a causative role in, among other things, the birth of civilization and the rise of armies, "bureaucracy," and law courts. Mathematics, we are told, grew out of the need to measure water; metallurgy, out of the need for "sharp digging instruments."

The history of technology is a promising and exciting field, in which serious interest is just beginning to develop. A book of this sort does not whet the appetite for more.

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The Western Economy and Its Future as Seen by Soviet Economists. Richard G. Stolt, Ed. International Film and Publications Company, Montreal, Canada, 1958. 102 pp.

It never hurts to know what our self-chosen rivals think about us, and this digest of recent views is useful for that purpose. The editor has collected together, in magazine format on double-columned pages, a miscellany of translated articles, speeches, and interviews by Soviet economists and political leaders, all of the original articles having been published within the last 2 or 3 years. About two-thirds of the space is given over to the economists, who prophesy the ultimate doom of capitalism with a unanimity strange to Western ears. The remaining space contains statements by Mikoyan, Gomulka, and Khrushchev and includes a large segment of the latter's landmark speech to the 20th Party Congress of the Soviet Union.

Through Soviet eyes we see the West as a group of imperialist nations in the last throes of survival, struggling with each other for foreign markets as dumping grounds for the products of overproduction, forcing labor ever deeper into wage slavery and permanent unemployment, moving from one economic crisis to another, and postponing the inevitable collapse only by intensifying militarism and the cold war. Meanwhile communism flourishes, raising production and living standards at an unprecedented pace, embracing an ever-widening circle of mankind, liberating workers from exploitation, and promoting the cause of peace.

Most of the articles were written during the 1957–58 recession, which promised at that time to be the most severe business setback since the Great Depression. The Soviet economists seized this opportunity to reaffirm the established communist doctrine of progressive worsening of crises, a doctrine that had gone without supporting evidence during the postwar years. The reader may now wonder whether the Soviet economists were not overanxious.

One finds many examples of the tenacity of dogma in the face of contradictory evidence. An interesting case is the following statement by A. Katz of Moscow University (page 7): "It was the war in Korea that halted the development of the 1948–1949 crisis. The fact that the war began in mid-1950 (i.e., after there was a certain upturn in industrial production) does not contradict this conclusion; the big monopolies knew beforehand of the gamble that was being prepared in Korea and already in the first half of 1950 began to extend production, anticipating an increase stimulated by demand of a military nature."

This collection, while useful, would have been more illuminating had a few selections from an earlier period been included. It would also have benefited from further editing. The editor and publisher are poorly identified, and there is no statement explaining the purposes of the volume or the criteria of selection. The translators are anonymous, and the original sources are not documented. The volume is therefore suitable only for casual reading. For more careful study, one should consult the standard scholarly translations, such as those published in the *Current Digest of the Soviet Press.*

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The Hydromedusae of the Atlantic Ocean and Adjacent Waters. P. L. Kramp. Carlsberg Foundation, Copenhagen, Denmark, 1959. 283 pp. Illus. + plates. Paper, Kr. 60.

This work—the most recent report in the "Dana"-Expeditions series—reflects the considerable experience of its author, a scientist long devoted to the systematics of the Hydrozoa.

The scope of the report is actually somewhat broader than the title implies. The text is divided into three sections. Section A, "Systematic account of the collected species" (74 pages), is for the most part an annotated list of the species collected (56 genera, 77 species) but also includes descriptions of three new species and one new subspecies. Section B, "A survey of the Hydromedusae occurring in the Atlantic Ocean and adjacent water" (129 pages), contains keys to and diagnoses of all families, genera, and species occurring in the area. Most of the more than 300 figures illustrating this section are redrawn from other works and have a tendency to be diagrammatic, but they are, on the whole, adequate. There is some repetition of the material covered in section A. Section C, "Zoogeography" (70 pages), covers ecology as well as zoogeography; the primary breakdown is ecological, while the neritic species are further treated zoogeographically.

As implied in the text, the work is by no means definitive in any one of its several aspects. Nevertheless, it exceeds anything previously published on the subject and is certain to be of considerable value to systematists, ecologists, zoogeographers, and oceanographers alike.

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Studies in Invertebrate Morphology. Smithsonian Institution, Washington, D.C., 1959. v + 416 pp. Illus. + plates.

This volume was published in honor of Robert Evans Snodgrass on the occasion of his 84th birthday and is a very fitting tribute to one of the foremost insect morphologists living today. The first chapter is a delightful account of his life and an evaluation of his work, written by Ernestine B. Thurman. It is illustrated by a number of cartoons and nonentomological drawings by Snodgrass and closes with a very characteristic personal note by the artist. Thurman has also compiled a list of 79 papers published by Snodgrass between 1896 and 1958.

The rest of the volume contains 17 papers on various aspects of invertebrate morphology. This is a truly international tribute, since nine of the 29 authors write from eight countries in Europe and Asia, and it is interesting to note that all 29 are associated with educational institutions.

Space does not permit discussion of each paper, but most of them are very fundamental studies of a number of aspects of morphology, defined by Snodgrass as "what you *think* you see with your mind." The papers range from studies of the external anatomy of a

semiaquatic grasshopper (by Carbonell) and of the morphology of the head of Chironomidae (by Gouin) to metachemogenesis (by Rockstein) and a physiological approach to the relation between prey and predator (by Roeder). Other subjects covered are eye pigmentation, the onychophoran head, the first leg segments, spinasternal musculature, the mechanism of feeding in flies and Hemiptera, morphological adaptation, shaping of egg strings in copepods, molecular organization of insect cuticle, the nervous system of a grasshopper, the thoracic musculature of Diptera and moths, and the phylogenetic significance of entognathy.

This is a splendid collection of papers, many of them beautifully illustrated, and the volume is a credit to the authors and to the members of the committee, headed by J. F. G. Clarke, who planned and arranged it.

ALAN STONE

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New Books

Aquarium Book for Boys and Girls. Alfred Morgan. Scribner's, New York, 1959. 223 pp. $3.

Bigger's Handbook of Bacteriology. For students and practitioners of medicine. F. S. Stewart, Ed. Williams & Wilkins, Baltimore, Md., ed. 7, 1959. 621 pp. $8.

A California Flora. Philip A. Munz and David D. Keck. Univ. of California Press, Berkeley, 1959. 1681 pp. $11.50.

Catalytic Models in Epidemiology. Hugo Muench. Harvard Univ. Press, Cambridge, Mass., 1959. 121 pp. $4.50.

Elementary Decision Theory. Herman Chernoff and Lincoln E. Moses. Wiley, New York; Chapman & Hall, London, 1959. 379 pp. $7.50.

Fluidization. Max Leva. McGraw-Hill, New York, 1959. 340 pp. $11.50.

Gmelins Handbuch der Anorganischen Chemie. System No. 5, *Fluorine,* 1959, 276 pp., $36; System No. 15, pt. C, *Silicium,* 1958, 513 pp., $67.44; System No. 59, pt. D, *Iron,* 1959, 618 pp., $77.04. Verlag Chemie, Weinheim, Germany.

The Historical Development of Physiological Thought. A symposium. Chandler McC. Brooks and Paul F. Cranefield. Hafner, New York, 1959. 414 pp. $6.

Introduction to Mathematical Physics. William Band, Van Nostrand, Princeton, N.J., 1959. 336 pp. $7.25.

A Laboratory Manual of Cryptobranchus Alleganiensis *Daudin.* Hazel Elisabeth Branch. Vantage Press, New York, ed. 2, 1959. 79 pp. $2.95.

Linear and Stereoregular Addition Polymers: Polymerization with Controlled Propagation. Norman G. Gaylord and Herman F. Mark. Interscience, New York, 1959. 581 pp. $17.50.

Man's Journey through Time. A first step in physical anthropochronology. L. S. Palmer. Philosophical Library, New York, 1959. 199 pp.

The Mast Cells. James F. Riley. Livingston, Edinburgh; Williams & Wilkins, Baltimore, Md., 1959. 192 pp. $6.75.

Mathematics in Physics and Engineering. J. Irving and N. Mullineux. Academic Press, New York and London, 1959. 900 pp. $11.50.

Medical Chemistry. vol. IV. Wiley, New York; Chapman & Hall, London, 1959. 3437 pp. $12. The literature search for this review included the references found under the heading "Barbituric acid" in *Chemical Abstracts* (1907–56) and in *Chemische Zentralblatt* (1897–1944, with the exception of the years 1940 and 1943). Microfilm No. 1720 of the War Department Army Medical Library, which describes more than 200 barbituric acid derivatives that were tested at the I.-G. Farben-Industrie plant, was also reviewed.

Principles of Biochemistry. Abraham White, Philip Handler, Emil L. Smith, DeWitt Stetten, Jr. McGraw-Hill, New York, ed. 2, 1959. 1162 pp. $15.

Principles of Radiation Dosimetry. G. N. Whyte. Wiley, New York; Chapman & Hall, London, 1959. 131 pp. $7.

Probability and Related Topics in Physical Sciences. Mark Kac. With special lectures by G. E. Uhlenbeck, A. R. Hibbs, Balth. van der Pol. Interscience, New York, 1959. 279 pp. $5.60.

Proceedings of the Fourth Symposium on Magnetism and Magnetic Materials. Supplement to the *Journal of Applied Physics,* vol. 30, 1959. For the American Inst. of Physics. McGraw-Hill, New York, 1959. 323 pp. $10. This volume contains more than 240 papers written by more than 350 specialists in the field. The papers are presented under the following headings: "Ferrites," "Computer components," "Macromagnetics: domain walls," "Magnetic properties of metals and alloys," "Fine particles," "Amplifiers, microwave applications," "Resonance," "Metallurgical considerations," "Fundamental interactions," "Instrumentation," "Thin films," "Neutron diffraction and irradiation," "Garnets and other compounds." "Anisotropy, other than in thin films."

Programming Business Computers. Daniel D. McCracken, Harold Weiss, Tsai-Hwa Lee. Wiley, New York; Chapman & Hall, London, 1959. 527 pp. $10.25.

Rocket Encyclopedia Illustrated. John W. Herrick and Eric Burgess, Eds. Aero, Los Angeles 26, Calif., 1959. 607 pp. $12.50. In the preface the editors state that "It has been the policy . . . to collect, in a convenient and understandable reference book, as many as possible of the facts and theories concerning the new technology of rocket propulsion." The entries are alphabetically arranged. Nearly all entries are presented in two parts: a concise definition, in technical phrases that are intended to satisfy the needs of members of the rocket industry, and an explanation which gives more detailed information about the term in language intended to be within the capabilities of a high-school graduate. In the explanation sections, each term that the editors believe might need additional clarification is printed in italics. This signifies that the term is fully defined and discussed in its own alphabetical position in the book.

Sampling Inspection Tables. Single and double sampling. Harold F. Dodge and Harry G. Romig. Wiley, New York; Chapman & Hall, London, ed. 2, 1959. 235 pp. $8.

Servomechanisms and Regulating System Design. vol. 1. Harold Chestnut and Robert W. Mayer. Wiley, New York; Chapman & Hall, London, ed. 2, 1959. 697 pp. $11.75.

Solid Propellent and Exothermic Compositions. James Taylor. Interscience, New York, 1959. 163 pp. $4.25.

The Structure of Metals. A modern conception. Iliffe, London; Interscience, New York, 1959. 124 pp. $4. The papers published in this volume were offered as lectures at the annual refresher course of the Institution of Metallurgists (1958). The lectures are "The electron structure of metals" (G. V. Raynor); "Experimental aspects of the electron theory of metals" (J. A. Gatterall); "Dislocations in metals" (A. G. Quarrell); "Seeing dislocations" (J. Nutting).

Target for Tomorrow. Space travel of the future. I. M. Levitt. Fleet Publishing Corp., New York, 1959. 328 pp. $4.95.

The Theory of Elementary Particles. J. Hamilton. Oxford Univ. Press, New York, 1959. 494 pp. $12.

Thermodynamics and Statistical Thermodynamics. John Geldart Aston and James John Fritz. Wiley, New York; Chapman & Hall, London, 1959. 570 pp. $8.25.

Reprints

Amusements in Mathematics. Henry E. Dudeney. Dover, New York, 1958. 258 pp. $1.25.

The Canterbury Puzzles. And other curious problems. Henry Ernest Dudeney. Dover, New York, 1958 (reprint of ed. 4). 250 pp. $1.25.

Fruit Key and Twig Key to Trees and Shrubs. Fruit key to northeastern trees; twig key to the deciduous woody plants of eastern North America. William M. Harlow. Dover, New York, 1959 (reprint of ed. 1 of *Fruit Key* and rev. ed. 4 of *Twig Key*). 106 pp. $1.25.

General Homogeneous Coordinates in Space of Three Dimensions. E. A. Maxwell. Cambridge Univ. Press, New York, 1959 (reprint of ed. 1, 1951). 169 pp. $2.75.

Mathematical Puzzles of Sam Loyd. Martin Gardner, Ed. Dover, New York, 1959 (selection of puzzles from *Sam Loyd's Cyclopedia of Puzzles*). 181 pp. $1.

The Measurement of Power Spectra. From the point of view of communications engineering. R. B. Blackman and J. W. Tukey. Dover, New York, 1959 [republication of pts. 1 and 2 of "The measurement of power spectra from the point of view of communications engineering," *Bell System Tech. J.,* **37**, Jan. and Mar. (1958)]. 190 pp. $1.85.