The first article is concerned with an ideally elastic material described by a strain-energy function. The second is a survey of the more important features of the subject, using modern terminology; and the third is concerned with the construction of solutions to two related problems in the three-dimensional theory of elasticity: A region (inclusion) in an isotropic, homogeneous elastic medium is subjected to a strain; A body subject to certain uniform stress at infinity contains a region of different elastic constants, while each part is itself isotropic and homogeneous. Craggs has collected considerable material on the propagation of stresses large enough to cause yielding and inelastic behavior in metals and on applications to beams, plates, and shells. Many types of experiments that have been successfully used to determine accurately the material properties for an elastic material subjected to dynamic loading are described in a qualitative manner, and the elementary theory used to integrate the observations is derived by Hillier. A general study of surface of discontinuity is presented by R. Hill: the general compatibility relations on the jump of functions and their derivatives across singular surfaces are derived, and the basic theory is applied to classical elasticity and to rigid-plastic solids. Horne presents a largely qualitative survey of the state of knowledge regarding application of the theory of perfectly plastic materials to rigid frames used in building design.

In all cases, an extensive list of references to original sources is provided. The volumes in this series are certainly of immense interest to those who are active in research or applications in mechanics of solids.

Ballistic Missile and Space Vehicle Systems. Howard S. Seifert and Kenneth Brown, eds. 526 pp. John Wiley & Sons, Inc., New York, 1961. $12.00.

Basic Physics of the Solar System. By V. M. Blanco and S. W. McCuskey. 307 pp. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1961. $7.50. *Reviewed by T. Teichmann, General Atomic, Division of General Dynamics.*

THE literature of "space" is now becoming sufficiently complete that most works no longer attempt to cover all aspects of space exploration and science (at whatever level), but are beginning to limit themselves to certain restricted, if major areas. The two volumes under review here, unrelated though they are, cover in large part the two more significant categories of space science and engineering in a generally complementary fashion, and taken together provide a useful and informative picture of the field, and of the more important questions which arise in it.

Ballistic Missile and Space Vehicle Systems discusses the primary elements of missile and satellite systems. Though it is more specialized and somewhat deeper than the earlier collection of articles put out by the same publisher under the title *Space Technology,* this very fact seems to make it more readable and understandable except perhaps to the complete novice. The possibility of discussing important details, and of eschewing complete generality enabled more time to be spent explaining and clarifying the operation of the various subsystems. A large part of the work is devoted to various types of propulsion, vehicle-dynamics guidance and control, structural-statics and -dynamics performance and systems analysis. In addition, there is some discussion of countdowns (of various types), launching, and auxiliary subsystems. One interesting point which becomes clear (even if inadvertently) is the extent to which "systems engineering" is an empty concept without close attention to the component parts. This is brought out particularly by the first chapter, which is the one vacuous section in an otherwise interesting and informative volume. As a whole, the book seems valuable enough and to have a sufficient lifetime to have warranted reproduction by letterpress instead of photographically, which yielded a clear, but somewhat unfinished looking job.

Blanco and McCuskey discuss the environment in which missiles and space vehicles are likely to find themselves, with special reference to its application rather than for its intrinsic interest, which becomes evident, however, even when it is not explicitly spelled out. After an introduction describing various astronomical quantities and their relations, the various physical properties of the planets and their satellites are discussed, and a separate chapter is devoted to celestial dynamics in a manner designed both to provide a useful introduction and to make applications possible. Although not all derivations are given, the important perturbation equations for drag and oblateness corrections and for gravitational torque motions are given. The final chapter discusses the sun and interplanetary space. Each chapter is followed by a number of examples and a relatively comprehensive list of references. In addition, there are a number of relevant astronomical tables and a lunar map. This should prove to be a useful book both as an introduction and as a reference for the applied space scientists.

Advances in Space Science and Technology, Volume 3. Frederick I. Ordway, III, ed. 482 pp. Academic Press Inc., New York, 1961. $14.00. *Reviewed by R. E. Street, University of Washington.*

APPROPRIATELY the word "technology" has been added to this latest volume of the series as two of the articles are more concerned with problems of engineering than with the strictly scientific aspects of science in space. In fact the over-all impression of the book is that it is probably more useful to the technologist than to the scientist; it presents in review form the available knowledge of certain aspects of the planetary system which are necessary for the engineer concerned with the design of space probes and manned space vehicles.

The first article on the role of geology in lunar exploration by Green and Van Lopik is couched in the