spectively: "A Machine or a Self," "The Machinery of Nature," "Knowledge of the Self" and "The Mind in Action," he examines various attitudes toward the identity of man, and presents his own conclusions. It must be confessed that the book is not an easy one to read, and in this respect is not as convincing as the author's earlier work *Science and Human Values*. Nevertheless he reaches the conclusion that man can be and is both a machine and a self, where he defines "self," as "the process in which all his (i.e. man's) experiences of the body and of the mind, are fixed as knowledge. What makes man unique is the nature of his knowledge."

The book is therefore essentially an excursion into epistemology, in which man's knowledge of nature is contrasted to his knowledge of his fellow men. It is to the latter that the concept of self is primarily associated. This inevitably leads to a comparison of science and literature as separate languages for the discussion of experience and the embalming of knowledge. There are some engaging and illuminating flashes of insight expressed here, but the reviewer cannot resist the conclusion that the author in the face of one of the most difficult problems in human experience has attempted more than he has accomplished in the brief compass of his book.

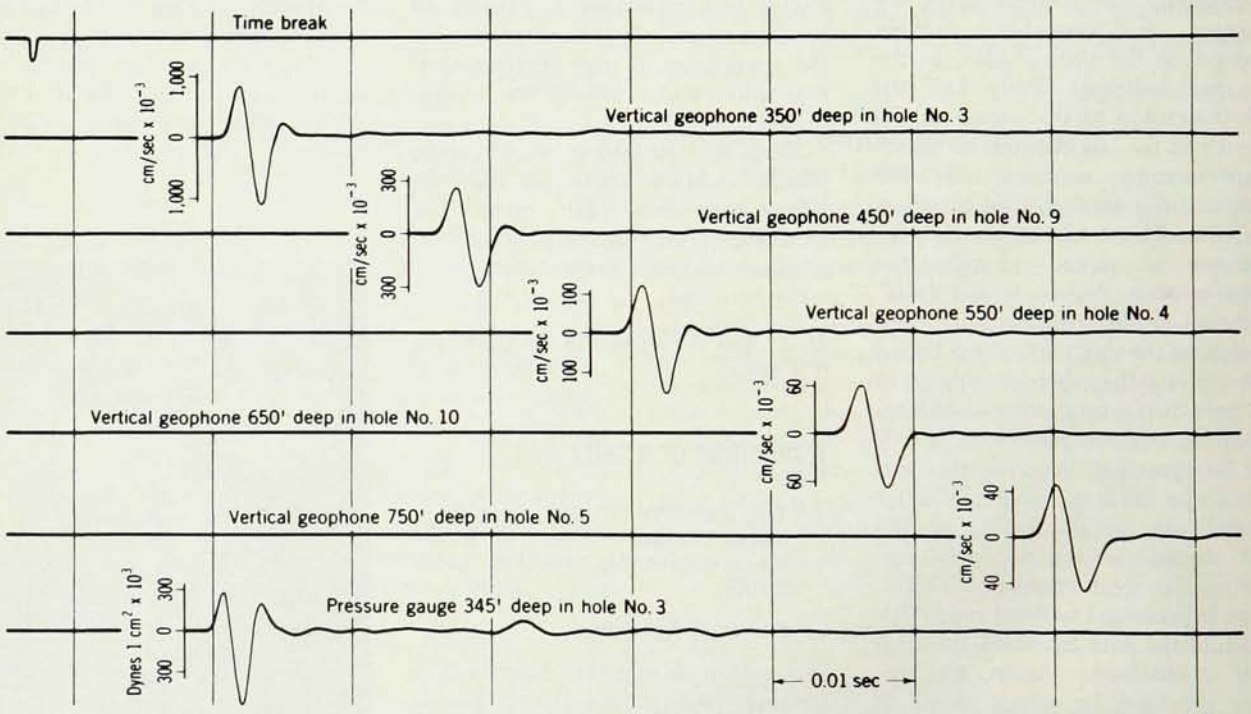
Earth shaking

SEISMIC WAVES: RADIATION, TRANSMISSION, AND ATTENUATION. By J. E. White. 302 pp. McGraw-Hill, New York, 1965. $14.50

by R. Bruce Lindsay

Interest in seismology, or the study of elastic waves in the earth, continues unabated. In recent times the subject has, of course, taken on a new dimension because of the importance of artificially created earthquake waves in oil prospecting. Increased attention has also been focused on this field in connection with the detection of underground nuclear explosions. Much of the new work on the propagation of various types of mechanical waves in the earth, subject to all kinds of boundary conditions, is still in the periodical literature, and hence a book that summarizes the essentials of the latest applications is very welcome. White has provided such a book as one of the well known International Series in the Earth Sciences.

The author has wisely refrained from encumbering his volume with a complete theoretical review of the propagation of elastic waves in solid media. He has indeed reviewed plane-wave solutions of the wave equation with particular reference to waves along and across boundaries. Much attention is paid to various types of media and what the velocity and attenuation of elastic radiation can tell about their properties. There is a long chapter on loss mechanisms in solids. In view of the importance



VERTICALLY TRAVELING COMPRESSIONAL WAVES generated by a charge of 1 lb of dynamite at a depth of 260 ft. From: *Seismic Waves: Radiation, Transmission and Attenuation.*

of well logging in oil prospecting, it is not surprising to find a rather elaborate treatment of waves along cylindrical bore holes. The story here is indeed a rather old one, but the author brings it down to work done within the past five years and includes a reference to his own important contributions to this field.

The final three chapters deal with sources of elastic waves in solids, seismic model experiments and small-scale field experiments. Though most of the treatment is theoretical there is a good deal of reference to experimental methods and results. The charts and diagrams are clear, well produced and unambiguous. The bibliography, though by no means exhaustive, is fully adequate to guide the reader to the important original sources. There is a collection of illustrative problems that help to make the volume useful as a text in an advanced course.

This well written book covering relatively new developments in an important domain of science should attract considerable attention among earth scientists.

Solving is learning

PROBLEMES DE MECANIQUE GENERALE. By Henri Cabannes. 436 pp. Dunod, Paris, 1966. Paper 38 F.

by R. Bruce Lindsay

It is generally admitted that understanding of the principles of mechanics is best exemplified by the ability to solve special problems that illustrate those principles. Hence practically all textbooks in mechanics, at any rate in English speaking countries, are liberally supplied with problems, and courses based on such books lay great stress on the solution of these exercises. The volume under review handles the situation in different fashion. The author, who is a well known applied mathematician and professor in the University of Paris, published in 1962 a general text on theoretical mechanics (*Cours de Mécanique Générale*, Dunod, Paris, 1962) that contains no problems for solution by the reader. The present book remedies the deficiency by being devoted to problems illustrative of the earlier text.

The book is divided into three parts. The first consists of 180 "exercises," which the author categorizes as rather easy. They are classified in nine groups, according to the chapters in the author's mechanics text to which they refer. These problems cover such topics as kinematics, principles of mechanics, kinetics, particle mechanics and solid mechanics. They are accompanied by complete solutions. In the second part there are 40 somewhat more difficult problems taken mainly from university examination papers. These also have detailed solutions. The book closes with 15 problems without solutions.

Though many of the problems are of standard character and not particularly original, the average reader will find them most useful in connection with a careful study of the author's book on mechanics. The emphasis is on the mathematical rather than the physical side, and one misses the concern for more or less practical physical situations that characterizes most British and American mechanics texts. Thus there is practically no treatment of energy and its applications.

The style is graceful and clear and the typography and figures excellent. It does not appear, however, that the book will enjoy great use in the United States.

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Reviewed in this Issue

A basic theory of real variables

INTEGRAL, MEASURE AND DERIVATIVE: A UNIFIED APPROACH. By G. E. Shilov, B. L. Gurevich. Trans. from Russian by R. A. Silverman. 233 pp. Prentice-Hall, Englewood Cliffs, New Jersey, 1966. $11.35

by J. Gillis

It used to be the custom to begin by teaching Lebesgue measure of unidimensional sets and then move on to two or three dimensions. Subsequent extension of a large part of the theory to space of infinite dimensionality was possible, but required justification. The frequent result was to leave many mathematicians and more physicists in a fog. Some physicists in particular have been prone to blunder out of this fog by relying on geometrical intuition, handwaving, and murmuring something about Hilbert space. Really this great name deserved better!

It is almost half a century, however, since Daniell formulated a theory of measure general enough to cover everything required. And the concepts implicit in the Daniell approach made possible the development of the Wiener integral and, more recently, the Feynman integral. These lines of thought have by now come to dominate our ideas of measure and integration in physical applications. As for mathematics, there must be many respectable universities now with their distinguished elderly mathematicians