Book Reviews

Blood Group Substances. Their chemistry and immunochemistry. Elvin A. Kabat. Academic Press, New York, 1956. 330 pp. Illus. $8.

Of the human tissues, the most misunderstood has been blood. The effect of blood loss made it reasonable to primitive man that blood was the particular seat of life. The book of Genesis says so, since God tells Noah after the Flood: "Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things. But flesh with the life thereof, which is the blood thereof, shall ye not eat" (Genesis 9: 3–4).

The Greek gods differed physiologically from man in no qualitative way but this: instead of blood, "ichor" ran through their veins. Magic has always made use of blood in its most effective spells. Pacts with the devil are notoriously signed in blood.

As late as during World War II there were serious attempts to keep Negro and white blood separate in the blood banks, presumably to prevent some kind of pollution.

It is a delight then to report that Kabat's book is a complete and readable attempt to reduce some of the mystery of blood to the prosaic level of the test tube.

The book begins with a concise historical background and a short, but clear, description of the genetic factors involved. Kabat makes use of the Fisher-Race nomenclature for the Rh blood groups but carefully steers clear of controversy.

To me the most interesting and vital portion of the book is reached after the methodical discussions of methods for testing the blood-group antibodies and antigens (Chapter 2 may be viewed as a serological manual incorporated into the book) and procedures for the purification of blood-group substances. The portion referred to is that dealing with the chemical composition of the substances (mainly of the A, B, O series.)

Serology, as long as it deals with undefined compounds that can be referred to only by an arbitrary letter system, will always contain something of the mystical. Nor can any search for a substance capable of serving as an inexpensive, readily prepared, and easily preserved reagent for various blood-group factors be anything but a hit-and-miss affair while the blood group substances themselves remain chemical unknowns.

It is heartening then to see how work in the last decade (a goodly portion of it from the laboratories of the author and his associates) has succeeded in partially elucidating the specificity-determining structures of the blood-group substance molecules. The specificity, it turns out, depends on oligosaccharides of relatively short chain length, a fact that makes the prospect for synthetic reagents somewhat hopeful. The importance of the methylpentose, fucose, in this connection is especially interesting. Fucose does not occur in the animal kingdom except in the blood-group substances, and it seems to me that if it should be found to occur in blood-group substances other than those of the A, B, O series as well, it might be a good idea to coin the term *fucopolysaccharides* to differentiate the blood-group substance mucopolysaccharides from those that occur elsewhere.

It seems quite obvious to me that Kabat's monograph will be indispensable to anyone interested in serology and will continue to be looked upon as a classic in its field.

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Louisiana Birds. George H. Lowery, Jr. Louisiana State Univ. Press, Baton Rouge, 1955. xxix + 556 pp. Illus. + plates. $5.

It is most fitting that a state which ranks among the top six in the country as a place to see birds and which has contributed so much to American ornithology is the first to have a new kind of state bird book. In *Louisiana Birds,* George Lowery has departed from the plan of traditional state bird books by limiting himself to only one objective—introducing "the people of Louisiana to the absorbing subject of ornithology, mainly through the . . . wealth of bird life which is their heritage." His primary concern, therefore, is with presenting the birds of Louisiana in a way that will stimulate the beginner or interested layman to understand and appreciate birds and to get more pleasure from the study of birds as a sport, as a hobby, or as a science.

A beginner's interest in birds usually begins with an awareness of the many different kinds of birds and their esthetic appeal. This awareness leads inevitably to the next steps: learning the names of birds, how to identify them in the field, and becoming acquainted with some of their remarkable habits. Lowery is obviously sensitive to the needs of the beginner, and he has met them admirably, as is evidenced by the superb illustrations, the warm personal flavor and informality of his style, and his choice of subject matter.

The formal illustrations comprise 40 colored plates, 69 portrait photographs of birds, 14 photographs of habitats, and 135 text figures. Diagrams or paintings of similar species are grouped together for ready comparison to help the beginner see the distinguishing field marks. In addition to the formal illustrations, there are many decorative and informative line drawings, which depict some characteristic habit or feature of the families and orders of birds. The colored plates and line drawings are the work of Robert E. Tucker; almost all of the photographic portraits were taken by Samuel A. Grimes and Allan D. Cruickshank. No resident of Louisiana could fail to be impressed with the bird life that is his heritage after looking at the colored plates and photographs. They will undoubtedly draw many a layman into the field in search of living birds.

In the accounts of the species, which comprise the bulk of the book, there is no uniform treatment or segregation of subject matter under such stylized headings as status, distribution, or description. Instead, there are informal accounts which emphasize regional status, identification, occurrence in Louisiana, and interesting habits. An outstanding feature of many of these accounts is their readability and personal flavor. A bar graph, at the close of species accounts, summarizes the seasonal occurrence and abundance of each species and shows at a glance which species are present in each month of the year. Another great aid to the beginner is provided in the succinct descriptions of the characteristic features of the orders and families of birds.

Preceding the accounts of the species there are 11 short chapters which deal with specific aspects of ornithology in Louisiana and other general topics of interest to a beginner, such as identification of birds, migration, attracting birds, plumage and molt, and conservation. For the person who wishes to know more about birds and the birds of Louisiana, there is a selected bibliography with comments on each of the publications listed.

Lowery's enthusiasm for bird study and his affection for Louisiana and its bird life is evident throughout the book and should prove to be catching. In addition to its other outstanding features, *Louisiana Birds* is well designed and carefully edited. It is an excellent model for a new type of state bird book.

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Advances in Veterinary Science. vol. II. C. A. Brandly and E. L. Jungherr. Academic Press, New York, 1955. 449 pp. $10.

Volume II of *Advances in Veterinary Science* represents the most recent information by some of the international experts who are listed among the editors, advisory board, and the contributors. The addition of L. B. Bull of Australia to the advisory board is most fortunate.

R. E. Shope applies modern epidemiological reasoning to epizootics and indicates the necessity for research on virus reservoirs. C. W. Emmons reviews the literature on mycotic diseases since 1945. H. Van Roekel presents the latest information on chronic respiratory disease in a valuable summary of recent research. L. C. Ferguson discusses the complicated antigenic structure of cattle blood and briefly discusses blood groups in dogs, swine, and sheep. I. J. Cunningham of New Zealand gives an excellent summation of the knowledge of trace-element deficiencies and helps to further unravel the complicated interaction of copper, molybdenum, and geographic types of fodder; he warns against indiscriminate trace-element dosage.

N. T. Clare defines photosensitization and describes three types. Treatment for the hepatogenous type is complicated by the lack of specific therapy for the liver lesions. The chapter on rumen dysfunction, by A. T. Phillipson, is a comprehensive and clear discussion of rumen physiology and biochemistry, including toxic conditions, and of bloat and nervous control. It will give practitioners a great deal of fundamental information on clinical problems of rumination. J. C. Shaw, in a chapter on incidence, etiology, diagnosis, and therapy of "primary and secondary ketosis," unreservedly recommends the most powerful cortisone compounds that are available for its treatment. There is no discussion of contraindications or deleterious side effects. In a short but interesting chapter, D. A. Haig discusses tick-borne rickettsioses in South Africa. They are heartwater of cattle, sheep, and goats; tick-bite fever of man; and *E. canis* rickettsiosis of the monocytes of the dog. Procedures for diagnosis and specific treatment are given. The important subject of vibriosis is thoroughly covered by W. N. Plastridge, who includes the characteristics and serologic features of *Vibrio fetus* as well as the diagnostic measures, transmission, and control in cattle and sheep. The steady decrease in brucellosis has unmasked the serious economic losses caused by *Vibrio fetus*. The "Effective control of internal parasites" by Donald C. Boughton is a valuable summary of the economic magnitude of the parasitic problem in this country. His recommendations for sanitary and drug control of parasites are easily justified by the great economic gain to the livestock industry that would result.

This volume of 449 pages and 1458 references reflects the trend of the rapidly increasing knowledge in veterinary sciences that is a part of the over-all rapid advances in the medical sciences. It should be considered required reading for research workers and teachers in veterinary medicine and a valuable source of the most recent information, summarized by experts, for the use of students and practitioners.

Since the value of this book is due to the great amount of information and experience possessed by its contributors, a paragraph or two on the education and background of the contributors and a short history of their research institutions should have been included in order to increase the interest and understanding of their viewpoints.

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Comparative Endocrinology of Vertebrates. pt. I, *Comparative Physiology of Reproduction and the Effects of Sex Hormones in Vertebrates.* Memoirs of the Society for Endocrinology No. 4. I. Chester Jones and P. Eckstein, Eds. University Press, Cambridge, 1955 (order from Cambridge Univ. Press, New York). 253 pp. Illus. + plates. $8.50.

This book presents the first part of the proceedings of a symposium on the comparative endocrinology of vertebrates, which was held in July 1954 at the zoology department of the University of Liverpool. The idea of an international symposium on comparative endocrinology, mainly on classes below mammals, originated with I. Chester Jones of the University of Liverpool. With the help and encouragement of many other people and the support of the Royal Society, National Science Foundation, and Rockefeller Foundation, he organized a conference of more than usual scope and interest. The list of 58 participants, of whom 23 were delegates from France, Holland, North Africa, Canada, and the United States, includes many of the most distinguished names in zoology and the special field of endocrinology.

The book is subtitled *The Comparative Physiology of Reproduction and the Effects of Sex Hormones in Vertebrates.* Most of the 14 papers fall into one or the other category, but much overlap was inevitable. Sex hormones were interpreted as hormones of sex and reproduction and thus included steroids—androgens, estrogens and progesterone, and nonsteroids—gonadotrophic hormones.

The classes of vertebrates are for the most part discussed in separate chapters, seven on the physiology of reproduction, five on effects of hormones, and two of more general import. Those on reproduction include chapters on fish (W. S. Hoar), amphibians (G. J. van Oordt and P. G. W. J. van Oordt; C. L. Smith), reptiles (R. Kehl and C. Combescot), birds (A. J. Marshall; W. R. Breneman), mammals (S. Zuckerman and P. Eckstein). The effects of hormones are treated in five chapters: fish and lower chordates (J. M. Dodd), amphibians (L. Gallien), birds (R. M. Fraps), mammals (J. H. Leathem and R. C. Wolf), the mammalian fetus (A. Jost). In addition, there is a chapter on vertebrate gonadotrophins (E. Witschi) and one on the evolution of viviparity (L. H. Mathews).

With such a wide range of material and a focus on comparative aspects of the subject, the papers might well have been too superficial or encyclopedic and specialized. These extremes are avoided, and a nice balance is maintained. The chairman, S. Zuckerman, in his opening remarks sets the stage by saying, "I cannot recall any endocrinological symposium of recent years which has attempted to range over so wide a field. We not only have the opportunity of trying to construct an up-to-date picture of the comparative endocrinology of vertebrates but also to put old biological problems into the perspective of modern endocrinological concepts, and, at the same time, to relate newer ideas in endocrinology to the facts of zoology." The papers and discussions in the symposium come so close to a successful realization of these broad aims, that the organizers, the chairman, and the participants are to be congratulated.

The reader finds himself advancing in evolutionary progression all the way from the neural gland and reproduction in the ascidian to implantation of the blastocyst and the menopause in the human being. The interesting story of the evolution of viviparity is traced. Old problems are raised: the relation of the hypophysis to the gonads, environmental factors as