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British Journal of Haematology

To join the ever-burgeoning field of journals devoted to the blood comes now the new (and the first) British Journal of Haematology, edited by John V. Dacie of London, with Editorial and Advisory Boards made up of outstanding British hematologists. In keeping with the British tradition, the appearance of the journal is relatively sedate: grey cover and brick-red lettering. The pages are wide, single column, and the type large and legible. The journal, which is to be published quarterly, has as its chief justification, the idea of bringing together hematologic papers by British authors under one roof, rather than to have them scattered far and wide. Actually, hematology has become such a popular and, we like to think, important subject that there is ample justification for the new British journal and even for other journals devoted to this field, either as a whole or in part. With hematology encompassing such diverse subjects as the nutritional deficiency states, thrombocytopenias, immunohematology (auto- and iso-), coagulation difficulties, hemoglobinopathies, chemistry and the metabolism of white cells and red, it would not surprise one to learn of the launching of a journal devoted, say, to transfusions and blood groups, or to coagulation disorders, or to the white cell and its disorders.

The first issue of the new journal represents an excellent balance of clinical and clinical-investigative and purely investigative articles. Starting off with a fine and highly readable article on the management of “Acute Leukemia in Adults” by F. G. J. Hayhoe and Sir Lionel Whitby, the journal continues with articles on the “Assay of Anti-haemophilic Globulin Activity” by Rosemary Biggs et al. and by an exceedingly important article on the “Purification of Bovine Anti-haemophilic Globulin” by Bidwell, also of Oxford. The Oxford group seems to be well along the trail of a purified anti-haemophilic material which may be useful in the long-term treatment of hemophilia. Whether or not the material of bovine origin will prove antigenic is not clear from the text. One awaits further results with great interest. There are articles on B12, a new Rh antigen E*, Cr18 as a red-cell tagging agent, effects of x-rays on the blood counts, anemia and erythropoiesis in the irradiated rat, and a highly important article on a comparison of the effects of radiation and radiomimetic chemicals on the blood. Myleran and “CB 1348,” the latter a nitrogen mustard type of chemical, are compared. The journal closes with a technical article on hemolysis by thermal shock.

As a first issue, the journal is off to an excellent start. British hematology is characterized by its careful, well-documented work, and British writing by its clarity. The British Journal of Haematology exemplifies both and we wish it and its Editor, Dr. Dacie, all success.—William Dameshek


The publisher's remarks on the cover of the book characterize and describe in a perfect manner the contents and scope of this volume: "This annual series forms a collection of authoritative methods, procedures, and techniques for the determination and assaying of biologically important substances and systems. Judicious selection of topics emphasizes developments and innovations of current interest."

This volume is a combined effort of 17 contributors who are each outstanding authorities in the fields covered by them. The editor is to be commended for the excellent organization, and the authors are to be complimented for the careful selection of the material in their individual chapters.

The major emphasis is on experimental methods, on the principles underlying them, and on instrumentation. The material is clearly written and factual. The methods are well ex-
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plained and are described with sufficient detail to permit their application in the laboratory without consultation of the original literature. A rich and up-to-date collection of literature references after each chapter, however, will prove very helpful to the investigator using this volume.

The book begins with a chapter on the Analysis of Steroids by Infrared Spectrometry, by Harris Rosenkrantz. The author describes principles of the method, instrumentation, preparation of samples, and then discusses the correlation of steroid structure and infrared absorption with a rich documentation of tabulated data. The next chapter, by Harold Persky, is on the Chemical Determination of Adrenaline and Noradrenaline in Body Fluids and Tissues. The extraction and purification of the two compounds and their colorimetric and fluorimetric determination are described. Warren M. Sperry discusses Lipid Analysis, and Ralph T. Holman describes the Measurement of Lipoxidase Activity. The next two chapters are on the Assay of Compounds with Folic Acid Activity, by Thomas H. Jukes, with the emphasis on the microbiologic methods, and a review on the Determination of Vitamin E, by Robert W. Lehman. G. David Novelli discusses the Methods for Determination of Coenzyme A, presenting the detailed procedure of three independent methods which are based on (1) the acetylation of sulfanilamide, (2) the reaction of phosphotransacetylase, and (3) the liberation of pantothenate. Furthermore, a method for standardization of coenzyme A preparations, by E. R. Stadtman, is given. A chapter on the Assay of Proteolytic Enzymes, by Neil C. Davis and Emil L. Smith, treats the titrmetric, gasometric, spectrophotometric and colorimetric methods. The advantages and limitations of the various methods are clearly indicated. In the chapter on Determination of Glutathione, J. W. Patterson and A. Lazarow present detailed directions for three methods, namely the iodometric titration, the glyoxalase and the alloxan “305” methods, and discuss 7 other procedures. The importance of glycoproteins is becoming more and more evident, and the chapter by Richard J. Winzler on the Determination of Serum Glycoproteins is, therefore, of great interest. The author discusses the nature of serum glycoproteins, their physiologic significance and changes in their concentrations under pathologic conditions. Detailed directions are given for the determination of protein-bound hexose, hexosamine, fucose, sialic or neuraminic acid and seromucoid fraction. The literature coverage with 214 references appears to be excellent, many references to original papers being published as recently as 1954. The chapter on New Color Reactions for Determination of Sugars in Polysaccharides, by Zacharias Dische will be a valuable guide for the research worker in the field of carbohydrates. The review is divided into 9 sections dealing with general methods, with reactions for hexoses, 6-deoxyhexoses, hexuronic acids, pentoses, heptoses and hexosamines. The subject matter of Recent Developments in Techniques for Terminal and Sequence Studies in Peptides and Proteins is of a high interest and has been magnificently reviewed by H. Fraenkel-Conrat, J. Ieuan Harris, and A. L. Levy. The book concludes with a chapter on the Spectrophotometric Assay of Cytochrome C Oxidase, by Lucille Smith.

This volume will prove extremely valuable to any investigator working in the field of basic or applied medical or biologic science. It will help him greatly to get acquainted with the ever growing number of methods for the determination of biologic material which have been carefully selected and screened for his use by specialists in the field.—Peter Bernfeld


Volume XV of Advances in Enzymology constitutes another in the series of Advances concerned with progress mainly in the field of theoretical and fundamental aspects of Enzymology. As a rule, the subject matter of these annual publications can be appreciated and read with interest only by individuals specializing in the study of the chemistry of enzymes. It is true, however, that in the past decade, interest in Enzymology has not remained restricted to the experts but has arisen also in many fields of medicine. This would appear to be a field ready for review.

In volume 15, a number of good articles makes this volume outstanding. The importance of cellular oxidations and reductions is indicated by titles of the following articles; “The
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A comprehensive review of urea synthesis and metabolism of arginine and citrulline is written by S. Ratner. The one topic which holds some appeal for the readers of Blood, is "Thermodynamique des Reactions Immunologiques" by René Wurmser, written in French. It is hoped that the editors may decide in the future to publish all of the Advances in English, perhaps by translating the author's manuscript themselves, thus reducing the burden on the majority of its readers.

Other articles published in the Advances are "Thiaminase," by A. Fujita, "Rennin and the Clotting of Milk," by Berridge and "Die Struktur des Tabakmosaikvirrus und seiner Mutanten," by G. Schramm.

The author and subject indices are complete and enhance the value of the book. However, the appearance of even one list of references at the end of an article which is not in alphabetical order (not an infrequent occurrence in the Advances) is a jarring experience to the critical reader and it is hoped that the editorial treatment of future volumes will be more exact in this regard.

Nevertheless, Volume 15 of the Advances in Enzymology does deserve a place in the departmental library of individuals concerned with the biochemistry and enzyology of blood if only as a reference book which may in the future concern itself more with subjects of interest to the readers of this Journal.—William H. Fishman, Ph.D.


The work is based on two observations: that serum clots more rapidly than plasma, and that the recalcification time of oxalated plasma is shorter than the clotting time of whole blood. These observations are explained by the hypothesis that normal blood contains an anticoagulant, which is removed during clotting and by calcium-oxalate.

It is shown that the short recalcification time of oxalated plasma could only be due to the formation of insoluble calcium-oxalate in the blood, with a removal of an anticoagulant. The dilution phenomenon of Tocantins was abolished by treatment of amberlite plasma with calcium-oxalate, and an anticoagulant could be eluted from the calcium-oxalate. The inorganic, insoluble, prothrombin-adsorbing salts have a positive surface potential. There is good correlation between the heparin-adsorbing and prothrombin-adsorbing capacity, and both are eluted with citrate. Adsorbed plasma clotted more rapidly with thrombin than before adsorption, due to removal of an anticoagulant. Adsorption also partly removed the heparin cofactor, but did not affect thrombin. They believe that the adsorbability of prothrombin is due to an association of prothrombin with the strongly negative anticoagulant, rather than to the structure of prothrombin itself. The adsorbates from oxalated plasma were eluted with citrate, and the eluates contained prothrombin, the heparin-like anticoagulant and the heparin cofactor. The latter one was lost by heating, ether extraction and dialysis. The coagulant activity of the eluate was potentiated by dilution. The heparin-like anticoagulant inhibited both thrombin formation and action. Protamine precipitated both the anticoagulant and prothrombin in the eluate, but had no effect on thrombin.

By means of the n-octylamine method of Jaques et al. a heparin-like anticoagulant was isolated from the eluate, with properties very similar to those of heparin. The activity corresponded to 0.5 units of heparin per mg. of substance. The metachromic activity corre-
sponded to 10 gamma of heparin per ml. plasma, and the anticoagulant activity to 2-4 gamma of heparin per ml. of plasma. Such amounts of heparin could effectively inhibit coagulation. The authors therefore believe that the heparin-like anticoagulant is the physiologic inhibitor in blood.

By dialyzing of the eluates, the anticoagulant activity disappeared with simultaneous formation of thrombin. They therefore believe that prothrombin is associated with the anticoagulant factor, prothrombin being activated to thrombin by removal of the anticoagulant. This theory, identical to Howell's, fits with the fact that thrombin is not adsorbed, and has, in comparison to prothrombin, a small molecule with less electrophoretic mobility. In conclusion, it is stated that the investigations "established that normal, human blood contains a heparin-like anticoagulant, accompanying the prothrombin."

In the final chapter the practical importance of the adsorption to calcium-oxalate of prothrombin and heparin is discussed.

The work is carefully done and well presented. One might miss a discussion of other investigations on the prothrombin conversion, e.g., the activation of certain plasmatic clotting factors by negatively charged, foreign surfaces. All determinations of prothrombin are done with the P & P method of Owren, without any reference to the fact that this method is considered to measure also proconvertin.

In part II of the present work, the amount of heparin in the blood of different animals was measured after isolation with the n-octylamine method. The yields for human and horse plasma were about equal, somewhat lower for hog and sheep plasma, and about the half for bovine plasma.

The heparin-like anticoagulant was isolated from horse plasma with a method previously used for isolation of animal mucopolysaccharide (proteolytic digestion, removal of impurities with phenol and repeated precipitations with ethanol). The material contained about 1-2 per cent heparin (0.6-1.3 units of heparin per mg. of substance) which was in all respects very similar to heparin. In preliminary experiments, the substance was purified to an activity of 43 units of heparin per mg. of the barium salt. The amount of heparin recovered corresponded to 1-1.5 units of heparin per ml. plasma, implying that "heparin occurs in normal horse blood in far larger amounts than hitherto supposed."—

*Peter Hjort*