curred several thousands years ago, made an enormous change in the mode of life of people, and he draws a parallel between that change and the current change being wrought by the rapid upsurge of science and technology. Brown discusses some of the major problems that result from the change—for example, the possibility of nuclear war, the necessity for the economic development of vast underdeveloped areas of the world, and the rapid dwindling of our natural resources. The role of the government in the attempts to solve such problems is the central theme of the lecture, which was the Sigma Xi-Phi Beta Kappa lecture presented at the annual meeting of the AAAS in 1961.

Wallace R. Brode completes the volume with a special article written in recognition of the 75th anniversary of the Society of the Sigma Xi, of which he was then the national president. Brode's discussion of the growth of science and the development of a National Science Program complements nicely the chapter by Brown.

One lecture is missing from the volume—that by Donald W. Taylor on psychological studies of thinking. Hopefully it will form a part of the next volume in the series.

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Principles and Applications

Electrochemistry. Theoretical principles and practical applications. Giulio Milazzo. Translated from the Italian manuscript by J. P. Hill. Elsevier, New York, 1963. xvi + 708 pp. Illus. $20.

That the Italian and German editions of this book were successful is not surprising in view of the curious dearth, in recent times and in most languages, of reasonably complete accounts of theoretical and applied electrochemistry. Milazzo's book, practically unaided, can satisfy the needs of many individuals: students who are preparing for examinations that touch on electrochemistry in one way or another, teachers who want material for a few lectures (supplements to a course in physical chemistry), laboratory workers who want data for immediate use at the bench, and plant technicians who are looking for some point in industrial electrochemistry or for a remedy to a case of corrosion. The book is a mine of information, and, in the discussion of several subjects, the author has been effectively helped by specialists (seven of them are listed as coauthors).

This translation, which is very literal, was made from a completely rewritten Italian version, and it introduces, for the first time in a modern English textbook, the language of tensions—electrochemical, electric, chemical, and even overtensions (but Faraday and others have already spoken of electric tensions!)—recommended by the International Committee of Electrochemical Thermodynamics and Kinetics (CITCE) and submitted to the International Union of Pure and Applied Chemistry (IUPAC). However, references are not given to the published CITCE reports.

The portion of the book that deals with electrolytes is avowedly very condensed, but occasionally it is also old-fashioned—for instance, too much emphasis is placed on the Arrhenius theory of degrees of dissociation. The presentation of electrode kinetics is more up-to-date and that of various electroanalytical applications—polarography, electrokinetic phenomena, and the like—constitutes a useful survey of the present state of these rapidly developing areas. The last six chapters (in a total of 12) give a particularly thorough description of industrial processes, on a truly international scale: general considerations on electrochemical plants; electrometallurgy in aqueous solutions (with a special section on corrosion); electrolysis of alkali halides; other nonmetallurgical processes; electrolysis in molten electrolytes, practical primary cells, and storage batteries; and electrochemistry of gases.

The author and the translator deserved better editorial help. Notations are not always consistent: the *I* versus *J* distinction between current and current density is not always observed, and it is needlessly bewildering; a 0.239 unit conversion coefficient in the Nernst equation appears in several portions of the book but not in others, and it should never have been used. The subject-author index is deficient in both respects, woefully so with respect to authors. The book is rich in references to some topics, poor in others, but the names of only a few authors have gained access to the index. Sources are seldom indicated for the very useful and numerous tables of data. The book is very attractively printed on excellent lightweight paper.

There is no question about the overall usefulness of this book, and Milazzo should be commended for the tremendous effort he has put in its preparation. The perfect textbook of electrochemistry remains to be written; perhaps, with proper editing and careful revision, Milazzo's book might constitute the core of that badly needed paragon.

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Physical Anthropology

Anthropology A to Z. Carleton S. Coon and Edward E. Hunt, Jr., Eds. Translated from the German by Hans Gunthardt. Grosset and Dunlap, New York, 1963. viii + 277 pp. Illus. Paper, $2.50; cloth, $4.75.

This work, a translated, adapted, and updated version of *Anthropologie*, a volume in the Fischer Lexikon series published in Germany in 1959, is here presented as a volume in the paperback Universal Reference Library, published by Grosset and Dunlap. It is described as based on the work of Gerhard Heberer, Gottfried Kurth, and Ilse Schwidetzky-Roesing, but one senses some very considerable contributions by the editors.

The reader should be warned that, although some cultural aspects are treated, anthropology as here used must be interpreted in the German sense, and that the entire volume is oriented to the field of physical anthropology. Even the 15-page section on cultural anthropology has a strong biological slant.

The arrangement of the 19 articles in alphabetic order (the "A to Z" of the title) makes for a rather choppy presentation of major topics. Thus, "The concept of race," "The formation of races," "Genetics and race," "The history of races," and "Racial psychology" appear as disconnected units in different parts of the volume; "The descent of man" and "Paleoanthropology" are widely separated. The lack of a table of contents for the articles is inconvenient, but the reader can easily construct one for himself, on the page opposite the flyleaf. On the other hand, a very thorough 24-page

index pulls together much of the material; there is a 12-page classified bibliography and a 6-page glossary.

Coon writes in his brief introduction, "This volume represents . . . efforts . . . to bring together and coordinate our knowledge of man's origins and evolutionary history, his distribution into races, and the biological aspects of human behavior. It is, for example, the first book I know in which the reader can find essays on human growth, paternity diagnosis, constitution, and social biology along with human paleontology and serology."

Although the items are quite uneven (the one on the history of anthropology is particularly weak) and sometimes one-sided, this book contains a great deal of information and is readable. It belongs on the reference shelf, and it can be quite useful to the student.

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Behavior

Inhibition and Choice. A neurobehavioral approach to problems of plasticity in behavior. Solomon Diamond, Richard S. Balvin, and Florence Rand Diamond. Harper and Row, New York, 1963. viii + 456 pp. Illus. $6.50.

The authors have taken as their text one of Lloyd Morgan's secondary canons, to wit, "When physiologists have solved the problem of inhibition, they will be in a position to consider that of volition." Judging from the rapidly growing popularity of "inhibition" in the neurobehavioral literature, the situation prophesied by Morgan more than 70 years ago would seem to be at hand. *Inhibition and Choice* reflects and advances this recent trend, by providing a 400-page discussion (backed by a 40-page bibliography) of the history of "inhibition," its current status in physiology and psychology, and its potential for clarifying such varied problems as thinking, mental retardation, the effects of drugs, conflicts, and, central to all of these from the authors' viewpoint, the problem of choice. In short, "inhibition" is offered as the key to the black box, as well as the lamp with which to light its darkest corners.

The argument is developed in the form of a series of principles which are named after famous figures (for example, Sechenov and Sherrington) and others less well known (for example, Anstie and Brunton) from whose writings the ideas were culled. There are 12 principles in all, each of which describes a different form or function of the "central inhibitory process." Strung together, the principles form a sort of theoretical bridge between the facts of synaptic activity, on the one hand, and those of organismic activity, on the other. However, readers who care to cross this bridge should be cautioned that, at the present, it is held together mainly by analogy; little else supports the assumption that the synaptic process that physiologists refer to as inhibition underlies the behavioral process that psychologists refer to by the same name. Some early work by Moore on the behavior of invertebrates treated with strychnine (a drug which is now thought to produce its central excitatory effects by blocking inhibitory synapses) and a recent experiment on monkeys (by Jasper, Ricci, and Doane) which involved microelectrode recording during conditioning, provide nearly all that is known about the relationship between the molecular and molar forms of "inhibition"; the results of these studies cannot be interpreted as having demonstrated anything like a simple, direct relationship between the two.

In writing a scholarly review of the long and fascinating history of "inhibition," Diamond, Balvin, and Diamond have highlighted incidentally the great empirical gap that separates the behavioral concept from its neural analogue. Hopefully, the book will spur its readers, whatever their present view of the relationship between the two concepts, to investigate this important problem experimentally.

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New Books

General

American Learned Societies. Joseph C. Kiger. Public Affairs Press, Washington, D.C., 1963. 299 pp. $6.

Astronomischer Jahresbericht. vol. 61. W. Lohmann, F. Henn, and U. Guntzel-Lingner, Eds. De Gruyter, Berlin, 1963. 684 pp. Paper, DM. 72.

The Birds. Roger Tory Peterson and the editors of *Life*. Time Inc., New York, 1963. 192 pp. Illus. $3.95.

Color in Business, Science, and Industry. Deane B. Judd and Gunter Wyszecki. Wiley, New York, ed. 2, 1963. 510 pp. Illus. $15.

Discoverers of Blood Circulation. From Aristotle to the times of Da Vinci and Harvey. T. Doby. Abelard-Schuman, New York, 1963. 303 pp. Illus. $6.50.

Emergency Medical Guide. John Henderson. McGraw-Hill, New York, 1963. 439 pp. Illus. Paper, $2.95; cloth, $6.95.

The Evolution of Science. Readings from the history of mankind. Guy S. Metraux and François Crouzet, Eds. New American Library, New York, 1963. 432 pp. Paper, 95¢. Fourteen essays originally published in the *Journal of World History*, with an introductory essay by Ritchie Calder. The volume was edited for the International Commission for a History of the Scientific and Cultural Development of Mankind.

Federal Conservation Policy, 1921–1933. Donald Swain. Univ. of California Press, Berkeley, 1963. 221 pp. Illus. Paper, $4.

The Flash of Genius. Alfred B. Garrett. Van Nostrand, Princeton, N.J., 1963. 259 pp. Illus. $6.50.

How to Prepare for College Board Achievement Tests. *Physics.* Herman Gewirtz. Barron's Educational Series, Great Neck, N.Y., 1963. 151 pp. Illus. Paper, $2.25.

Japanese Studies in the History of Science. No. 1. Suketoshi Yajima, Ed. History of Science Soc. of Japan, Tokyo, 1962. 146 pp. Illus. Paper, $5.

John Clayton. Pioneer of American botany. Edmund Berkeley and Dorothy Smith Berkeley. Univ. of North Carolina Press, Chapel Hill, 1963. 248 pp. $6.

Land and Water Use. AAAS Publ. No. 73. Wynne Thorne, Ed. AAAS, Washington, D.C., 1963. 374 pp. Illus. $8; $7, cash price to members. A symposium presented at the annual meeting (Denver, Colo.), December 1961.

Mariner. Mission to Venus. Compiled by Harold J. Wheelock. McGraw-Hill, New York, 1963. 128 pp. Illus. Paper, $1.45; cloth, $3.50. Prepared by the staff of the Jet Propulsion Laboratory (California Inst. of Technology) for the National Aeronautics and Space Administration.

Naturalist in Two Worlds. Random recollections of a university president. Alexander G. Ruthven. Univ. of Michigan Press, Ann Arbor, 1963. 172 pp. $5.

The New Wilderness. What we know about space. Willard E. Wilks. McKay, New York, 1963. 186 pp. Illus. $4.50.

The Nineteenth-Century World. Readings from the history of mankind. Guy S. Metraux and François Crouzet, Eds. New American Library, New York, 1963. 519 pp. Paper, 95¢. Fifteen essays reprinted from the *Journal of World History*, with a preface by Mario Praz. The volume was edited for the International Commission for a History of the Scientific and Cultural Development of Man.

Physics and Politics. Max Born. Basic Books, New York, 1962. 94 pp. $3.

Science in the History of Modern Culture. Masao Watanabe. Miraisha, Tokyo, Japan, 1963. 357 pp. Illus. $8.