sonable phenotype to be studied in searching for genetic influence? The facets of intelligent human behavior extend considerably beyond what is measured in IQ tests, however important the predominantly verbal abilities measured by many IQ tests may be. Some test specialists, such as Guilford, have defined well over 200 separate, albeit correlated, factors making up intelligence. Would it not be appropriate to treat many of these abilities separately? As for the social and political implications of this controversy, it would be a better strategy to focus on the efficacy of alternative environmental treatments in effecting changes in measured intellectual abilities. As the data stand, had the author been equally zealous in evaluating the null hypothesis that such treatments make no difference he would have been hard pressed to fail to reject it.

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The Fate of Toxic Chemicals

Environmental Dynamics of Pesticides. Proceedings of a symposium, Los Angeles, April 1974. RIZWANUL HAQUE and V. H. FREED, Eds. Plenum, New York, 1975. viii, 388 pp., illus. $29.50. Environmental Science Research, vol. 6.

This group of papers is an admirable attempt to draw into perspective recent advances in relating the chemical and physical properties of pesticides to their movement and persistence within the numerous compartments within the environment. While the contributors consistently express the belief that useful predictive tools can be based upon chemical and physical data obtained from laboratory studies, it is apparent that the development of such tools lies in the future. For those who maintain that only field studies provide a sound basis for assessment of the environmental risks associated with the use of pesticides, this group of reviews should be required reading.

Perhaps the major weakness of several of the articles stems from the tendency of their authors simply to review the correlations reported in the literature. Often the reviews do not set forth the known or theoretical limits of these correlations. For instance, the use of the *n*-octanol–water partition coefficient of a pesticide as an indicator of its tendency to preferentially accumulate in living organisms breaks down theoretically where stereoisomers of a pesticide are metabolized or excreted at different rates. A critical account of the degradative pathways operative specifically within aquatic ecosystems would have been a valuable addition to the book.

Overall, the book is a valuable reference not only for scientists interested in pesticides but also for those studying the environmental dynamics of organic chemicals in general.

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Organelles

The Mitochondria of Microorganisms. DAVID LLOYD. Academic Press, New York, 1975. xii, 554 pp., illus. $36.

Because of their peculiar morphological features, cytochrome content, and pathways of electron transport, the mitochondria of simple eukaryotic cells were for some time looked upon as anomalies and considered quite apart from the mainstream of research in bioenergetics. However, owing in part to the increased concern since the early 1960's with the molecular and genetic aspects of organelle biogenesis, the mitochondria of microorganisms have become of more general interest, even a fashionable subject of investigation. In fact, it has been possible to conveniently study many aspects of the organization, assembly, and continuity of mitochondria, such as the rules governing mitochondrial inheritance, only in simple eukaryotes.

In this volume, Lloyd has attempted to provide a comprehensive and critical review of the isolation, properties, and biogenesis of mitochondria in a wide variety of microorganisms, and for the most part he has succeeded admirably. His approach is thorough. For example, his treatment of cell breakage and mitochondrial isolation procedures for different organisms, each of which presents its own unique problems, is summarized in a comprehensive, well-referenced table. Such compilations are found throughout the book and enhance its utility by making specific methodologies, compositional analyses, and other such information readily accessible.

Lloyd presents the material in two main sections. The first deals with the isolation, purification, and properties of mitochondria from a variety of microorganisms. A smooth transition into the second major topic, the biochemistry, molecular biology, and genetics of mitochondrial biogenesis, is accomplished by a revealing section on the manifold effects of environmental factors on mitochondrial structure and function. One of the advantages of studying mitochondria in microorganisms is the relative ease with which dramatic phenotypic changes in mitochondria can be elicited by controlled environmental pertubations, and Lloyd emphasizes the potential wealth of information that can be obtained from such studies.

The topic of mitochondrial biogenesis is developed from a roughly historical point of view; that is, the treatment begins with the discovery of mitochondrial DNA and the integration of the rudiments of mitochondrial molecular biology with the phenomenon of cytoplasmic or extrachromosomal inheritance. Much of this information can be found in recent reviews, but Lloyd again shows his penchant for organization by providing extensive, well-referenced tabulations. These include extensive listings of chromosomal and extrachromosomal mutations affecting mitochondrial function, particularly in yeast.

Those entering the field should find of considerable value the attention given to major unsolved problems, particularly with regard to biogenesis. Although by design the book is restricted to the mitochondria of microorganisms, Lloyd has not hesitated to make use of pertinent information obtained in work on higher eukaryotic cells.

Lloyd concludes the volume with a brief but provocative discussion of the evolution of mitochondria. Although some may consider this topic, for the time being at least, to be peripheral, the chapter will appeal to aficionados of molecular evolution.

In sum, the book is a comprehensive and readable reference work that ties together major concepts of the functional organization and assembly of mitochondria in a diversity of organisms. My most serious objection is to the absence of an author index.

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Catalytic Processes

Homogeneous Catalysis by Metal Complexes. M. M. TAQUI KHAN and ARTHUR E. MARTELL. Academic Press, New York, 1974. Vol. 1, Activation of Small Inorganic Molecules. xiv, 422 pp., illus. $42. Vol. 2, Activation of Alkenes and Alkynes. xii, 196 pp., illus. $23.

Compounds of the transition metals form complexes with a variety of types of small molecules: molecular hydrogen, dinitrogen, dioxygen, carbon monoxide, nitric oxide, olefins, acetylene derivatives,