the significance to them of more recent radio astronomical observations.

In general, this book is well written and easy to read, although there are a number of errors in the text which should have been eliminated at the proof-reading stage. The list of figures (page xiii), for example, refers to "unpopularized radiation", and the captions of Figs. 2(a) and 2(b) appear to have been transposed. More important, however, this is an interesting and informative book which unifies present astronomical knowledge, and presents it (without recourse to mathematics) in a manner that the non-specialist reader will understand. N. K. REAY

RELATIVITY RESTATED

Relativity

By Ray Skinner. (A Blaisdell Book in Pure and Applied Sciences.) Pp. xii + 340. (Blaisdell (Ginn): Waltham, Massachusetts and London, 1969.) $12.50.

THERE is fast becoming a standard American textbook style, deriving perhaps from the Feynman *Lectures in Physics*. The books are closely geared to possible lecture courses, a section of the book being about the material for one lecture, and the text is printed only on about two-thirds of the width of each page, leaving a wide outer margin in which, from time to time, pictures occur. This book is one more of the style, but except in these respects it is a considerable step forward. It is the second of a planned series of five books covering undergraduate physics—the first was *Mechanics*—which try to present the basic concepts from a modern point of view. (Subsequent volumes are promised on electromagnetism, heat and quantum mechanics.)

The greatest advantage of this book is the thoroughness with which every point is discussed. The standpoint is a fairly orthodox one; the oddness of the speed of light as evidenced by the Michelson–Morley experiment leads to the conclusion that absolute distant simultaneity is impossible. Then the Lorentz transformation is deduced and a four-dimensional formulation given. In discussions of the clock paradox and the visual appearance of moving objects the author offers a number of hostages to fortune, but never puts a foot wrong. This concludes chapter one. Chapter two is taken up with dynamics and nearly half of this is, quite rightly, a discussion of nuclei and particle decays. Here the experimental information is well up to date, reaching to the middle 1960s.

The third chapter is the most original. The author obviously takes the view—which is surely long overdue—that the conventional textbook division into (i) special relativity, and (ii) general relativity, meaning by (ii) the theory as it had progressed up to 1916—or 1926—makes no sense. From a teaching and logical point of view, the right division is to have special relativity, and general relativity up to 1915, with a rough sketch to make plausible the Schwarzschild solution, in one book, leaving the ground clear for the second one to begin with all the post-1945 general relativity. We still await somebody's attempt at the second book, but Ray Skinner's third chapter in the book under review shows that he has done extremely well at writing the first one. C. W. KILMISTER

LOSSES IN MASS

Mass Loss from Stars

Proceedings of the Second Trieste Colloquium on Astrophysics, September 12–17, 1968. Edited by Margherita Hack. (Astrophysics and Space Science Library, Vol. 13.) Pp. xii + 345. (Reidel: Dordrecht, 1969.) 65 D.fl.

ALTHOUGH astronomers have known for some decades that stars can lose mass in the explosive events resulting in novae and supernovae it is only relatively recently that they have become aware of the more gradual loss in mass experienced by nearly all normal stars. The colloquium which resulted in this book was therefore a significant milestone in the development of ideas about this phenomenon, and has provided an opportunity for the editor to produce a volume of particular interest to students of stellar evolution, the field most affected by considerations of this kind. It is unfortunate that the delay before publication of this book has now stretched to over a year, because in such an active field much of the work described will by now have been superseded. Almost half the book, however, is devoted to the observations of mass loss from stars, and will remain relevant for longer than some of the theoretical discussions.

The layout of the book, which seems to follow too closely the programme of the colloquium, makes it impossible to read as a coherent whole. It is even more irritating to find that the compartmentation which breaks the book up so effectively and makes it necessary, for example, for the reader to skip sixty-odd pages between the work describing observations of mass loss from close binaries and that describing the theory of these systems, does not even produce the ease of reference for which it is presumably designed. At a colloquium of this kind it is usually convenient to have separate sessions for discussion of observation and theory, because not only are the participants familiar with the overall subject involved but they are also readily able to question points raised. But to the astronomer specializing in another field it is much more convenient to have the theory and observation of each object presented together in a single coherent group. This rigid reporting of conferences in the exact format of a conference rather than that appropriate to a book is a curse which certainly extends throughout the physical sciences and makes books of this kind utilitarian when they could be a pleasure to read. Of course more imaginative editing would be required, and some participants would be offended if their dull, unimportant contributions were left out, in order to raise the overall standard of the report, but the end would more than justify the means. As it is, this volume will remain on the library shelves, occasionally used in order to find the references of other original papers, when it could have been a definitive work. JOHN GRIBBIN

NUCLEAR PHYSICS

Physics of Nuclei and Particles

Vol. 1. By Pierre Marmier and Eric Sheldon. Pp. xviii + 809. (Academic Press: London and New York, June 1969.) 163*s* 4*d*.

THIS book is the first of three volumes which are evidently intended to serve as a self-contained review of a large part of nuclear and particle physics. The first volume contains a historical introduction followed by chapters on nuclear radii and the liquid drop model, nuclear interactions and cross-sections, the passage of ionizing radiations through matter, nuclei as quantum-mechanical systems, general properties of radioactivity, alpha-decay, beta-decay and the weak interaction, radiative transitions in nuclei, internal conversion, and characteristics of nuclear reactions, and ends with several appendices covering theoretical and experimental techniques. Within this vast range there are many items of interest to research workers in a variety of specialized fields, and the book will also merit examination by anyone who teaches nuclear physics at undergraduate or postgraduate level.

The authors anticipate that their book can be read by any student who has a background of one year's study of quantum mechanics. It seems probable, however, that students will find this work indigestible and unattractive.