cluding electron-phonon interactions and the problem of degenerate plasma), systems of interacting bosons, electromagnetic radiation in an absorbing medium (that is, the calculation of the dielectric constant), and the theory of superconductivity (including a derivation of the phenomenological Ginzburg-Landau theory). Although a number of more recent results are not included, the book should be very useful to a large number of physicists.

It is heartening to see how methods used in one branch of physics can be of fundamental importance in another branch as well. The translator of this book, Richard A. Silverman, deserves special credit because the book is not just a translation, but a complete revision in collaboration with the authors.

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Psychology

The Science of Animal Behaviour. P. L. Broadhurst. Penguin Books, Baltimore, Md., 1963, 135 pp. Illus. 95¢.

This fine little book, written especially for the Pelican paperback series in psychology, presents a quite readable, yet scholarly, survey of animal behavior. Virtually every problem of any importance to students of animal behavior is covered, with illustrative experiments frequently given in detail. Still, the language and style are such that any intelligent layman can read and understand the book.

The first and the last of the book's seven chapters are concerned, respectively, with the reasons for studying animal behavior and with its practical uses. In both chapters, it is emphasized that animal behavior is interesting in its own right. On the other hand, certain inferences can be made from animal behavior to human behavior, and it is a valuable adjunct to human psychology. In addition, it has certain practical uses, and in the future, it may have even more. We may see the day when animals are used for routine manufacturing tasks that bore humans but can be done reliably by animals.

Broadhurst distinguishes between ethology as the field study of animal behavior and animal psychology as a laboratory study. The second chapter covers ethology, the third chapter laboratory experiments, each with illustrative descriptions. The advantages and limitations of each approach are given, with a declared bias toward laboratory work. Ethology, nevertheless, is well represented.

The remaining three chapters are divided among the topics of inborn behavior, acquired behavior, and abnormal behavior. Each chapter covers its field well, stating the principal problems, methods, and kinds of results obtained.

The book should find many uses. It is interesting reading for the layman, whether or not he has had any formal training in psychology. It could be used as supplementary reading material or as the basis of a book report in introductory psychology. In a course in comparative psychology, it would be worth using as a supplementary text, for it provides a better overall view of the field than available textbooks. It should even be read by psychologists and biologists outside the field of animal behavior, for in one evening's reading they can get an up-to-date picture of what has been going on in the field.

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Petroleum Engineering

The Fundamentals of Well Log Interpretation. M. R. J. Wyllie. Academic Press, New York, ed. 3, 1963. xvi + 238 pp. Illus. $7.

In the 10 years that have elapsed since publication of the first edition of *The Fundamentals of Electric Log Interpretation,* great advances have been made in the techniques for evaluating petroleum reservoirs through geophysical methods of well logging. In most instances, reasonably accurate estimates can be obtained of the composition, porosity, and thickness of strata in a borehole and of the nature and percentage of the fluids present. The earliest logs were based on certain electrical properties of rocks when penetrated by a borehole that contained drilling mud, and these are still useful; nowadays, however, focused electrical devices and neutron, gamma-ray, and acoustic velocity logs are common and, when employed in proper combination, give much more precise measurement of the parameters sought. The rapid development of these devices has necessitated a second enlargement of the original book and a complete revision of the chapter entitled "A general method of electric log interpretation" (now an inappropriate title because electric logs are only one of the types treated by Wyllie).

The increased size of this edition is due primarily to discussion of devices or methods of interpretation not included in previous editions, notably the proximity, nuclear magnetism, chlorine, cement bond, and still-to-be-perfected acoustic attenuation log and to the determination of porosity and mineral composition in formations of complex lithology.

Despite a few editorial errors that have crept in, this book continues to be the best mixture of clarity, simplicity, authority, and rigor of explanation on a nonspecialist level that I know in its field.

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Mathematics

Foundations of Linear Algebra. A. I. Mal'cev. Translated from the second edition (Moscow, 1956) by Thomas Craig Brown. J. B. Roberts, Ed. Freeman, San Francisco, Calif., 1963. xii + 304 pp. Illus. $7.50.

The first Russian edition of this book was published in 1948 and the second, which differed considerably from the first, in 1956. A number of expository refinements resulted in a saving of space in the 1956 edition, an economy that allowed the author to include a long and important chapter on multilinear forms and tensors and a detailed account of the basic topics in tensor algebra, without altering the actual size of the book.

Here we are concerned primarily with an English translation of the second Russian edition. The translation and editing appear to be of a high quality, and the final product provides American readers with a polished and attractive introduction to the foundations of linear algebra. The titles of the eight chapters briefly indicate the coverage of the volume: "Matrices," "Linear spaces," "Linear transformations," "Pol-