

(m, H-3', H-4', H-5'), 3.39 (br, glycol protons), 1.72–2.14 (br, lysyl protons). Anal. Calcd for $C_{17}H_{28}N_6O_7$: C, 47.60; H, 6.53; N, 19.59. Found: C, 48.96; H, 6.71; N, 13.54.

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Book Reviews

Physiological Pharmacology. A Comprehensive Treatise. Volume V. Blood. Edited by Walter S. Root and Nathaniel I. Berlin with 24 contributors. Academic Press, New York, N.Y. 1974. xv + 588 pp. \$44.00.

The purpose of this book is to interrelate present knowledge in hematology and pharmacology of drugs which affect components of the blood. The content of the book is organized along hematological rather than pharmacological classification. This type of classification is very beneficial to the person interested in the physiology and biochemistry of the blood because different classes of drugs are grouped as to their effect on hematology and, therefore, the information is readily available. Most chapters emphasize the physiology or pathophysiology of the blood which is done extremely well; however, the pharmacology is not as detailed in some chapters. The book does not include research methodology.

The book is a comprehensive treatise as the title indicates and therefore the subject matter is not an exhaustive review as one would find in a monograph. The book is only intended for the more advanced in the field of hematology. There is no uniform format to this book because each contributor (24 in all) presented his chapter in his unique style.

The content of the book is divided into five sections. The first section, coagulation, starts with a chapter on the physiology of blood coagulation, which is brief and to the point with factual information about the events leading to thrombin formation in the plasma. The author focuses on many unanswered questions. The emphasis for the second chapter, anticoagulants, is on the clinical indication for the use of these drugs and the mechanism of drug interactions with anticoagulants. Thrombolytic therapy is briefly discussed. The chapter on thrombogenesis is discussed from the experimental and clinical point of view while the last chapter, thrombolysis and thrombolytic agents, is presented from the clinical point of view with many therapeutic experiments cited.

The second section, platelets, starts with the biochemistry and physiology of platelets which only includes current information. The second chapter, thrombocytosis and thrombocytopenia, includes clinical information and ends with the approach to the patient with a high platelet count. There is very little information on drug-induced thrombocytopenia; however, the third chapter, mechanisms of immunologic drug effects on blood cells, mentions a partial list of drugs that produce thrombocytopenia. The only drugs included are those which are known to produce this effect through antibody formation.

The section on hematopoietic stem cell discusses the origin, cel-

lular basis, regulation, and interrelation of the hematopoietic stem cell.

The section of the book, white cells, interrelates the physiology and pharmacology of the blood the best. This section starts with a chapter on the physiology of myelopoiesis and ends with an excellent chapter on the effects of drugs on myelopoiesis. The last chapter is on the physiological and immunologic activities of lymphocytes.

The last section, red cells, starts with erythropoietic cellular proliferation and mainly considers the control of erythropoiesis from the kinetic point. The chapter on iron mainly includes information on iron deficiency, therapy, and drugs interfering with iron therapy. A brief outline on methods to study absorption of iron is included. A chapter on the biochemistry, physiology, and deficiency of vitamin B₁₂ and folic acid is included. Red cell and hyperoxia includes the mechanisms of how lysis is caused by hyperoxia. Many descriptions of experiments are cited. The chapter on erythropoietin presents current information about the influence of drugs and hormones on the regulation of erythropoietin production. The last chapter, transferrin, presents the highlights of transferrin physicochemical properties, physiology, and genetics.

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Transport Phenomena in Aqueous Solutions. By T. Erdey-Gruz. Adam Hilger, Ltd, London. 1974. 512 pp. 16 × 24 cm. \$37.50.

A life process which does not involve the movement of chemical species in aqueous media is rather difficult to imagine. Any monograph dealing with the structure of liquid water, the structure of aqueous solutions, and the nature of the transport phenomena occurring therein is thus of interest to a number of disciplines ranging from solution physical chemistry, through molecular biology and medicinal chemistry, to physiology and environmental science.

The first section of the present volume examines the structure of "normal" liquids, the structure of water, and the effect of solutes, both ionic and nonpolar, on the structure of water. The second section examines theories of viscosity and the effects of ions and nonelectrolytes on viscosity, including concentrated solutions, and the effects of temperature and hydrostatic pressure. The third

section is largely devoted to diffusion, including self-diffusion, solute diffusion, both electrolyte and nonelectrolyte, as well as mixed solute diffusion. The fourth section covers electrolytic conduction and the effects of temperature, pressure, and the presence of other solutes on this process. And, finally, the fifth section is an appendix which includes such topics as ion-ion interactions, activity coefficients, and ion-association and ion-solvent interactions (hydration).

The highly systematic organization of the volume and the thoroughness of its coverage are evident from the table of contents and indexes. The translation by Dr. I. Ruff cannot be faulted, although the dry style makes the going a bit rough.

Perhaps wisely the author, who is Professor of Physical Chemistry at Eötvös University in Budapest, does not try to arbitrate among theories. He has not tried to impose some underlying idea or plan on his material; he does not try to develop any novel explanation of his own or hypothesize a logical construction from old ones. He is more interested in presenting information and viewpoints than in explaining them. As a consequence one closes the volume with the feeling that one has been exposed to a wealth of material but not quite sure what one should remember from it all. Yet this "shortcoming" of the book, if one considers it such, is a shortcoming of the field. The book very accurately mirrors the large amount of effort that has been invested and yet the relatively chaotic and unsatisfactory state of our knowledge concerning water and aqueous solutions. In this sense it is a very honest book, and I feel that it is much better for a reader to be told frankly "how it is" rather than for him to be led to imagine that we understand all we need to understand about these systems when we most emphatically do not.

Western scientists tend to be monolingual and to neglect the non-English literature, an arrogance which their coworkers elsewhere can ill afford. The bibliographies in this volume are frequent, large and thorough, and perhaps one of the greatest virtues of this book is that it will introduce Western scientists, even those who are experts in the specialties treated, to the very considerable scientific findings that have emerged from laboratories in Eastern Europe and the Soviet Union.

The book is of the nature of a very extended review monograph, and for this reason and its thoroughness (especially the inclusion of the non-English literature) it will be a most valuable reference source which workers in the field will want to consult again and again. Unfortunately, however, its use as a reference book is somewhat diminished by the paucity of data reproduced. Figures and tables of course there are, but they tend to be rather thinly spread and, especially in the latter case, skimpy, listing representative values rather than trying to be complete compilations. Physical chemists are still going to have to riffle through the pages of Robinson and Stokes and Harned and Owens to find the numbers they need.

The scope of the book is very sharply defined; it does not treat macromolecular hydration, convection, or movement, nor does it examine water structure near interfaces (vicinal water) nor movement in porous media—all problems supremely important in biochemistry. Nevertheless, if biochemists and medicinal chemists recognize these limitations they should find Professor Erdey-Cruz's book a most informative review of our knowledge of the es-

sentia phenomena which form the basis of the far more complex phenomena of heterogeneous biochemical systems. Perhaps even they can be spared some discouragement over the state of their own art when they see exposed the unsatisfactory condition of our knowledge of such supposedly "simple" systems as pure water and homogeneous aqueous solutions.

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Biochemistry of Women: Clinical Concepts and Methods for Clinical Investigation. Edited by A. S. Curry and J. V. Hewitt. CRC Press, Cleveland, Ohio. 1974. Volume 1, 179 pp, \$35. Volume 2, 354 pp, \$44.95.

In these two volumes the editors have covered the biochemistry and clinical investigation of women from conception onward in health and in disease. In the volume, "Clinical Concepts", the topics covered are The Ovarian Cycle, Androgen Metabolism in the Human Female, The Biochemistry of Infertility, The Biochemistry of Contraception, Hormonal Changes in Pregnancy as Indicators of Fetoplacental Function, Biochemical Changes at the Menopause, Drugs in Pregnancy and Lactation, Biochemical Changes in Carcinoma, Calcium Metabolism and the Menopause, and The Biochemistry of Depression in Women. Included in the discussions are not only the established facts but also the theories currently being explored to explain, for example, the contraceptive action of IUD's, depression, and etiology of mammary cancer. Although made up of contributions of many authors, the resulting volume is easy to read, interesting, and informative.

The second volume entitled "Methods for Clinical Investigation" is primarily a procedures manual for the laboratory investigator. Included along with discussions of general and specific laboratory methods are sections on clinical significance and interpretation of results. Eight chapters cover hormone assays. Estrogens, progesterones, gonadotropins, prolactin, pregnanediol, androsterone, etiocholanolone, 17-hydroxycorticosteroids, dehydroepiandrosterone, 17-oxosteroids, FSH, LH, and testosterone are all included. Two chapters discuss application of enzyme analysis in pregnancy and in carcinoma.

The last three chapters cover thyroid analyses in pregnancy, current concepts of fetal monitoring, and assessment of tryptophan and vitamin B₆ during pregnancy and oral contraceptive use.

All of the chapters in both of these volumes are well referenced and divided according to topic, making it very easy to find specific information. In addition, each of the volumes includes an index.

By their very nature of dealing only with the female, these books are a valuable reference for both medicinal and clinical chemists. The volume on clinical concepts will be of interest to both groups while the volume on clinical investigation will be of particular interest to the clinical chemist. However, the high cost of these volumes will no doubt deter many prospective purchasers.

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