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Review Of "Case Studies In Genetics" By M. A. Tribe, I. Tallan, And M. R. Eraut

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Review

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IMMUNOGLOBULINS. *Comprehensive Immunology, Volume 5.*

Edited by Gary W. Litman and Robert A. Good; Series Editors: Robert A. Good and Stacey B. Day. Plenum Medical Book Company, New York. \$29.50. xvii + 381 p. + 1 pl.; ill.; index. 1978.

Immunoglobulins, a group of related serum and lymphocyte surface proteins with antibody activity, have been the subject of intensive investigation for over thirty years. The editors of this multi-authored volume containing 16 articles did not attempt to cover the entire field of immunoglobulin structure and function. They concentrated on areas that they felt have contributed most to current understanding of this family of proteins.

As one expects of a multi-authored volume, the contributions vary in length and scope, and the style of each is largely governed by the views of its authors. The first six chapters deal with the rather classical problems of antibody structure and interaction with defined antigens. Crystallographic (Poljak), physicochemical (Cathou), and thermodynamic (Karush) views provide a comprehensive picture of the general properties (Richards et al.) of the combining site for antigen. The structural basis for the effector functions of immunoglobulins is discussed by Kehoe (Chapter 6), and a stimulating description of "Epemethean Natural Selection and Promethean Evolution" in immunoglobulin evolution is given by Ohno (Chapter 7). Chapter 8 (Litman and Kehoe) presents a lucid and comprehensive discussion of the phylogenetic origins of immunoglobulin structures. Chapters 8 through 13 deal with various aspects of the genetic control of immunoglobulin synthesis, including the genetic basis of variable-region diversity (Wang; Kehoe and Capra), genetic events in the production of atypical immunoglobulins (Frangione), and the distribution of variable-region subgroups (Natvig et al.). Chapter 14 (Zimmerman) describes the properties of the usual immunoglobulins which show temperature-dependent abnormalities in solubility (cryoglobulins and pyroglobulins). Choi presents a concise description of biosynthesis of immunoglobulins (Chapter 15), and the volume closes with an overview of lymphocyte membrane immunoglobulins by Pernis.

The book contains much useful information and will interest immunologists who are concerned with immunoglobulins and immunoglobulin-like cell-surface receptors. The book reflects the "state of the art," inasmuch as a great deal of precise, detailed information is given on the amino-acid sequence of antibodies and on structural properties of the combining site for antigen. Few details are presented regarding surface immunoglobulins of B and T lymphocytes and their functions in cell activation. It is unfortunate that the volume was assembled before the recent explosion of results pertinent to the structure and arrangement of immunoglobulin genes. The

book is useful, however, and bears witness to the optimistic conclusion by Cathou (p. 76) that "Immunochemistry does not appear to be in any danger of an early death."

JOHN J. MARCHALONIS, *Cancer Biology Program, NCI Frederick Cancer Research Center, Frederick, Maryland*

CHLOROPLAST DEVELOPMENT. *International symposium held on the Island of Spetsai (Greece) July 9-15, 1978. Developments in Plant Biology, Volume 2.*

Edited by G. Akoyunoglou and J. H. Argyroudi-Akoyunoglou. Elsevier/North-Holland Biomedical Press, Amsterdam and New York. \$98.00. xvi + 888 p.; ill.; author index. 1978.

This compilation of 108 articles considers five major features of chloroplast development: structure and organization of chloroplast membranes, biosynthesis of chloroplast components, development of photosynthetic activity, chloroplast genetics, and control of chloroplast development. Although these divisions seem clear, a significant amount of digging among articles is often necessary to collect bits of related information. The book does, however, provide a wealth of reference material. Many authors effectively use short introductions to place their research into current perspective. In addition, the excitement and forward movement in this field is indicated here by the presence of a number of testable model mechanisms of organelle control in a wide range of algae and higher plants.

Chloroplast Development is not for the layperson or the beginning student. Each author assumes proficiency in appropriate technology and terminology. The offset print shows the usual variation in clarity of type and figure. Probably the best place for this book is the library. Although a fine book, its high price together with the rapid changes in the field, which will quickly outdate the contents, preclude its purchase by individuals.

ROSE ANN CATTOLICO, *Botany, University of Washington*



GENETICS AND EVOLUTION

CASE STUDIES IN GENETICS. *Basic Biology Course, Unit 5 (Aspects of Heredity), Book 12.*

By Michael A. Tribe, Irwin Tallan, and Michael R. Erout. Cambridge University Press, Cambridge and New York. \$23.50 (hardcover); \$7.95 (paper). viii + 175 p.; ill.; no index. 1978.

It is often said that geneticists fall into two groups. One group argues that the only way to learn genetics is through problem solving; the other group views genetics more conceptually and focuses upon experiments and ideas that lead to major concepts. This book is

clearly in the former camp. It contains 229 questions, all of which deal with eukaryote cells. These questions are distributed around 10 case studies: Beadle and Tatum's *Neurospora* work; PTC tasting; phenylketonuria; hemophilia; human blood groups; Stern's recombination work; sickle cell anemia; industrial melanism; polyploidy in wheat; and the genetics of IQ. If these topics seem familiar to you, it is because they are all found in every modern genetics book. One finds nothing unique in this book, either in the topics covered or the questions asked.

Two previous books in the series are assumed to lay the groundwork for this one. Book 3 (*Dynamic Aspects of Cells*) covered meiosis and mitosis; Book 9 (*Protein Synthesis*) discussed DNA as the genetic material and the "central dogma." Thus these three books form a core. But it is a hollow core. Missing are important genetic advances in prokaryote transmission genetics, developmental genetics, and modern molecular genetics. It is a core that leads the student through hundreds of problems (many of them trivial) but does not give the student a well-articulated framework for organizing fundamental genetic principles. It is a core that, on its own, simply does not meet the needs of a modern genetics course. A well-written, up-to-date genetics textbook remains the most effective supplement in the classroom. These programmed texts are inadequate.

JOHN B. JENKINS, *Biology, Swarthmore College*

HUMAN GENETICS. *A Selection of Insights. Benchmark Papers in Genetics, Volume 10. A Benchmark Books Series.*

Edited by William J. Schull and Ranajit Chakraborty; Series Editor: David L. Jameson. Dowden, Hutchinson & Ross, Stroudsburg (Pennsylvania); distributed by Academic Press, New York. \$30.00. xv + 361 p.; ill.; author citation and subject indexes. 1979.

The making of volumes containing selected classic papers in the biological sciences has become almost an industry. Yet when the product is as well selected and introduced as this one, we must feel entirely grateful.

The contents are divided into three parts: Formal Genetics of Man, 10 papers; Genes, Chromosomes, and Disease, 10 papers; and Man's Genetic Variability: Existence and Maintenance, 6 papers. The selections are confined to the twentieth century, although the valuable Editors' Comments at the beginning provide a deeper historical background. The papers within each group are not arranged chronologically, but follow a certain logical order of substance. Part One includes Garrod; Bateson and Saunders; Farabee; Epstein and Ottenberg; Landsteiner and Levine; Levit; Macklin; Morton and Chung; Edwards; and Haldane. Part Two includes Lejeune, Gautier, and Turpin; Carr, Weiss, and Green; Krooth and Weinberg; Seegmiller, Rosenbloom, and Kelly; Garrod; Pauling, Itano, Singer, and Wells; Cori and Cori; Levine, Burnham, Katzin, and Vogel; and Pen-

rose. Part Three contains papers of Haldane; Ford; Haldane again; Hirschfeld and Hirschfeld; Allison; and Harris. So well known are these "classics" that indeed the mere naming of the authors is sufficient to indicate the particular papers to any worker in human genetics. Nevertheless, since the original sources are scattered in no less than 19 different journals or other sources, it is highly unlikely that most geneticists will have the papers readily available to them.

The major value of the volume is, however, not the mere convenience provided, but rather the unusually illuminating comments by the editors before each part and in an epilogue. Perhaps everyone will experience a sense of loss at the exclusion of some favorite "classic" of their own; but the editors make a very good case for their individual preferences and provide a good historical basis for evaluating the influence of the papers they have selected.

BENTLEY GLASS, *Editor*

MEDICAL GENETIC STUDIES OF THE AMISH: SELECTED PAPERS.

Assembled, with Commentary, by Victor A. McKusick. The Johns Hopkins University Press, Baltimore (Maryland). \$27.50. x + 525 p.; ill.; author index. 1978.

This volume is a real treasure trove for anyone who is interested in human genetics, population genetics, medical genetics, or the social biology of a human religious isolate. The papers have all been published previously, but in scattered places. The present collection must be a virtually complete current representation. The editor, who of course is an author of many of these articles, since he pioneered in genetic studies of the Amish in Pennsylvania, has supplied a Preface and a brief commentary on each article. There is also a series of short biographical notes on each of the authors of articles in the collection. The papers fall into a number of categories; background, one; demography, one; population genetics, five; studies of previously known Mendelian disorders, eighteen; "new" Mendelian entities, eighteen; immunogenetic studies, four; chromosomal variations and aberrations, three; common disorders, five; epilogue; and appendix. McKusick himself is listed as an author of no less than twenty articles of the total, an indication of his outstanding place in this kind of human biology.

BENTLEY GLASS, *Editor*

ORIGINS OF INBRED MICE. *Workshop held in Bethesda (Maryland) February 14-16, 1978.*

Edited by Herbert C. Morse III. Academic Press, New York. \$36.00. xvi + 719 p.; ill.; index. 1978.

"Guinea pig" will perhaps forever remain enshrined in the English language as a synonym of "experimental animal," but in the laboratory the guinea pig has long been supplanted by the mouse. The economic advan-