entire subject of mechanics takes up only 100 pages. The rest of the book deals with thermodynamics, kinetic theory, chemical and solid-state physics. The emphasis on the various subjects reflects Landau's own interests. For example, liquid helium is mentioned in four different places, including a six-page discussion of superfluidity.

Landau's *General Physics* would hardly be suitable as a text for an introductory course in this country. Many of the topics are not usually considered elementary. The approach is purely theoretical. There are no numerical examples or problems. Nevertheless Landau's *General Physics* should be useful for the instructor, and, as a supplementary reference, for the student, along with Feynman's *Lectures on Physics*. Unfortunately only the first part of Landau's *General Physics* is available, and there is no indication whether the rest of the course will be published later.

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All about magnetic fields

MAGNETISM AND THE COSMOS. (NATO Advanced Study Institute, Newcastle Upon Tyne, 1965) W. R. Hindmarsh, F. J. Lowes, P. H. Roberts, S. K. Runcorn, eds. 436 pp. American Elsevier, New York, 1967. $27.50

by S. Fred Singer

The magnetism of the earth was demonstrated over 300 years ago by William Gilbert, Queen Elizabeth's physician, in his treatise, *De Magnete*. The discovery of the magnetic field of the sun took place about 50 years ago and since then, magnetic fields have been found in other stars, in other planets of the solar system (Jupiter and possibly Saturn), and have been deduced to exist or have been measured in interplanetary space in the galaxy. This volume is divided into five sections: geomagnetism (12 papers); stellar magnetism (6) papers); solar magnetism (6 papers); planetary magnetism (12 papers) and solar-system magnetic fields (3 papers). Galactic magnetic fields are not specifically discussed.

The volume is the result of a NATO Advanced Study Institute and has many aspects of a symposium report. The papers, although individually excellent, sometimes have little coherence. The section on geomagnetism starts with a classical review paper by Sidney Chapman on solar–terrestrial relations, involving the earth's magnetic field, and continues with papers dealing with straightforward geomagnetic measurements, radiocarbon effects, rock magnetism, electrical conductivity of the mantle, and magnetohydrodynamic theory.

Perhaps this serves as a demonstration that geophysics is a subject requiring broad scientific knowledge and the coöperation of many disciplines: physics of all kinds, chemistry, geology, astronomy and even biology.

There is considerable variation in the contributions. Some of them are frankly described as "Introductory Lectures for the Non-Specialist," for example, a brief description of the Zeeman effect or an extremely compact formulation of the magnetohydrodynamics of plasmas. There are some fine review chapters, particularly by Chapman on geomagnetism, and the inevitable list of detailed papers that give some specialized research results.

On the whole, the contributions make up a well balanced presentation, indicating the wide scope of magnetic phenomena in the universe. Credit must be given to the organizers for the manner in which these contributions have been assembled. The only conspicuous gap, as I noted, is in the matter of intergalactic-field structure and related cosmic-ray effects. The interplanetary magnetic field is only very lightly treated in a couple of contributions. The volume can be strongly recommended to anyone who wishes to learn about the great variety of locales in which magnetic phenomena exist. Geophysicists, astrophysicists, laboratory physicists, geologists, plasma theorists and fluid dynamicists can find a common meeting ground here and will find much of value in this volume.

It is interesting to note that this NATO symposium had good representation from many countries, including a Soviet contribution by the director of the Crimean Observatory.

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NEW BOOKS

ATOMS & MOLECULES

The Physics of Electronic and Atomic Collisions. Conf. proc. (Leningrad, July 1967). Lewis M. Branscomb, ed. 200 pp. Joint Institute for Laboratory Astrophysics, Boulder, Colo., 1967. Paper $7.00

SOLIDS

The Physics of Large Deformation of Crystalline Solids. By James F. Bell. 253 pp. Springer-Verlag, New York, 1968. $12.00

An Introduction to the Theory of Superconductivity. By Charles G. Kuper. 301 pp. Clarendon Press Oxford, 1968. $9.60

Superconductivity in Science and Technology. Conf. proc. (U. of Chicago, 1966). Morrel H. Cohen, ed. 163 pp. U. of Chicago Press, Chicago, 1968. $5.95

Semiconductors and Semimetals, Vol. 4: Physics of III–V Compounds. R. K. Willardson, Albert C. Beer, eds. 511 pp. Academic Press, New York, 1968. $22.00

Microplasticity. Charles J. McMahon Jr, ed. 427 pp. Interscience, New York, 1968. $20.00

High Temperature Materials: The Controlling Physical Processes. A. J. Kennedy, ed. 102 pp. Oliver & Boyd, Edinburgh, 1968. £2. 7s. 6d.

Chemistry and Physics of Carbon, Vol. 3: A Series of Advances. Philip L. Walker Jr, ed. 449 pp. Edward Arnold, London (Marcel Dekker, New York), 1968. $22.75

MATHEMATICS & MATHEMATICAL PHYSICS

Electric and Magnetic Forces. By R. R. Birss. 165 pp. American Elsevier, New York, 1968. $6.00

Problems and Solutions in Ordinary Differential Equations. By Fred Bauer, John A. Nohel. 267 pp. W. A. Benjamin, New York, 1968. Cloth $7.95, paper $3.95

Probabilistic Methods in Applied Mathematics, Vol. 1. A. T. Bharucha-Reid, ed. 291 pp. Academic Press, New York, 1968. $15.00

INSTRUMENTATION & TECHNIQUES

Simple and Complex Vibratory Systems. By Eugen Skudrzyk. 514 pp. Pennsylvania State U. Press, University Park, 1968. $24.50

Vacuum System Design. By N. T. M. Dennis, T. A. Heppell. 223 pp. Chapman and Hall, London (Barnes & Noble, New York), 1968. $8.00

Experimental Methods in Magnetism, Part 1: Generation and Computation of Magnetic Fields; Part 2: Measurement of Magnetic Quantities. By H. Zijlstra. 532 pp. North-Holland, Amsterdam (Interscience, New York), 1967. $26.50 per set