some applications. In view of such complications, it is not surprising that our understanding of collisions has increased only slowly, and that a general summary must consist largely of tentative conclusions from rough theories of the flow.

The book is a successful exposition of the many contributions to an understanding of collision phenomena. The pertinent models of the flow for each type of collision are described, critically evaluated where possible, and compared with the experimental findings. The discussion is enriched by frequent tables and figures which exhibit properties of real materials.

The author, perhaps judiciously, does not attempt to fit the subject within the framework of a unifying theoretical development. Also, the derivation of fundamental relations, such as the Hertz law of contact, sometimes seems excessively sketchy. However, simple collision theories are frequently illustrated with examples. And the discussion is rounded out by the author's appraisal of the various theoretical attacks.

Finally, the work is not free from the errors that often accompany such a sizable undertaking. Thus, the implications of incompressibility and constant compressibility are occasionally confused, and the well-understood centered rarefaction is treated as a shock in Chapter 5. These and lesser oversights, usually an occasional remark which could be more exact or specific, might have been eliminated by a careful technical editing. The attendant difficulties, however, will not be severe for the research worker in this field.

The book has considerable value both as a contemporary summary of the literature and a guide to the six hundred or so references which are cited.

Hypersonic Flow. Symp. Proc. (Colston Res. Soc., Univ. of Bristol, April 1959). A. R. Collar and J. Tinkler, eds. 432 pp. Academic Press Inc., New York, 1960. *Reviewed by Allen I. Ormsbee, University of Illinois.*

FIFTEEN papers and attendant discussions concerning a broad range of problems in hypersonic aerodynamics are contained in this volume. Complete descriptions of hypersonic flow facilities and the results of some specific experiments at many of the major installations in the West are included, as well as separate presentations by Mangler and by Van Dyke on the numerical solution to the blunt-body problem for a given shock wave, and papers on Newtonian flow, boundary-layer combustion in shock tubes, nonsteady aerodynamics of wings and panels, hypersonic vehicle design, and hypersonic air-breathing engines.

The disparateness of the subjects treated does not detract from the collection, for it helps to offset somewhat the repetition in descriptive material contained in some of the experimental papers. Every author has the right and the responsibility to be sure that his audience has a clear understanding of the geometry and function of his experiment; however, when reports of several experiments using similar apparatus are published under one cover, it does seem that some equitable arrange-

ment could be made for limiting the number of separate descriptions of the elementary function of this apparatus. This minor criticism notwithstanding, the experimental papers are capably prepared, and they point out very honestly and effectively the generally quite difficult problem of obtaining reliable measurements at hypersonic speeds. The remaining papers (about half the volume) cover a very broad range of problems and, for the most part, deserve individual review.

The volume has something for everyone, it seems, and certainly stands as a fair compendium of much of the important work in hypersonics today. It is recommended reading for researchers and designers in this area.

The Two Cultures and the Scientific Revolution. By C. P. Snow. 58 pp. Cambridge U. Press, New York, 1961. $1.75. *Reviewed by Roman Smoluchowski, Princeton University.*

IN 1959 Sir Charles Snow delivered his now famous Rede lectures at Cambridge and the present volume is an outgrowth of these lectures. In a nutshell, Sir Charles' thesis is as follows: We, at present, are a mixture of two cultures (to use the word in its anthropological sense), one scientific, the other literary or "intellectual". The lack of understanding and the resulting gulf between these two cultures is the cause of many present world tensions and contains the seeds of even more serious future conflicts. The scientists usually do not take the time to understand the other groups while those whose orientation is mainly literary are appalled by the insurmountable wall of symbolic mathematical language which seems to be essential to present-day science. Sir Charles concludes by pointing to the deep differences in the approach to education in the UK, in the USA, and in the USSR.

Because of his early scientific leanings, the author had an opportunity to get acquainted at Cambridge with scientists and with their quirks and motivations. At the same time, he became much interested in literary writing. Few will deny that this combination permitted him to reach a broad audience and present his ideas to a great variety of people, some of whom may not belong to either of the two cultures. Using his knowledge of the "exotic" world of science, Sir Charles embarked also upon a series of novels dealing with academic "ivory-tower" people and events. Here the success is questionable. The personalities are often wooden and the dialogue artificial and awkward, although scientists may occasionally delight in recognizing familiar situations. It is tempting to speculate how briskly his novels might have sold if instead of physicists, who now ride on the crest of popular consciousness, they were to have dealt with say . . . horticulturists!

Nevertheless, through his lectures and his novels, Sir Charles succeeded in making the broad public aware of the split in our present-day intellectual trends. Notwithstanding the fact that his "model" and his "theory" (to use these terms in their scientific sense) are probably