The theorem of Choquet, to which the title refers, is a representation theorem in terms of extreme points and is intimately connected with the concept of Choquet boundary. In important cases, the Choquet boundary is a refinement of the so-called Silov boundary, which in fact is its closure. Both the theorem and its proof have been through several stages, and the lectures stress the version of Bishop and de Leeuw, as well as Choquet's own later version presented at the Stockholm Congress. In particular, the general procedure of transposing problems on representation by measures into the context of function-spaces and Choquet boundaries is aptly referred to as the "Bishop–de Leeuw setup."

Although two sections are devoted to methods of extension to the noncompact case, the main part of the lectures concern representations in what may be called the compact convex case, and the basic theorem is there a sharper Krein-Milman theorem. It can also be regarded as a stronger form of the Riesz representation. Incidentally, the notes discuss not only the existence of a representation, but also its unicity.

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Quantum Mechanics: Applications and Problems

A high-energy experimental physicist, David Frisch, commented to me recently that his graduate students, who were brought up on the electron volt (eV) and leaped over the kilovolt and million electron volt regions directly to the billion electron volt (BeV) regime, frown with a faint glimmer of recognition at the mention of an MeV but register a complete blank at KeV. The comment was made only partly in jest. Even today the bulk of our quantum mechanical knowledge lies in the eV region, and a thorough exposure to this material is extremely useful to students of high-energy and nuclear physics as well as to students of atomic, molecular, and solid-state physics and various branches of chemistry and biology, for it develops a "feel" for such basic concepts as the uncertainty principle and wave functions.

Quantum Mechanics [Translated from the Russian edition (Moscow, 1962) by Scripta Technica. Holt, Rinehart, and Winston, New York, 1966. 547 pp., illus. $11], by A. A. Sokolov, Y. M. Loskutov, and I. M. Ternov, is a graduate-level text dealing primarily with this low energy domain. The translation is a good one. A remark in the introduction notwithstanding, there is only a slight pretense at a thorough grounding in the foundations of quantum mechanics. (Some interesting formal material has been appended by G. Frye.) The emphasis throughout is on applications and problems. Many interesting applications, largely from the field of atomic structure, are worked out in considerable detail; the problems are good, and, with their solutions, take up almost 10 percent of the volume. (The length of time it is taking for worked-out problems to become standard textbook material is incomprehensible to me.)

Many subjects covered in great detail in most modern texts receive scant, if any, attention in this one. Group theory, Green's functions, projection operators, and unitary operators play no role; all of scattering theory is compressed into one short chapter, the Dirac equation is written in its original version rather than in the modern manifestly covariant form, and so on. On the other hand, there is a nice treatment of the Fermi-Thomas model of the atom—what a magnificently simple yet useful model it is—and there are a number of examples from solid state; the Dirac equation in the approximate form appropriate to low-energy phenomena is applied extensively in the study of atomic energy levels, the transition between the quantum-mechanical and classical equations of motion is handled well, there is material on lasers and masers, and so on. Some brief comments on mass and charge renormalization and on recent developments in the theory of beta decay are basically qualitative and serve primarily to whet the appetite.

The brevity of the treatment of the foundations of quantum mechanics renders the book unsuitable as a basic text in a graduate physics course on the subject, but its many applications could make it a useful subsidiary text. (It could also be of value to nonphysicists interested in applications.) It has one serious drawback as a subsidiary text, only partially compensated for by an excellent table of contents, and that is the lack of an index. In the small hope that it will have the desired effect, let me say, mustering all my authority as a member of the educational establishment, that I categorically believe that students have no right to picket university bookstores in protest against indexless texts.

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New Books

Mathematics, Physical Sciences, and Engineering

Adhesion and Adhesives. R. S. R. Parker and P. Taylor. Pergamon, New York, 1966. 148 pp. Illus. $4.

Advances in Bioengineering and Instrumentation. vol. 1. Fred Alt, Ed. Plenum Press, New York, 1966. 372 pp. Illus. $17.50. Four papers.

Advances in Chromatography. vols. 2 and 3. J. Calvin Giddings and Roy A. Keller, Eds. Dekker, New York, 1966. vol. 2, 395 pp., $14.50, nine papers; vol. 3, 285 pp., $11.50, seven papers. Illus.

The Analysis of Nickel. C. L. Lewis, W. L. Ott, and N. M. Sine. Pergamon, New York, 1966. 224 pp. Illus. $8.50. International Series of Monographs in Analytical Chemistry, vol. 28.

Analysis of Numerical Methods. Eugene Isaacson and Herbert Bishop Keller. Wiley, New York, 1966. 557 pp. Illus. $11.95.

The Analysis of Physical Measurements. Emerson M. Pugh and George H. Winslow. Addison-Wesley, Reading, Mass., 1966. 256 pp. Illus. Paper, $4.75.

Applied Boolean Algebra: An Elementary Introduction. Franz E. Hohn. Macmillan, New York, ed. 2, 1966. 287 pp. Illus. $7.95.

Beryllium Technology. vols. 1 and 2. Proceedings of the Second International Conference (Philadelphia), October 1964. Sponsored by the Nonferrous Committee of the Metallurgical Society, American Institute of Mining, Metallurgical, and Petroleum Engineers. L. McDonald Schetky and Henry A. Johnson, Eds. Gordon and Breach, New York, 1966. vol. 1, 690 pp.; vol. 2, 589 pp. Illus. Paper, $19; cloth, $35 each volume. There are 52 papers.

Book of ASTM Standards: With Related Material. pt. 24, *Textile Materials—Yarns, Fabrics, and General Methods* (704 pp. $13; members, $9.10); pt. 25, *Textile Materials—Fibers and Zippers* (654 pp. $12; members, $8.40). American Soc. for Testing and Materials, Philadelphia, 1966. Illus.

Cadmium. D. M. Chizhikov. Translated from the Russian edition (Moscow, 1962) by D. E. Hayler. Pergamon, New York, 1966. 279 pp. Illus. $8.

Calculus of Variations and Optimal Control Theory. Magnus R. Hestenes.

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