quencies between colonies, indicating the effects of genetic drift. Finally, H. B. Newcombe (Canada) describes the use of record linkage by computer to compile pedigrees for a large population, and its great value in assembling and analyzing genetic and demographic data.

A session on Human Evolution begins with a review by C. Baglioni (Italy) on the phylogenetic similarities in amino acid sequences of certain proteins—the hemoglobins, myoglobin, the haptoglobins, cytochrome *c*, and the immunoglobulins—and the evolutionary implications. J. M. Thoday (England) points out that the really interesting variables are the continuous ones and that little progress is being made in understanding these in man. He gives some illuminating examples in lower animals to show how progress can be made. Again the thought appears that continuous variations can be broken down into specific polymorphisms if looked at in a suitable way. A. Harrison (England) discusses human ecology in relation to demography, selection, and adaptability, and T. Dobzhansky (U.S.) presents a thought-provoking discussion of human evolution, past, present, and future.

The book also includes the papers presented at a Workshop on Computer Methods. Among these are an evaluation of census data as a resource for studies of genetic demography (W. Bodmer and J. Lederberg, U.S.), a report on "Experiments with an artificial population" by L. L. Cavalli-Sforza and G. Zei (Italy), a paper on the estimation of the genetic components of disease by record linkage (J. H. Edwards, England), a discussion of genealogic and bibliographic uses of computers by V. McKusick (U.S.), a report on record linkage and other genetic studies by M. P. Mi (U.S.), and a program for encoding, analyzing, and storing human linkage data (J. H. Renwick and D. Bolling, U.S. and England). The proceedings of a workshop on "Teaching Medical and Human Genetics" were not available for publication, and the symposium on Molecular Genetics was not included because much of it has already appeared elsewhere.

A public lecture on "Genes and people," a delightful testimony to C. Stern's (U.S.) ability to illuminate genetics for the layman, ranges from genetic counseling, through gene-environment interactions in determining mental traits, to questions of race and eugenics.

The opening plenary session is devoted mainly to the presidential address by the distinguished English geneticist L. S. Penrose, on the extensive and fundamental contributions to human genetics made by the English school. One tradition of the English school which Penrose himself "steadfastly refused to follow, or to endorse," is the "cult" of eugenics, which ". . . was based upon arbitrary valuations of individuals and social groups, supported by unjustified and premature assumptions about the nature of hereditary influences." By contrast the last chapter of the book, by the late H. J. Muller, urges action now to ensure genetic progress toward the improvement of our mental and moral natures. Though controversial, this essay is recommended to those interested in the future of the human species.

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A Plasma Protein

Fibrinogen. KOLOMAN LAKI, Ed. Dekker, New York, 1968. xiv + 398 pp., illus. $19.50.

Fibrinogen and fibrin, besides being proteins of intrinsic biochemical interest, are the major substrates for two critical enzyme systems in vivo—the blood coagulation system and the plasminogen-plasmin (fibrinolytic) enzyme system. The properties and functions of fibrinogen are of importance in many scientific disciplines ranging from biochemistry to clinical medicine, and a comprehensive monograph has long been a need. Thus the present monograph, though of somewhat uneven quality and interest, is to be welcomed.

The editor's introductory chapter, which serves also as a practical summary of the book, is a highly personal account of his and his colleagues' many valuable contributions to the biochemistry of fibrinogen. This chapter updates Laki's last major review on the biochemistry of fibrinogen and fibrinogen-fibrin conversion; it also summarizes recent data on the fibrin stabilization reaction, on the role of the carbohydrate moiety in fibrinogen, and on the vasoactive properties of peptides released from the molecule, and evolutionary data on thrombin and fibrinogen. These last subjects are treated individually and at greater length in chapters by the 15 contributors. Some of these chapters serve to chart directions for further research effort, whereas others describe fields in which data are reasonably complete; for example, the action of thrombin on fibrinogen (Gladner) and the fibrin stabilization reaction (Loewy). Loewy's chapter is particularly valuable since data widely scattered in the literature are reviewed.

The structure of fibrinogen is discussed in terms of the information obtained by rupture of S-S linkages and trypsin degradation (Mihalyi) and the immunologic structure in terms of antigenic determinants isolated after plasmin degradation (Marder). Electron microscopic studies of the fibrin networks and of fibrinogen itself are reviewed (Szalontai), and there are chapters on the early history of the study of blood coagulation (Beck), the purification and chromatography of fibrinogen (Finlayson), protein biosynthesis (Mora), and the hydrogen bond (Ladik).

Coverage of the clinical aspects is notably less complete. Clinical or clinically related subjects reviewed are fibrinogen metabolism (Adelson), in a chapter devoted mainly to clearance studies of isotopically labeled fibrinogen; in two brief chapters, congenital abnormalities of the fibrinogen molecule (Beck) and the role of fibrin in the growth and metastasis of tumors (Laki and Yancey); and in a longer chapter, the use of fibrin products in hemostasis and wound healing (Gerendas). This last chapter describes the use of bioplasts (molds made of fibrin powder and plasticizer) in surgery, but insufficient data are provided to permit evaluation of the utility of these novel materials. Substantial progress has recently been made in the delineation of the clinically significant syndromes of intravascular coagulation and the hemorrhagic diathesis resulting from defective fibrin polymerization (arising either as a result of abnormality of the fibrinogen molecule itself or of interference by specific fibrinogen proteolysis products). Except in passing, neither of these syndromes is described.

The main strength of this book lies in useful review of the biochemical aspects of fibrinogen; the clinical sections, though less satisfactory, do contain interesting material. Reference citation is selective but reasonably complete, extending in some cases to early 1967, though some chapters appear to have been written well prior to this date.

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