Book Reviews

Inheritance in Dogs: With Special Reference to Hunting Breeds. Ojvind Winge; Catherine Roberts, translator. Ithaca, N. Y.: Comstock, 1950. 153 pp. $3.50.

This is an excellent book for the professional geneticist, and for dog breeders with previous education in genetics or advanced biology, with many points of superiority over some of the books on dog breeding. The first 32 pages will be grasped by the lay dog breeder, but, from this reviewer's experience, beyond that he will find the genetics too complicated.

The name suggests a wider coverage of breeds than one finds in reading the book. Only the setter, pointer, cocker spaniel, wire-haired fox terrier, and dachshund breeds are considered, whereas the hunting breeds cover a vastly wider field.

The data were drawn chiefly from European sources, and it is obvious that the author has failed to review many of our American sources, just as we often neglect the European, principally because of language difficulties.

The book is illustrated with five excellent plates, depicting color phases of the various breeds discussed. The translation is outstanding, particularly in the fact that the European breed names have each been explained in parentheses so that we may know the characteristics of these breeds.

The author has designated the genes with letters, not all of which correspond to the letters used in America in describing similar traits, but for use in explanation they serve very well.

Every owner of the above-mentioned breeds would do well to own a copy of this book, and many dog breeders and geneticists will want it for their shelves.

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Principles of Nuclear Chemistry. Russell R. Williams, Jr. New York: Van Nostrand, 1950. 307 pp. $3.75.

This new book, written to meet the needs of a one-semester introductory lecture course on the chemical aspects of radioactivity for senior and graduate students at Notre Dame, is certain to be welcomed by instructors everywhere who wish to teach the elements of this subject. Compressed into some 300 pages the student will find an outline of pure and applied nuclear chemistry clearly and succinctly presented in nine well-organized chapters. The first five of these lay the necessary physical basis for an understanding of radioactivity. A set of numerical exercises serving both to illuminate the text and to encourage reading beyond its pages concludes each of these chapters. A carefully selected supplementary reading list is also appended to every chapter.

In view of the research interests of the author and his colleagues at Notre Dame, it is not surprising that the distinguishing features of the book are its authoritative chapters on the chemical consequences of nuclear reactions, and on the chemical effects of nuclear radiations. The material here discussed approaches the actual frontiers of the science, and the reader's interest cannot fail to quicken with the sense of the richness and variety of chemical phenomena arising from the effects of radioactivity. The last chapter of the book reviews the subject of applied nuclear chemistry, a topic so broad that it could be expanded into a treatise. Here again there has been an excellent selection from a large and rapidly increasing number of very diversified studies ranging through all the important branches of chemistry.

Unquestionably this book will be widely useful. Certain deficiencies of arrangement and presentation will be noted, therefore, that these may be considered in possible future revisions. The absence of a unified discussion, in the early portion of the text, on the interaction of nuclear radiations with matter is perhaps the most evident shortcoming of the book. A treatment of this subject logically precedes any consideration of devices for the detection of unstable nuclides, of absorption methods for decay energy estimation, or of the subject of radiation chemistry. Further, the closely allied topics "Devices for the Production of Unstable Nuclides" and "Nuclear Bombardment Reactions" seem unnaturally divided between Chapters III and V. The discussion of the artificial elements is likewise split. Possibly sufficient material will soon be available to make possible the inclusion of a complete chapter on the synthetic elements, thereby increasing the chemical flavor of the book. Mention of such topics as the chemical separation of nuclear isomers, coincidence counting techniques, high-energy spallation reactions, photographic plate techniques for nuclear reaction studies, and the betatron may not be inappropriate in an introductory text. Similarly, some brief description of health-physics instruments seems desirable, as would a table summarizing the present consensus as regards radiation dosage tolerances. Unfortunately the otherwise quite readable text is marred by numerous (though minor) typographical errors. The statements (p. 120) that "K^{40} emits both positrons and negative beta particles" and (p. 135) that RaE is "a beta-emitter of 22-year half-life" are of course obviously incorrect. A short appendix to the book contains, in addition to listing of the numerical values for the fundamental constants and mass-energy conversion factors, a periodic table of the elements and a very useful nuclide chart.

All things considered, however, the author is to be congratulated on the preparation of a highly teachable introduction upon which the instructor can enlarge

according to the needs of his students, or to the objective of his course. The very reasonable price of the book may be a further attraction.

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Pathologic Physiology: Mechanisms of Disease. William A. Sodeman, Ed. Philadelphia: Saunders, 1950. 808 pp. $11.50.

There is an evident need for a reference or textbook providing an integrated view of physiology, physiological chemistry, and medicine for medical students and physicians. It appears that the 24 authors of this collection of essays have made a considerable effort to fill this need and to bridge the gap between textbooks of medicine and those of physiology.

The book is divided into nine main sections, each of which contains one or more chapters on pertinent topics. For example, in the first section, which covers the circulatory system, the chapters describe hemodynamics and blood vessels, structure and properties of the heart muscle and its blood supply, the cardiac cycle, the electrocardiogram, cardiac output in health and disease, congenital heart anomalies, and, finally, cardiac failure. The sections that follow are respiratory system; digestive system, including the liver; blood and spleen; urinary tract; endocrine glands, water balance, and nutrition; locomotor system; infectious diseases and allergy; and physical and toxic chemical agents.

The emphasis in these chapters is on the presentation of the underlying physiology and the relationship of deranged physiology to symptomatology. The authors have, however, chosen what appears to be a general and somewhat diffuse approach in their discussion. With respect to the more purely physiological aspects there are some excellent chapters, particularly those on the heart, the liver, the joints, and the endocrines. The discussion of edema could be better systematized, however, and a much more extensive discussion of renal disease would be useful. The authors are careful to mention, for example, the various possibilities of electrolyte disturbances that may occur in terminal nephritis, but no data are given on a specific case nor is quantitative information presented. In the discussion on cardiac failure, it would be helpful to have data on cardiac output, venous pressure, renal function, and electrolyte and water balance for a patient in cardiac failure, and then give the results of serial examinations during the illness and through compensation. A distressing aspect of the book is the inadequate treatment of acid-base disturbances and their control. What physical chemistry there is, is primitive; some of it is inaccurate (the phosphate system is not one of the two important buffering systems of the blood). Reference to a more modern text than this is advisable for these topics.

In general the book is up to date; references are adequate, though occasionally some work cited in the text receives no literature reference in the bibliography. The technical make-up of the book is satisfactory, but the small type and the page size are such that it is difficult to read. More liberal use of charts and diagrams in certain chapters would have led to considerable improvement.

In conclusion, it appears that this text may be found useful for those who seek a descriptive and qualitative survey of some of the interrelationships of physiology and clinical medicine.

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Nuclear Data. Compiled by the National Bureau of Standards Nuclear Data Group. Washington, D. C.: U. S. Government Printing Office, 1950. 309 pp. $4.25, including future supplements.

This impressive piece of work is a collection of nuclear data which meets a longfelt need among workers in the nuclear field. Started by Katharine Way some years ago at the Oak Ridge National Laboratory, the volume has now been completed by Dr. Way, Lilla Fano, Millicent R. Scott, and Karin Thew under the editorship of the National Bureau of Standards. Many other competent specialists contributed to this comprehensive compilation of nuclear data containing experimental values of half-lives, radiation energies, and decay modes of radioactive isotopes, of relative abundances, nuclear moments, and cross sections of stable isotopes. Decay schemes and level diagrams are presented wherever they seem to be well established. Mass values have not been included since there is a comprehensive collection of these values available in the well-known *Isotopic Report* of Mattauch and Flammersfeld. The material is well arranged. References to original papers are given with every nuclear constant collected in the volume, and in cases where a nuclear property can be measured in different ways, the method used is indicated together with the reported value.

One major limitation in making a compilation of nuclear data generally available at present is imposed by the fact that the increasingly large number of measurements of nuclear constants reported each month makes it difficult to keep such a work up to date. In fact, a collection of nuclear constants is already incomplete at the moment the tables become available. The National Bureau of Standards nuclear data tables are the first that will remain current, with supplementary additional sheets of new information to be issued at six-month intervals. The loose-leaf binding of the tables makes the incorporation of the supplements simple. Sufficient space is also provided for additional remarks by the user, since the tables are printed on one side of the sheet only.

In reviewing this volume one is led to make a comparison with previous tables such as the *Isotopic Report* by Mattauch and Flammersfeld and the Seaborg