presentations of human genetics, some of them written much more recently, is that the inheritance of eye color, hair color, form, and any number of other normal and disease traits is a simple matter of Mendelism. For example, long lists are provided with these traits arranged down the pages in columns according to whether they are dominant or recessive. The inheritance of none of the traits, particularly the "normal" ones, is all that simple. In connection with rare hereditary disease traits, such treatment misses an important concept of medical genetics, namely, the heterogeneity of entities which phenotypically appear to be homogeneous.

The author, a biologist, is the son of Edmond Rostand (1869–1918), creator of *Cyrano de Bergerac,* and the brother of Maurice Rostand, also a dramatist.

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La Vie

Encyclopédie Française. vol. 4, pt. 1 and pt. 2, *La Vie*. Fondement, maintien, réproduction. Pierre-P. Grassé, Ed. Société Nouvelle de l'Encyclopédie Française. Larousse, Paris, 1960. x + 710 pp. Illus. + plates.

Seventy of France's distinguished scientists participated in the writing of this book. They have avoided an encyclopedic collection of fragments and have produced an organized, logical account of biology.

La Vie is composed of nine sections, each with a number of chapters (the number is indicated in parentheses). Origin and Place of Life (2) discusses theories of the origin of life, physical functions of living matter, and geobiochemical cycles of carbon, nitrogen, and other elements. Physical Structure and Chemical Composition (4) considers, among other topics, colloidal state, water absorption, birefringence, macromolecules in protoplasm, energy transfer, and the chief chemical constituents of living things. Organization of Living Beings (7) deals concisely with the cell concept, bacterial morphology and sexuality, viruses, cytology of the animal cell, the multicellular state and cellular differentiation, and cytology of the plant cell. Cellular Activities (7) is devoted to several subjects of general physiology such as ameboid and muscular movement, cell permeability, water and ion exchange in plant cells, enzyme action, processes of synthesis and degradation, and the relation of physicochemical laws to cell activities. Maintenance in Animals (11) and Physiological Equilibrium (6) review, essentially at the organismal level, the comparative physiology and biochemistry of the principal physiological processes and such other topics as production of light and electricity, immune reactions, wound healing, animal grafts, and tissue culture. Behavior (11) deals with sensory information, the nervous system, the nerve impulse, simple reflex and higher nervous activity, sleep and rhythmic activities, tropisms and reflexes, instinct, intelligence, and social phenomena. Maintenance in Plants (9) is a section on plant physiology with consideration of structural and functional diversity, energy sources, plant anatomy and organogeny, synthetic processes, mineral metabolism, physiological regulation, growth and morphogenesis, movements and tropisms, and reactions to environmental factors. The book ends with the section Transmission of Life (6) in which are discussed sexual and asexual reproduction, animal ontogeny, growth, senescence and death, plant reproduction, and heredity.

Many line drawings illustrate the text. The 32 plates contain 90 figures; 35 of these are photographs, predominantly of protozoan, invertebrate, and plant forms, taken through the electron microscope.

One appendix consists of bibliographic references grouped by chapter headings; another contains brief academic *vitae* of the contributors. There are 30 pages of subject index. Both appendixes and the subject index are duplicated in each volume.

My initial apprehension, caused by a dust jacket claim that the use of too technical terms had been banned, was allayed by reading a few selected chapters. The book is no mere popularization of biological principles. *La Vie* aims at an explanation of laws regulating living organisms; its approach is largely that of molecular biology. In a foreword Gaston Berger phrases this astutely, if perhaps idealistically: "The chemist, studying the reactions that operate in an organism, devotes himself to following molecules, atoms and particles through the various systems in which they participate. The biologist, studying the same processes, endeavors to discover how organization results from the elements, function from the reactions."

Striking changes in the introductory biology courses of many colleges will soon be necessary as a result of the national efforts to improve biology teaching in secondary schools. A judiciously edited translation of *La Vie* could be a model in planning and organizing an undergraduate course for students who come with the new secondary school preparation in biology and chemistry.

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Ineffective Committees

Biological Education in American Secondary Schools, 1890–1960. Biological Sciences Curriculum Study Bulletin No. 1. Paul DeHart Hurd. American Institute of Biological Sciences, Washington, D.C., 1961. x + 263 pp. $4.75.

In this book Hurd reviews biology teaching in American secondary schools from 1890 to 1960. The book consists of two parts: reports of various curriculum committees and reports of research studies.

Part 1 consists of recommendations from 84 biology curriculum committees plus the author's explanatory comments. The 70-year period is divided into the seven decades, and a chapter is devoted to each.

Presumably the reports of the various committees were intended to improve biology teaching. However, little evidence is presented to show that they have had much effect. Hurd writes: "There is no real way to judge the extent to which the biology curriculum committees . . . were effective in bringing about change in either the content or conduct of biology courses. It is apparent that the ideas for improvement of biology teaching being discussed today are quite similar to many of those suggested before the turn of the century."

Why, then, was so much of the book devoted to useless reports? Perhaps the author thought a demonstration of past ineffectiveness would secure the efforts of future committees, for he also writes: "An analysis of the factors involved in getting curriculum reforms into the