
Science In Your Life

It is uncommon to find books dealing with science for the layman which are both accurate and easily readable. Such a combination is presented in the little book "Science in Your Life." Twenty-two brief chapters are contained in its 104 pages. Catchy chapter titles, such as More Power to You, On the Level, More than Meets the Eye, Quick as a Flash and Singing Waves, add to the book's fascination. It is so simply written that anyone with an elementary school education should find it interesting.—*D. C. Rife.*

Science In Your Life, by John Pfeiffer. 104 pp. New York, the Macmillan Co. 1940. 60c.

BOOK NOTICES

Social Problems

This book is offered as a text on what is called the growing rapprochement between the biological and the social sciences. The first 11 chapters would do well as a textbook of genetics. The other 10 chapters treat of intelligence, race problems, population problems, medical problems, insanity, crime, education, and government—all in relation to heredity as the author views that relationship.

Within his own frames of reference, Professor Burlingame is altogether fair, but his frames of reference, and therefore his orientation and his net emphasis, are the familiar ones of those eugenists who believe that the mentally deficient and the dull members of society are, in and of themselves, sources of social evils. Psychologically, this belief is nothing other than "projection," defined as blaming some group of persons different from one's own associates for difficulties which are by no means of that group's making. It may be a very human failing, but it is no less a failing, and one from which the eugenics movement has long suffered. The naive student will see in this book support for the too easy notion that the feeble-minded and other deviate groups in our population are *verae causae*, in the sense that if only suitable negative selective measures could be applied to such groups, social matters would automatically be improved.

In so far as genetical science has something important to contribute to the subject, it is that the "tail" of the population's distribution comprising our "dull" and "unadjusted" groups is certainly going to remain with us, even when we succeed in greatly improving our average biological lot by effective eugenic measures. Since the whole problem is obviously a relative rather than an absolute matter, one can expect that, if anything, not fewer but *more* of the relatively dull and unadjusted members of society will be recognized when substantial eugenic progress has been made.

And if the social sciences have anything to say on the problem, it is that the dull and unadjusted are in any case not the causes of social conflicts. Even if it were possible to remove these groups from the population for a generation, we might thereby deprive some eugenists of a bogey of which they are fond, but the operation would leave virtually unaffected the larger social issues which Professor Burlingame has ventured to discuss. The solution of the problem of our deviate groups lies, not in exaggerating the financial costs of these individuals to society as a whole—which costs are, in sober fact, very small—nor in entertaining scapegoatological attitudes towards them, but in facing squarely the need for greatly improving our supervisory and institutional facilities.

This is not to say that eugenic progress is not very much worth working for. It is to say that Professor Burlingame has presented wrong reasons for eugenic measures of any kind; and worse, he does not seem to know what sound and effective eugenic measures would be. In this book, published several years after the American Eugenics Society inaugurated its contemporary program (1935), one looks in vain for any reference to that organization's efforts to set up measures which would have favorable selective effects on the full range of genotypes in the population's distribution.

Much of the material in the latter half of the book centers around differential birth rate statistics. On this, the student would never suspect that Francis Galton, R. A. Fisher, and others have pointed out that the "social promotion of infertility" is a marked phenomenon in any such society as ours. Clearly, persons of higher socio-economic status are frequently of that status as much because of their infertility as by virtue of genetic capabilities. This fact renders dubious most of the argumentation from data on differentials in the birth rate, which data the author would apparently have the student take at face value as indicating dysgenic trends.

Included without criticism are the ideas of Raymond Cattell to the effect that the mean genetic intelligence of such populations as ours and England's may be declining several IQ points per generation. These claims involve the old fallacy that the test-intelligence of children is somehow independent of their home and school

background and may therefore be taken as a perfectly sound measure of genetic variation.

Also included without either criticism or citation of author are the "scare" statistics derived by Caroline Robinson and published by the Journal of Heredity; they are figures to the effect that many persons are dependent on others, and they are stated as if such facts were somehow peculiar to our society! Many parts of the important data assembled by Lorimer and Osburn are presented, but with much less of the care and caution which those authors used in interpreting the same materials in their *Dynamics of Population*. Professor Burlingame's treatment of such sociological problems as arise in connection with Negro and Jewish groups is scarcely felicitous. On the whole, the author's emphases seem to this reviewer to be wide of the mark for leading to significant improvements in either biological or social directions.

Professor Burlingame calls upon social scientists to do something about genetic dangers seen by him. Yet no mention is made of such a reference as Julian Huxley's important Galton Lecture of 1936, in which the classical eugenists were urged to learn the methods as well as the concepts of the sociologists. There is shown in the book little understanding of what modern eugenists and social scientists have been saying and doing for years. It is regrettable that the author's efforts are much more likely to be confusing than enlightening to those for whom the book was written.—*B. Price.*

Heredity and Social Problems, by L. L. Burlingame. xi+369 pp. New York, the McGraw-Hill Book Co. 1940. \$3.50.

A New Viewpoint on Eugenics

Eugenics has traveled a rocky road through the years since genetics first gave an impetus to the belief that somehow it might be possible to have more and more children born to those persons who make the most effective response to their environments, and fewer and fewer to those who respond less effectively. Many eugenic proposals have been made on insufficient data, on poorly thought-out premises, or by those who did not have the training and background necessary for the formulation of such policies. Consequently there have been many attacks on eugenic proposals, some of which have included counter-proposals even more radical and unscientific than those they sought to replace.

The author of the present volume approaches the subject sanely, including only such scientific data as are confirmed and weaving his policy into the already accepted ideals and population trends of the American people. He makes it clear that eugenic selection should be encouraged not between socio-economic groups, but within all such groups. Children in all groups are entitled to be born to parents who want them, who will care for them properly, and who will give them good heritage. Such ideals can come about only with community help to all children, involving not only education, but nutrition, medical care, adequate home and recreational environments and many other things.

This book stands out like a beacon light among treatises which are biased, prejudiced or confined to narrow limits. It should be read by all parents, teachers, and especially by those who help to formulate population policies of any sort.—*L. H. S.*

Preface to Eugenics, by Frederick Osborn. xi+312 pp. New York, Harper and Bros. 1940. \$3.00.

Elementary Chemistry

The text is designed for a year's course in elementary chemistry. The treatment of descriptive chemistry is well organized and is not overburdened with detailed listings of properties which are not of general interest. The outlines for study, the diagrammatic summaries and review sections are excellent both from the standpoint of the student and the teacher. The illustrations are good but it is unfortunate that the publisher has chosen to place groups of these on individual pages rather than at pertinent points within the body of the text. The chapters on "Valence, Nomenclature, Graphic Formula" and "Chemical Equilibrium" are to be commended.

Since one of the purposes of the book from the student viewpoint is to "enable him to continue in any of the specialized branches of the science" certain omissions in theoretical discussions seem hard to justify. After a lengthy and good discussion of acids and bases from the older viewpoint, a very sketchy treatment of the widely used Brönsted theory is given with the statement that "while the Brönsted theory is broader in scope and invaluable in research, it is of theoretical interest only to students in general chemistry." In the earlier part of the same chapter, in the discussion on ionization, it would seem desirable to have pointed out that the treatment given applies to weak electrolytes and to have made some mention of the newer treatments which give an approach to strong electrolytes. Objection seems justified to the use of "bound" and "free" protons in atomic structure, with neutrons listed only as "additional nuclear units." Finally, the development of the Periodic Law does not take sufficient cognizance of the fact that certain of the objections to the Mendeléef form of the Periodic Table may be at least partially removed by the use of more extended forms.

With the above exceptions the book is very well done. It is only fair to point out that the questions raised concern matters about which considerable controversy has arisen as to the method and place of presentation to the student.

—*J. P. McReynolds.*

Essentials of College Chemistry, by G. H. Whiteford and R. G. Coffin. 534 pp. St. Louis, The C. V. Mosby Co. 1939. \$4.00.

Technical Terms and Their Meanings

Certain words or expressions have special meanings and special significance to a person skilled or trained in a branch of knowledge relating to some particular human activity or some particular aspect of nature. Such words or expressions are "technical terms," and are understandable by one not especially versed in the field only through personal explanation or through the medium of a glossary. Glossaries are available for many specialized fields, but there is need for a comprehensive dictionary of broader scope. This need seems adequately met by Chamber's Technical Dictionary. It includes many thousands of terms from the various sciences, from medicine, from engineering, from manufacturing, from construction and from other fields having technical vocabularies. As is only proper, these terms have been defined by specialists engaged in the practice or teaching of their various fields. The list of contributors is an imposing one. The reviewer looked up a random sample of words in the fields with which he is familiar, and found nearly all of them listed, and carefully and accurately defined. The book is one which any teacher or research worker will find invaluable on his desk, and will undoubtedly refer to frequently. An appendix includes the Greek alphabet, a table of chemical elements, the periodic table, tables of igneous and sedimentary rocks, and outlines of the animal and vegetable kingdoms.—*L. H. S.*

Chamber's Technical Dictionary, edited by C. F. Tweney and L. E. C. Hughes. viii+957 pp. Cambridge, at the University Press; in New York, the Macmillan Co. 1940. \$5.00.

Insect Transmission of Plant Diseases

The border line subject matter between entomology and plant pathology which deals with insects and their relationship to the transmission of plant diseases is admirably presented in a pioneer textbook entitled "Insect Transmission of Plant Diseases" by J. G. Leach, Professor of Plant Pathology at West Virginia University.

It is apparent that the author possesses fundamental knowledge concerning insect structure, physiology and behavior for he presents the subject matter relating to insects in a very satisfactory manner.

One only needs to hastily scan the contents of the book to be impressed with the magnitude of the field. Careful reading of almost any portion, particularly the chapters on insects and bacterial, fungus and virus diseases, reveals the fact that the author has covered a vast amount of literature and he presents the significant facts in a manner which should be satisfactory to most entomologists and plant

pathologists. He carefully cites the names of all authors whose opinions or findings he quotes.

Each chapter is followed by a list of the most important references. At the end of the book the author includes several interesting tables. Table I lists the more important diseases and the insect vectors of each, while Table II lists all possible vectors and the diseases each may transmit. A glossary of terms used in the literature cited is found at the end of the book.

The reviewer has read the entire book and has profited considerably by so doing. Professor Leach has made a splendid contribution for entomology and plant pathology and is to be congratulated.—*A. Peterson.*

Insect Transmission of Plant Disease, by J. G. Leach, 615 pp., New York, the McGraw-Hill Book Co. 1940. \$6.00.

Introduction to Entomology

In this latest revision of Comstock's classic entomology text the only major changes have been in the chapter on the Hymenoptera. The discussions of the superfamilies Ichneumonoidea, Proctotrupeoidea, and Chalcidoidea have been revised and extended, and keys to the subfamilies of Ichneumonidae and Chalcididae have been included. There is a new key to the families of Chalastogastra, and a short key to the commoner families of Clitogastra has been added. A great many bibliographic references on the parasitic Hymenoptera have been cited in this chapter, while the principal bibliography, at the end of the book, is unchanged. The text and keys for this new matter was contributed by Dr. Henry K. Townes. These changes will make the book more valuable particularly to those interested in the parasitic Hymenoptera.

There are still a few typographical errors in this edition, particularly in page references, though most of the errors of earlier editions have been corrected. The index has been completely revised. Like the preceding editions, this one is well bound to withstand the hard usage it is likely to get.—*D. J. Borror.*

An Introduction to Entomology, by John Henry Comstock. xix+1064 pp. Ithaca, Comstock Publishing Co. Ninth Edition Revised, 1940. \$5.00.

Physics from a New Viewpoint

Smyth and Ufford present an entirely new approach to the teaching of physics in their book, *Matter, Motion, and Electricity*. That which immediately distinguishes their volume from others is the use throughout of the m.k.s. system of units and the introduction of topics in a sequence quite different from the usual one.

The authors believe that the use of the m.k.s. system of units is a definite step forward. This may indeed be true since it leads to the exclusive use of the practical system of units in electricity, and this is certainly a desirable feature. This reviewer is inclined to feel that what is here gained may be lost elsewhere, but this may be prejudice. Probably only a test of the system can actually decide what are advantages and disadvantages.

Chapter I, which has the caption, *Atoms and Molecules*, is devoted principally to the atomic and molecular picture of chemical combination. It is followed by a chapter on the motion and sizes of molecules and with the forces that exist between them. The subject of forces and motion is further expanded upon in the subsequent four chapters; the gravitational law of Newton being introduced to clarify the concept of mass and weight.

Subsequent chapters are devoted to the subject of electricity. The use of the m.k.s. system of units facilitates this since this makes unnecessary the reference to the troublesome e.s.u. and e.m.u. system of units. Such subjects as rotational motion and simple harmonic motion are first introduced in these chapters. The subject of rotational motion occurs in the portion devoted to the motion of electrons in a magnetic field and simple harmonic motion is introduced in the section dealing with alternating currents. Whether the introduction of such subjects at points where they are first needed is the most elegant procedure or not is probably debatable, but

it should certainly appeal to the student who is always wondering about what good these things are anyway, when treated in the conventional sequences.

The book is intended for students who have had a thorough course in high school physics and algebra. Use of trigonometry is frequent and incidental references to the notation of differential calculus are made at appropriate points.

—*H. H. Nielsen.*

Matter, Motion and Electricity, by H. D. Smyth and C. W. Ufford. 648+xiii pp. New York, the McGraw-Hill Book Co. 1939. \$3.75.

A Science Teachers Handbook

Teachers of chemistry, physics, general science or biology should find this new book of great value. Section I contains eight chapters dealing with philosophy of science teaching, objectives, psychology, methods, laboratory and demonstration, reading, evaluation, and science clubs. Here the authors have presented a quantity of material in relatively short space which makes careful reading essential but well worth while. The approach is a departure from the traditional methods book, for which much credit must be given to the work of the Science Committee of the Commission on Secondary School Curriculum of the Progressive Education Association. Section II comprises a discussion of devices and materials for teaching science, including the psychology of visual aids, the school journey, flat pictures and stereographs, photography, objects, specimens and models, designed materials, the microscope, the telescope, and projection machines. Section III is devoted to a tabular presentation of sources of materials for teaching science, such as flat pictures, models, etc., charts, books, reference books, textbooks and periodicals. Such a book should certainly be a part of every science teacher's library.

—*Paul E. Schaefer.*

Modern Methods and Materials for Teaching Science, by Elwood D. Heiss, Ellsworth S. Obourn and C. Wesley Hoffman. 351 pp. New York, The Macmillan Company. 1940. \$2.50.

American Mammals

The lives, habits, and economic relations of North American Mammals are ably presented in a recent book of this title by W. J. Hamilton, Jr., of Cornell. Widely recognized for his field studies of small mammals, the author has incorporated his own knowledge of ecological relationships along with that of others into a comprehensive and authoritative discussion. Beginning with a general discussion of prehistoric mammals in North America and the probable ecological conditions in which they lived, Hamilton thereafter deals with many phases of present day mammalian life.

Especially noteworthy are the chapters on food, reproduction, migrations, populations, distribution, and behavior. Order and family characters are listed in one chapter in only sufficient detail to orient the student to them. Economic relations are presented under the four topics of useful, injurious, game and fur-bearing mammals. The material is written in a readable style, attractive and stimulating to students. Occasionally the reader is led to feel that details have been sacrificed in the attempt to cover the many phases of a very broad subject. However, the situation has been met by continual references to the literature and by placing extensive bibliographical lists at the end of each chapter. The drawings, photographs and charts are numerous and well chosen. Undoubtedly, Professor Hamilton has made a noteworthy contribution to North American Mammalogy, in bringing together in one volume a digest of our present knowledge of this broad subject, so widely scattered in the literature. His book deserves a place in the library of every student of Mammology.—*John W. Price.*

American Mammals, by W. J. Hamilton, Jr., xii+434 pp. New York, the McGraw-Hill Book Co. 1939. \$3.75.