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.

L. C. YOUNG
Department of Mathematics, University of Wisconsin, Madison

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.

LARRY SPRUCH
Physics Department, New York University, New York

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.

(Continued on page 1257)

NEW BOOKS

(Continued from page 1161)

Wiley, New York, 1966. 417 pp. Illus. $12.95.

Chemical Equilibrium. Allen J. Bard. Harper and Row, New York, 1966. 216 pp. Illus. $7.50. Harper's Chemistry Series.

Chemistry Calculations: With a Focus on Algebraic Principles. Alexander Vavoulis. Holden-Day, San Francisco, 1966. 152 pp. Illus. Paper, $2.50; cloth, $4.95.

The Chemistry of Organic Sulfur Compounds. vol. 2. Norman Kharasch and Cal Y. Meyers, Eds. Pergamon, New York, 1966. 473 pp. Illus. $21. There are 14 papers.

Climatic Atlas of the United States. Stephen Sargent Visher. Harvard Univ. Press, Cambridge, Mass., 1966. 415 pp. Illus. $12.50.

Complexes of the Rare Earths. Shyama P. Sinha. Pergamon, New York, 1966. 213 pp. Illus. $7.50.

Differential and Difference Equations. Louis Brand. Wiley, New York, 1966. 716 pp. Illus. $11.95.

Differential Space, Quantum Systems, and Prediction. Norbert Wiener, Armand Siegel, Bayard Rankin, and William Ted Martin. M.I.T. Press, Cambridge, Mass., 1966. 188 pp. Illus. $7.50.

The Dynamics of the Upper Ocean. O. M. Phillips. Cambridge Univ. Press, New York, 1966. 269 pp. Illus. $11.50. Cambridge Monographs on Mechanics and Applied Mathematics.

Electronic Structure of Molecules. Raymond Daudel. Translated from the French (Paris, 1962). Pergamon, New York, 1966. 241 pp. Illus. $8.

Elementary Electronics. D. Hywel White. Harper and Row, New York, 1966. 184 pp. Illus. $9.50. Harper's Physics Series.

Elementary Methods in the Analytic Theory of Numbers. A. O. Gel'fond and Yu. V. Linnik. Translated from the Russian edition (Moscow, 1962) by D. E. Brown. I. N. Sneddon, Translation Ed. Pergamon, New York, 1966. 244 pp. Illus. $9.80. International Series of Monographs in Pure and Applied Mathematics, vol. 92.

Freezing and Thawing of Concrete—Mechanisms and Control. William A. Cordon. American Concrete Inst., Detroit; Iowa State Univ. Press, Ames, 1966. 111 pp. Illus. $4.50.

Fundamentals of Electronics. vol. 1. George E. Owen and P. W. Keaton. Harper and Row, New York, 1966. 351 pp. Illus. $14. Harper's Physics Series.

Handbook of Compressed Gases. Prepared by the Compressed Gas Association. Reinhold, New York, 1966. 414 pp. Illus. $20.

Handbook of Specific Losses in Flow Systems. Robert P. Benedict and Nicola A. Carlucci. Plenum Press, New York, 1966. 203 pp. Illus. $12.50.

Infrared Spectra of Polymers in the Medium and Long Wavelength Regions. Dieter O. Hummel. Interscience (Wiley), New York, 1966. 215 pp. Illus. $12.

Instrumentation for High Speed Plasma Flow. A. E. Fuhs. Published for Advisory Group for Aerospace Research and Development, NATO. Gordon and Breach, New York, 1966. 196 pp. Illus. $19.50.

Integral Equations and Their Applications. vol. 1. W. Pogorzelski. Translated from the Polish edition (Warsaw, 1953–1960). PWN-Polish Scientific Publishers, Warsaw; Pergamon, New York, 1966. 732 pp. Illus. $18.50.

International Meteorological Tables. S. Letestu, Ed. World Meteorological Organization, Geneva, 1966. Unpaged.

Interpretation of Mass Spectra: An Introduction. F. W. McLafferty. Benjamin, New York, 1966. 247 pp. Illus. $9.

Interval Analysis. Ramon E. Moore. Prentice-Hall, Englewood Cliffs, N.J., 1966. 159 pp. Illus. $9. Prentice-Hall Series in Automatic Computation.

Introduction to Analytic Functions. Wilfred Kaplan. Addison-Wesley, Reading, Mass., 1966. 222 pp. Illus. $7.95. Addison-Wesley Series in Mathematics.

Introduction to Electrical Discharges in Gases. Sanborn C. Brown. Wiley, New York, 1966. 296 pp. Illus. $9.95. Wiley Series in Plasma Physics.

An Introduction to Equilibrium Thermodynamics. Robert P. Bauman. Prentice-Hall, Englewood Cliffs, N.J., 1966. 128 pp. Illus. Paper, $1.95; cloth, $5.50. Foundations of Modern Chemistry Series.

Introduction to Linear Programming, with Applications. William R. Smythe, Jr., and Lynwood A. Johnson. Prentice-Hall, Englewood Cliffs, N.J., 1966. 231 pp. Illus. $10.

Logic and Algorithms: With Applications to the Computer and Information Sciences. Robert R. Korfhage. Wiley, New York, 1966. 206 pp. Illus. $7.95.

Magnetoelectric Devices: Transducers, Transformers, and Machines. Gordon R. Slemon. Wiley, New York, 1966. 556 pp. Illus. $11.50.

Materials of High Vacuum Technology. vol. 1, *Metals and Metalloids*. Werner Espe. Deutscher Verlag der Wissenschaften, Berlin; Pergamon, New York, 1966. 924 pp. Illus. $45.

Networks and Systems. Peter H. O'N. Roe. Addison-Wesley, Reading, Mass., 1966. 350 pp. Illus. $12.50. Addison-Wesley Series in Electrical Engineering.

Numerical Solutions of Nonlinear Differential Equations. Proceedings of a symposium (Madison, Wis.), May 1966. Conducted by the Mathematics Research Center, U.S. Army. Donald Greenspan, Ed. Wiley, New York, 1966. 357 pp. Illus. $7.75. There are 14 papers and 24 abstracts.

Organic Nomenclature: A Programmed Introduction. James G. Traynham. Prentice-Hall, Englewood Cliffs, N.J., 1966. 143 pp. Illus. Paper, $1.95.

Organic Photochemistry. Robert O. Kan. McGraw-Hill, New York, 1966. 303 pp. Illus. $12.50. McGraw-Hill Series in Advanced Chemistry.

Photographic Systems for Engineers. F. M. Brown, H. J. Hall, and J. Kosar, Eds. Soc. of Photographic Scientists and Engineers, Washington, D.C., 1966. 227 pp. Illus. Paper, $5. Based on papers presented at seminars held in 1959 and 1966 by the New York Chapter of the Society.

Progress in Ceramic Science. vol. 4. J. E. Burke, Ed. Pergamon, New York, 1966. 287 pp. Illus. $14. Five papers.

Progress in Nuclear Magnetic Resonance Spectroscopy. vol. 1. J. W. Emsley, J. Feeney, and L. H. Sutcliffe. Pergamon,

New York, 1966. 394 pp. Illus. $15.50. Four papers.

Radiation Heat Transfer. E. M. Sparrow and R. D. Cess. Brooks/Cole (Wadsworth), Belmont, Calif., 1966. 336 pp. Illus. $8.50.

Radioisotopes for Aerospace. pt. 1, *Advances and Techniques.* Proceedings of a symposium (Dayton, Ohio), February 1966. Sponsored by the U.S. Air Force, the U.S. Atomic Energy Commission, and Instrument Society of America. John C. Dempsey and Paul Polishuk, Eds. Plenum Press, New York, 1966. 469 pp. Illus. $20. There are 26 papers.

Stress-Strain Behavior of Elastic Materials. Selected problems of large deformations. O. H. Varga. Interscience (Wiley), New York, 1966. 200 pp. Illus. $11.

Structural Diagrams. Andrew B. Vistelius. Translated from the Russian edition by R. Baker. N. L. Johnson and F. C. Phillips, Translation Eds. Pergamon, New York, 1966. 190 pp. Illus. $8.

Structure, Form, Movement. Heinrich Hertel. Reinhold, New York, 1966. 263 pp. Illus. $17.50.

The Structure of Glass. vol. 7, *Methods of Studying the Structure of Glass.* E. A. Porai-Koshits, Ed. Translated from the Russian by E. Boris Uvarov. Consultants Bureau, New York, 1966. 255 pp. Illus. $25.

A Survey of Binary Systems. Richard Hubert Bruck. Springer-Verlag, New York, 1966. 193 pp. Illus. $9. Ergebnisse der Mathematik und ihrer Grenzgebiete, vol. 20.

Theory of Probability. Bernard Harris. Addison-Wesley, Reading, Mass., 1966. 304 pp. Illus. $9.75.

Thermal Soil Mechanics. Alfreds R. Jumikis. Rutgers Univ. Press, New Brunswick, N.J., 1966. 283 pp. Illus. $12.50.

Topological Vector Spaces and Distributions. vol. 1. John Horváth. Addison-Wesley, Reading, Mass., 1966. 461 pp. Illus. $12.75.

Traité de Glaciologie. vols. 1 and 2. vol. 1, *Glace, Neige, Hydrologie nivale* (1964. 433 pp. 140 F).; vol. 2, *Glaciers Variations du Climat sols Gelés* (1965 1040 pp. 190 F.). Louis Lliboutry. Masson, Paris. Illus.

Transition Metal Chemistry: A Series of Advances. vol. 3, Richard L. Carlin, Ed. Dekker, New York, 1966. 371 pp. Illus. $15.75. Five papers.

Transactions of the Society of Rheology. vol. 10, pt. 1. Raymond R. Myers, Ed. Interscience (Wiley), New York, 1966. 451 pp. Illus. Paper, $14. There are 25 papers.

Treatise on Analytical Chemistry. pt. 2, *Analytical Chemistry of Inorganic and Organic Compounds.* vol. 13, *Functional Groups.* I. M. Kolthoff and Philip J. Elving, Eds. Interscience (Wiley), New York, 1966. 550 pp. Illus. $20.

Trends in Elementary School Mathematics. Lloyd Scott. Rand McNally, Chicago, 1966. 225 pp. Illus. Paper, $3.50. New Trends in Curriculum and Instruction Series.

Vacuum Microbalance Techniques. vol. 5. Proceedings of the Fifth Conference (Princeton, N.J.), September 1965. Klaus H. Behrndt, Ed. Plenum Press, New York, 1966. 284 pp. Illus. $13.50. There are 16 papers.