Most of the references are to the older classical literature and no mention is made of the frequent use of similarity solutions of the compressible laminar boundary layer in almost all of the papers published in the last twenty years.

Up to this point we have had a good introduction to the classical methods. The remainder of the book, over one half, is devoted to the one-dimensional unsteady motion of an ideal gas and is based almost entirely upon the work of Sedov and his research group in Moscow.

Although dimensional and similarity methods still play a role, more space is devoted to finding mathematical solutions in closed form and their tabular and graphical presentation. Here we are presented with such problems as detonation, flame propagation, intense explosions, etc., for which Sedov and his school are justly famous. Although G. I. Taylor and others developed a similar theory of intense explosions during the war, Sedov published his first so we have only his version of the theory, although he gives Taylor's experimental check, the New Mexico atomic explosion of 1945. What is so interesting here is the success of theories based upon an ideal polytropic gas under conditions where we would assume real gas effects might be more significant than they apparently are. Finally in Chapter 5 these gas dynamical solutions are extended to the cosmological field to give models of stellar flare-ups and pulsations. This is only one approach to gas dynamical problems in astrophysics, restricted to unsteady one-dimensional motion of an ideal gas; other problems involving turbulence and magnetohydrodynamics have not apparently been subjects of investigation by Sedov or his students. Hence, no mention of them is made in this book.

This then is a most valuable book for fluid dynamicists who have not had the advantage of reading the original Russian version. It is not a textbook nor a treatise in the usual sense, but is really a collection of worked examples in various special fluid flows. In this wealth of examples is its value, and although there could be many more, we are glad to have these for the present.

**Theory of Elementary Particles.** By Paul Roman. 575 pp. (North-Holland, Amsterdam) Interscience Publishers, Inc., New York, 1960. $12.00. *Reviewed by M. E. Rose, Oak Ridge National Laboratory.*

THIS presentation of the theory of elementary particles is an extremely elegant and well-written account of the more formal aspects of theory. The reader will find in this volume a detailed and thorough treatment of modern developments insofar as these are based on symmetry concepts and related matters. The five main headings in this book are: The Four-Dimensional Orthogonal Group, Field Equations, The Quantization of Fields, Invariance Properties and Selection Rules (which make up almost 40 percent of the book) and Isobaric Space. These, however, constitute only a faint suggestion of the wealth of detail to be found in Professor Roman's book.

In the preface the author disavows any attempt to present a complete account of the theory. Nevertheless, in a book of this length, one might have expected some recognition of the fact that dispersion theory has, in fact, occupied a large share of the attention of physicists working in this field. There is no mention of this theoretical tool so far as this reviewer could discern. There is very little or no phenomenology to be found in these pages. As already implied, there is very little discussion of experimental results and of the comparison thereof with theory. Such experimental data as are cited are not too well referenced. The conclusion that this book is an able presentation of a *limited* part of elementary particle theory is obvious. However, one can feel disappointed in the severity of the limitation. A list of errata is appended but, unfortunately, it is rather incomplete.

**Quantentheorie des Atoms.** By A. Rubinowicz. 486 pp. Johann Ambrosius Barth Verlag, Leipzig, Germany, 1959. DM 31.80. *Reviewed by Nicholas Chako, Queens College.*

AMONG an increasing number of books on elementary quantum mechanics, there are only a few which contain a balanced presentation between the mathematical treatment of the theory and its physical foundations and interpretations. Other noticeable omissions are treatments of the historical development of quantum theory and the analysis of atomic and molecular phenomena in terms of the old quantum mechanics. This break in the continuity of ideas and development of quantum theory, which one finds in many elementary texts, is rather unfortunate from the viewpoint of the reader and, especially, from the pedagogical standpoint. Therefore Professor Rubinowicz' book should be examined in this light.

A careful reading will show that the author has been guided by the above considerations. Emphasis is put on the physical development and the interpretation of the quantum mechanical description of atomic and molecular phenomena without losing sight of the mathematical aspects of the theory. In that respect the book is a valuable contribution to pedagogical literature in this field.

The book has three main parts. The first, covering a third of the text, deals primarily with the development of quantum theory and the analysis of atomic and molecular spectra and other phenomena carried out on the old quantum theory model. The stress is put on the physical interpretation of the theory rather than on mathematical procedures. However, this must not be interpreted as suggesting that the author has relegated the mathematical treatment of the topics to a mere enumeration and analysis of the formulas. The mathematical analysis of the problems is complete, as can be seen from the clear and detailed treatment of Sommerfeld's theory of the fine structure, Bohr's correspond-