carbon cycles. A brief section on aerosols and a well-presented discussion of the Earth's radiative energy balance are next. The processes that produce rain and snow are central topics in a chapter on cloud physics. The next chapter, on atmospheric electricity, emphasizes the relationship between the earth's electric field and thunderstorm electrification. About one-third of the text is devoted to a description of atmospheric thermodynamics and dynamics. There is no section on atmospheric optical phenomena.

The authors presume the student has a good grasp of basic physics (calculus level) and some acquaintance with vector analysis. They do not include examples of solved problems as a part of the text, although each chapter does contain a set of review questions and a problem set; an answer section provides problem-solving hints for each problem.

This book is not for light reading. It is precise, compact and carefully edited. The illustrations are done in a style that reflects the taste of a European rather than an American publisher. Though the authors use SI units, they lapse occasionally and do not convert the figures drawn from older texts to SI units.

Iribarne and Cho present this book as a text for a junior-level university course. A student with no prior exposure to the atmospheric sciences, however, would need additional examples, solved problems and supplementary materials to provide a context for this material. Still, this text is highly recommended to persons who wish to consolidate and fill the gaps of their knowledge of atmospheric science. It is a book that one would keep for reference.

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Io seen in front of the turbulent clouds of Jupiter's southern hemisphere. This photo was taken at a distance of 12 million kilometers by the Voyager 2 spacecraft on 25 June 1979. Io, the size of Earth's moon, was discovered to be the most volcanically active planetary body known in the solar system. The photograph appears in *Voyage to Jupiter* by D. Morrison and J. Samz (210 pp. NASA, Washington, DC, 1980. $7.50).

General Relativity and Gravitation: One Hundred Years After the Birth of Albert Einstein, Vols. 1 and 2

A. Held
598 and 540 pp., Plenum, New York, 1980. $45.75 each vol.

The celebration of the hundredth anniversary of the birth of Albert Einstein last year was the occasion for the appearance of a large number of symposia and memorial volumes on his work and its influence on 20th century physics. The volumes under review are part of this endeavor. Contributed by the International Society for General Relativity and Gravitation, they were edited by the society's secretary, Alan Held, advised by a board of Society members.

Einstein's last great contribution to physics, the general theory of relativity, is considered by many to be his greatest achievement. Yet, for most of its life, the general theory has led a schizophrenic existence as both a physical theory and a branch of pure mathematics. The contributions to *General Relativity and Gravitation* reflect this division. Of the 31 articles appearing in these volumes, only five are directly related to the physical applications of the theory. One of these articles contains a short summary of cosmology, two deal with gravitational waves and their detection, one reviews the experimental tests of the theory and one discusses gravitational collapse to the black-hole state. I am afraid that these articles and possibly the one on progress in relativistic thermodynamics and the electrodynamics of continuous media are the only ones that an experimentally minded reader will find of interest.

Most of the contributions are concerned with the relation between general relativity and quantum mechanics. Such an emphasis is consistent with the statement of the editors that "without a doubt the problem considered most pressing by the majority of today's relativists is the apparent incompatibility between the two major physical theories of the 20th century, namely, relativity and quantum mechanics." Even this view—which is