the theoretical basis of the experimental methods involved in the measurement of parameters used in band-theory calculations.

An elementary knowledge of free-electron theory and band theory is assumed for the reading of this book. For anyone working with energy-band calculations either theoretical or experimental, this work would certainly prove to be of great value.

Linear Algebra and Matrix Theory. By Evar D. Nering. 289 pp. Wiley, New York, 1963. $6.95.
Reviewed by Dagmar Renate Henney, University of Maryland.

The author presents ideas in linear algebra very effectively with the help of matrices. Theory and computational procedures are combined and given equal emphasis. The introductions preceding each chapter (there are six of them) are excellent and help clarify the material substantially. The discussions in the introduction as well as in the body of each chapter are also very illuminating in details. From the very beginning the author explains precisely what he sets out to do. For instance, on page 16 he mentions the differing character of existence of bases in finite and infinite dimensions. On page 71, concerning the uniqueness of the normal form of a matrix, he clearly discusses the kinds of trivial nonuniqueness which we normally tolerate. On page 69, he brings out the double use of the word "equivalence" and on page 83, the double use of "adjoint". The many trivial ambiguities which we normally tolerate in our subject, but which are perplexing to the student, are always brought into consciousness for the student so that he can quickly learn to tolerate them too.

Another good feature of the book is the quick treatment of spectral decomposition in Chapter 3. This compares especially favorably to Halmos who takes (in this reviewer's opinion) too long before leading up to this.

Nering's treatment of determinants on the other hand seems somewhat unfortunate. He departs in it from his avowed program of introducing an abstract vector space concept and then discussing the concept's expression in matrix form. This means that until he has covered the first third of his book (i.e., up to page 93), Nering cannot assign a determinant to an operator. Determinants appear as a formidable complex computational tool which fortuitously can be applied to operators, which in turn can be calculated when necessary. The reason for this lapse from Nering's avowed program of vector concepts is clear. Trilinear forms, which precede determinants, must be preceded by linear forms. The author does not want to discuss linear forms until much later, in connection with bilinear forms and inner products. The reviewer believes though that any instructor can use Nering and add the extra material on linear forms and trilinear forms before determinants, without destroying the author's organization of the subject. This book is highly recommended as a textbook.

Selected Topics in Nuclear Spectroscopy. Summer School Proc. (Nijenrode Castle, Netherlands, July-August, 1963). Compiled by B. J. Verhaar. 348 pp. (North-Holland, Amsterdam) Interscience, New York, 1964. $12.50.
Reviewed by M. E. Rose, University of Virginia.

A review of the proceedings of summer school lectures and seminars, such as this one, is useful only if the prospective audience is given information concerning the actual contents thereof. This volume contains sixteen lectures given by twelve contributors. By and large, the subject matter is concerned with three topics although, obviously, there is some overlap among them. They are: (1) nuclear structure as revealed by energy level data and as interpreted in terms of nuclear models (shell, collective), (2) nuclear structure as revealed by reaction data and interpreted by the current models (e.g., optical), and (3) weak interactions. In the last category the emphasis is on the conserved vector current theory, its predictions and the attempts to establish its validity. In addition, the induced pseudoscalar interaction is the primary object of the discussions centered on muon capture.

In detail, lectures which are to be classified under category (1) are: Collective models by K. T. Hecht, En-

ergy calculations in the shell model by I. Talmi. Intrinsic excitations of nuclei with stable equilibrium deformation by the late C. J. Gallagher, and Shell model calculations of energy levels for nuclei in the region $28 < A \leq 40$ by P. W. M. Glaudemans. A short contribution by R. J. Blin-Stoyle on Nuclear magnetic moments may also be included here. Of these, this reviewer found the article by Hecht most readable and it is highly recommended to graduate students seeking a first orientation into the intricacies of SU_3 and the general application of symmetry principles in nuclear physics. The article by Gallagher furnishes a competent review of the relevant experimental results and the confrontation of these with the various models based on deformation dynamics.

In category (2) the lectures of P. E. Hodgson (The optical model of elastic scattering as well as Direct reactions and inelastic scattering) are particularly noteworthy reviews of direct-interaction phenomena and the comparison of data with distorted wave calculations. Other contributions classifiable under this heading are: Spins of low-energy neutron resonances by H. Postma and 44-MeV α inelastic scattering by medium-weight nuclei by J. Saudinos. These are relatively short lectures which read very much like research papers.

Under the subject of weak interactions there are two articles by R. J. Blin-Stoyle. Fundamentals of β-decay theory and Charge-dependent effects in the nucleus. These are relatively brief but very well done. A longer contribution serving presumably as an introduction appears as the initial article. This is H. A. Wiedenmüller's Nuclear properties in electromagnetic and weak decays. There are four remaining lectures: by P. Depommier, The beta decay of the pion: by J. Deutsch. Analysis of some first forbidden beta transitions and the conserved vector current theory of weak interaction; by P. Lipnik, Second forbidden beta decays and the ground state transitions of ^{36}Cl and ^{137}Cs; and finally, by H. A. Tolhoek, The induced pseudoscalar interaction in muon capture and nuclear structure. These are all very much condensed and again in at least two instances, appear more appropriate for a journal of current research. One cannot help feeling that a single lecture tying all these together in a more unified presentation would have made a more effective and enlightening story. This reviewer is aware, however, of the logistic difficulties that may have prevented such an arrangement, assuming that the organizing committee would have sought to follow such a procedure.

The publishers have done their usual commendable job. Although several amusing misprints occur they are never serious.

Advances in Biological and Medical Physics, Volume 9. John H. Lawrence, John W. Gofman, and Thomas L. Hayes, eds. 496 pp. Academic Press, New York, 1963. $16.00.

Reviewed by Joseph G. Hoffman, State University of New York at Buffalo.

A noteworthy feature here is the inclusion of two papers that have no obvious relation to physics, a policy the editors have followed in this series. The justification may be that biophysics will always be a multidisciplinary subject, and that communication among specialists has to be established somehow. To this end, for example, E. J. Eichwald's paper has a commendable glossary of terms for the newcomer to tissue transplantation. It deals with complex problems in the jargon of immunology. Briefly (but not completely) stated, Eichwald describes the golden decade of research which followed upon the discovery by Medawar and others that immunologic tolerance could be conferred upon certain animals. This must be deemed a valuable review for specialists in immunology. For physicists, I call it an excellent introduction to the warfare between proteins, the battles being between antibodies and antigenic proteins. Mice and men have prevailed because this basic molecular warfare is set up by immunologically competent cells in their bodies.

The second paper remote from physics is the second chapter in which H. N. Robson gives a concise survey of human chromosomal aberration,