

becomes a branch of projective geometry.

These two points of view dominated the development of geometry during much of the 19th and early 20th centuries. Each made notable contributions to mathematical knowledge, but the paths of development were so divergent that the differential geometer and the algebraic geometer of 40 years ago often had little in common. Yet new concepts were quietly in the making; even though Kähler's original note, in 1933, created no great stir, today there are signs of a developing unity within geometry that attest to the importance of Kähler's concept and of recent work by Hodge, Kodaira, and others.

Although a Kählerian space, like the surfaces of classical differential geometry, carries a Riemannian metric, it is a complex analytic manifold rather than a sufficiently differentiable real one. In the second place, a Kählerian space induces in its tangent space (the space of differentials) a Hermitian geometry rather than an elliptic geometry. As a result, the class of Kählerian spaces includes not only the space of all linear subspaces (of a given dimension) of projective space but, more generally, any subspace which is algebraic and without multiple points.

Weil has done mathematics a great service, for his introduction to the subject should stimulate many mathematicians toward a more active interest in this new area of mathematics. His employment of the techniques of modern algebra and topology is effective and elegant. Of particular interest to the classical algebraic geometer is his treatment, in the final chapter, of theta functions and Abelian varieties.

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Nuclear Scattering. K. B. Mather and P. Swan. Cambridge University Press, New York, 1958. viii + 469 pp. Illus. \$14.50.

The title of this book provides an accurate description of the contents. The authors begin with a brief sketch of the relationship between nuclear scattering information and nuclear forces. A considerable fraction (35 percent) of the book is then devoted to a description of experimental techniques used in charged-particle and neutron scattering experiments. The remainder of the book concerns itself with an extensive description of the analysis of nuclear scattering data, beginning with nucleon-nucleon scattering and extending to a discussion of the scattering by more complex systems using an optical model.

The chapter on the scattering of nu-

cleons by few-nucleon targets provides a useful, concise review of past work in this area. The authors have also summarized certain aspects of high-energy scattering that have not heretofore appeared in book form. There is a very nice discussion (in one of the two appendices) of the way in which the scattering phase shift at zero energy measures the number of bound states in a potential.

It is not clear to me for what audience the authors intended their book. The 164 pages devoted to experimental technique, containing such information as the temperature dependence of the densities of Octoil S and Apiezon B (important as these may be), are not very conducive to keeping the reader's attention focused on the strength and range of the nuclear forces mentioned in the authors' opening remarks. Similar consideration is not given in the book to the problem of extracting reliable numbers from a high-speed digital computer! The treatment of complex systems is rather cursory. Although a great deal of discussion is devoted to stripping reactions, the fission reaction is not listed in the index. Almost no comment is made concerning recent data on either the average or the statistical properties of nuclear scattering widths and spacings. Heavy-ion scattering is also ignored.

Technically, the book is very good. Aside from a few misprints, it is easy to read, and the figures are clear. There are a few stylistic novelties, such as the use of *unreal axis* in place of *imaginary axis* and a carefully alphabetized reference to "Various authors." Because of the considerable amount of research work surveyed by this book, it will be a valuable addition to the research library of any institution engaged in nuclear physics. Considering the cost per page, probably most physicists will watch for it there.

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Nuclear Engineering Handbook. Harold Etherington, Ed. McGraw-Hill, New York, 1958. xv + 1857 pp. Illus. \$25.

The growth in the number of university courses in nuclear engineering, the publication of textbooks on the subject, and hints of realistic cost estimates for nuclear power indicate that the field of nuclear engineering is approaching adolescence, if not maturity. The appearance of the *Nuclear Engineering Handbook* is another such sign—and a welcome one. This book provides some 1800 pages of useful, well-organized, and authoritative information, and is an excel-

lent one-volume reference for the entire field.

There are 14 sections: "Mathematical data and general tables" (156 pages); "Nuclear data" (36 pages); "Mathematics" (148 pages); "Nuclear physics" (103 pages); "Experimental techniques" (145 pages); "Reactor physics" (121 pages); "Radiation and radiological protection" (142 pages); "Control of reactors" (88 pages); "Fluid and heat flow" (116 pages); "Reactor materials" (192 pages); "Chemistry and chemical engineering" (149 pages); "Nuclear-power-plant selection" (155 pages); "Mechanical design and operation of reactors" (155 pages); and "Isotopes" (58 pages).

It is, of course, impossible to discuss a handbook of this nature in detail in a brief review. The treatment is as up-to-date as the problems of compiling and publishing a handbook permit. The mistakes I have found during a quick survey of the book are such as could easily be corrected in a second edition. The coverage of the material is thorough. I have only one serious reservation with regard to content. There are many data not included in this volume; some can be found, in *Reactor Physics Constants* (ANL-5800), prepared at the Argonne National Laboratory and available at \$7 or so per copy from the U.S. Government Printing Office, Washington, D.C. Examples of such data are constants for multigroup calculations; tables of reactivity versus reactor period; more calculation methods; and so on. I would like to see this additional information in future editions of the *Nuclear Engineering Handbook*, so that the cost of keeping up with advances in the field may be kept from multiplying too much.

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Modern Materials. Advances in development and applications. vol. 1. Henry H. Hausner, Ed. Academic Press, New York, 1958. xi + 402 pp. \$12.50.

This volume is the first of a new series on modern materials. It has been prepared especially for the engineer with broad interests and for the specialist who wants information on materials other than those in his own field of specialization. In these days of rapid development of new materials the engineer has had to become more materials-minded and must therefore acquaint himself with the properties and commercial applications of the many new materials that come on the market.

The editor has assembled the following eight chapters: "Some new developments in wood as a material," by Carl de Zeeuw (59 pages and 11 references);

"Synthetic rubbers for special service conditions," by F. A. Bovey (77 pages and 137 references); "Fiber materials," by T. D. Callinan (43 pages and 77 references); "High voltage insulation papers," by William A. Del Mar (29 pages and 78 references); "Special glasses for nuclear engineering applications," by N. J. Kreidl and J. R. Hensler (25 pages and 42 references); "Characteristic properties of modern ceramics," by John H. Koenig and Edward J. Smoke (29 pages and 26 references); "Germanium and silicon," by Gustav Szekely (33 pages and 65 references); and "Zirconium," by G. E. Miller (80 pages and 104 references). The book also includes 10 pages of author index and 6 pages of subject index.

The authors of the various chapters, all experts in their respective fields, have described their subjects so that the graduate engineer will have no trouble understanding the subject matter even though he is not a specialist in that particular field. My specialty is rubber, and therefore a review of the chapter on rubber is the only one that I can do critically. To prepare this chapter the editor selected one of the country's outstanding polymer and rubber chemists who has reviewed "the newer developments in synthetic rubbers for service under conditions where heat, cold, solvents, oils, electrical stress, or other factors make the common, large-volume types of synthetic rubbers unsuitable." This he has accomplished in an authoritative manner. The other chapters also seem to have been very ably prepared.

In spite of the great diversity of the subjects covered, this first volume should prove to be extremely valuable and interesting to the development engineer and to the student. The appearance of succeeding volumes will eagerly be awaited.

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New Books

Advances in Protein Chemistry. vol. XIII. C. B. Anfinsen, Jr., Kenneth Bailey, M. L. Anson, John T. Edsall, Eds. Academic Press, New York, 1958. 535 pp. \$13.80. Contents: "The use of immunochemical methods in studies on proteins" (P. Grabar); "Protein-carbohydrate complexes" (F. R. Bettelheim-Jevons); "The silk fibroins" (F. Lucas, J. T. B. Shaw, S. G. Smith); "Synthesis and chemical properties of poly- α -amino acids" (E. Katchalski and M. Sela).

The Age of Improvement. Asa Briggs. Longmans, Green, New York, 1959. 559 pp. \$7.

The American Economy: an Appraisal of Its Social Goals and the Impact of Science and Technology. Proceedings of the Science-Economics Workshop. Joint

Council on Economic Education, New York 36, 1959. 160 pp. \$2.

Animal Camouflage. Adolf Portmann. Translated by A. J. Pomerans. Univ. of Michigan Press, Ann Arbor, 1959. 111 pp. \$4.50.

Antibiotics Annual, 1958-1959. Proceedings of the sixth annual symposium on antibiotics. Henry Welch and Felix Marti-Ibanez, Eds. Medical Encyclopedia, New York, 1959. 1124 pp. \$12.

Atomic Medicine. Charles F. Behrens. Williams & Wilkins, Baltimore, Md., ed. 3, 1959. 719 pp. \$15.

Atoms Today and Tomorrow. Margaret O. Hyde. McGraw-Hill, New York, rev. ed., 1959. 159 pp. \$3.

Basic Physics of Atoms and Molecules. U. Fano and L. Fano. Wiley, New York; Chapman & Hall, London, 1959. 429 pp. \$10.

Between Earth and Space. Clyde Orr, Jr. Macmillan, New York, 1959. 261 pp. \$4.95.

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Cathartics and Common Sense. William R. Farrar. Lippincott, Philadelphia, 1959. 154 pp. Paper, \$1.25.

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The Chemistry of Drugs. Norman Evers and Dennis Caldwell. Interscience, New York, 1959. 415 pp. \$12.25.

The Chemistry of Industrial Toxicology. Hervey B. Elkins. Wiley, New York; Chapman & Hall, London, ed. 2, 1959. 463 pp. \$11.50.

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Colorimetric Methods of Analysis. Including photometric methods. vol. IIA. Foster Dee Snell and Cornelia T. Snell. Van Nostrand, Princeton, N.J., 1959. \$15.

Comparative Morphology of Vascular Plants. Adriance S. Foster, and Ernest M. Gifford, Jr. Freeman, San Francisco, Calif., 1959. 566 pp. \$9.

Conduction of Heat in Solids. H. S. Carslaw and J. C. Jaeger. Oxford Univ. Press, New York, 1959. 520 pp. \$13.45.

Cours d'anatomie comparee des vertebres. Jean G. Baer. Masson, Paris, 1959. Text, 210 pp. atlas, 523 figs. F. 5000.

Creativity. An examination of the creative process. Paul Smith, Ed. Hastings House, New York, 1959. 210 pp. \$4.95.

Dangerous Marine Animals. Bruce W. Halstead. Cornell Maritime Press, Cambridge, Md., 1959. 153 pp. \$4.

Dendritic Crystallization. D. D. Saratovkin. Translated from Russian by J. E. S. Bradley. Consultants Bureau, New York, 1959. 126 pp. \$6.

A Design Manual for Cabinet Furniture. Basic scientific principles concerning its construction. Pergamon Press, New York and London, 1958. 56 pp. \$3.50.

Directory of Natural History and Other Field Study Societies in Great Britain. Averil Lysaght, Ed. British Assoc. for the Advancement of Science, London, 1959. 228 pp. 25s.

Economics of American Forestry. Albert C. Worrell. Wiley, New York; Chapman & Hall, London, 1959. 451 pp. \$9.75.

Electronics for Everyone. The story of electricity in action: transistors, television, radio, radar, hi fi, video tape, space electronics—what they are and how they work. Monroe Upton. Devin-Adair, New York, ed. 2, 1959. 399 pp. \$6.95.

Electrophoresis. Theory, methods, and applications. Milan Bier, Ed. Academic Press, New York, 1959. 583 pp. \$15.

Endocrines in Development. Ray L. Watterson. Univ. of Chicago Press, Chicago, Ill., 1959. 155 pp. \$4.

Endurance: Shackleton's Incredible Voyage. Alfred Lansing. McGraw-Hill, New York, 1959. 282 pp. \$5.

Environmental Conservation. Raymond F. Dasmann. Wiley, New York; Chapman and Hall, London, 1959. 318 pp. \$6.50.

Fundamental Aspects of Reactor Shielding. Herbert Goldstein. Addison-Wesley, Reading, Mass., 1959. 432 pp. \$9.50.

The Gentle Art of Mathematics. Dan Pedoe. Macmillan, New York, 1959. 143 pp. \$3.50.

Group Processes. Transactions of the fourth conference. Bertram Schaffner, Ed. Josiah Macy, Jr. Foundation, New York, 1959. 266 pp. \$4.50.

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Guide de travaux pratiques de zoologie. Paul Brien. Masson, Paris; Desoer, Liège, Belgium, ed. 3, 1959. 272 pp. F. 2100.

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Information Theory and Statistics. Solomon Kullback. Wiley, New York; Chapman & Hall, London, 1959. 412 pp. \$12.50.

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Introduction to Zoology. H. W. Manter and D. D. Miller. Harper, New York, 1959. 700 pp. \$7.50.

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Law and Administration. vols. 1 and 2. Herbert S. Marks, Ed. Pergamon Press, New York, 1959. 1007 pp. \$26.50.

Lectures on Nuclear Theory. L. D. Landau and Y. Smorodinsky. Plenum