and a number of micrographs have been beautifully reproduced in this chapter. This work has inspired a number of interesting proposals for the structure of the photochemical apparatus and its mechanism of action.

The book concludes with a lucid epilog summarizing the current status of knowledge of photosynthesis. This section includes four more outstanding electron micrographs of chloroplast sections. The author's expressed hope that this monograph will not rapidly become obsolete seems well justified. Even if progress in our understanding of photosynthesis continues at its present rapid pace, it is likely that this volume will be useful to the research worker for a number of years and will, in fact, contribute substantially to that progress.

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International Review of Cytology. vol. V. G. H. Bourne and J. F. Danielli, Eds. Academic Press, New York, 1956. 570 pp. Illus. $11.50.

This is the fifth volume in an annual series whose aim, as it is expressed in the editor's foreword, is to survey "the whole of cytology and cell physiology in order to enable those interested in cell biology to form more easily a unified concept of the field." Fourteen independent reviews, dealing primarily with animal cells or microorganisms, are included. These papers encompass broad problems of cellular organization in relation to metabolism, growth, development, differentiation, and heredity. Structural patterns are considered at the molecular, particulate, and cellular levels; functional relations are stressed throughout the book, with reference to underlying physical or chemical mechanisms. The contributors have been selected from seven different countries; by this criterion, "the *International Review of Cytology* has become increasingly international." It has also become increasingly expansive over the years.

The individual contributions include topics as diverse as the chemical composition of the bacterial cell wall (C. S. Cummins) and the cytology of spermatogenesis (V. Nath). There are also articles dealing with intracellular *p*H (P. C. Caldwell), activity of enzymes in red cells (T. A. J. Prankerd), uptake and transfer of macromolecules (A. M. Schechtman), protoplasmic contractility in relation to gel structure (D. Marsland), the acrosome reaction (Jean Dan), and cell secretion (L. C. U. Junqueira and G. C. Hirsch), which reflect many different aproaches to problems of cell physiology. Reviews on theories of enzyme adaptation (J. Mandelstam) and cytophotometry in the study of nuclear DNA (R. and C. Vendrely) consider problems of special interest to geneticists. In addition, there are reviews dealing with the use of labeled antibodies in histochemistry (A. H. Coons) and with the structure and properties of cellular organelles, including mitochondria (J. W. Harman; W. Andrew) and cytomembranes (F. S. Sjöstrand), that reveal current interests and activities in cytochemistry and electron microscopy. Obviously, there is something here for almost every cytologist, *chacun à son goût*.

As is usual in a compilation of this type, the individual contributions vary greatly with respect to breadth of literature survey and intensity of analysis. At one extreme, little more is recorded that the historical background and a catalog of recent findings; at the other, one is presented with a thoughtful evaluation of current information and a perspective of unsolved problems of general interest. There is a measure of overlapping in coverage of subject material (in accordance with a stated editorial policy), which serves to bring into sharper focus areas of conflicting opinion (the reality of the mitochondrial membrane, the function of the acrosome, and so forth) and to emphasize the need for further exploration. The reproduction of electron micrographs, although reasonably good in this book, must be better in future volumes if the reader is to be privileged to assess critically the pictorial evidence on which are based important conclusions and generalizations about extremely fine cellular structure. Typographic errors are relatively few, but occasional lapses in respect to clarity of expression and precision of scientific terminology could have been avoided through more rigorous editing.

Despite minor imperfections, this book might profitably be studied by every student of cellular biology who seeks information about accomplishments in areas beyond his special sphere of research activity. The *Review* is intended "to emphasize the unity of cytology," and cytologists will probably agree that these 14 papers serve to illustrate the diversity of techniques and talents now being utilized in the ever-widening search for a better understanding of the properties of the living cell.

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New Books

National Science Foundation, Sixth Annual Report for the Fiscal Year Ended June 30, 1956. National Science Foundation, Washington, 1956 (order from Supt. of Documents, GPO, Washington 25). 189 pp. $0.75.

Atoms and the Universe. An account of modern views on the structure of matter and the universe. G. O. Jones, J. Rotblat, G. J. Whitrow. Scribner's, New York, 1956. 254 pp. $4.50.

Analytical Pathology. Treatises in the perspective of biology, chemistry, and physics. Robert C. Mellors, Ed. Blakiston Div., McGraw-Hill, New York, 1957. 477 pp. $12.

Nonparametric Methods in Statistics. D. A. S. Fraser. Wiley, New York; Chapman & Hall, London, 1957. 299 pp. $8.50.

Modern Introductory Physics. Ira M. Freeman. McGraw-Hill, New York, ed 2, 1957. 497 pp. $6.

Fundamentals of Physics. Henry Semat. Rinehart, New York, ed. 3, 1957. 914 pp. $8.

XVth International Congress of Pure and Applied Chemistry. Main Congress lectures and lectures in the sections. Birkhauser, Basel, 1956. 240 pp. F. 32.

Symposium Sulla Eparina. Milan, 19 December 1955. Organizzato dalla Lombarda di Scienze Mediche e Biologiche. Stamperia Cesare Tamburini, Milan, 1956. 263 pp.

College Writing. A functional approach to college composition. Cecil B. Williams and John Ball. Ronald Press, New York, 1957. 475 pp. $3.75.

Quantum Chemistry. An introduction. Walter Kauzmann. Academic Press, New York, 1957. 744 pp. $12.

The Enjoyment of Mathematics. Selections from mathematics for the amateur. Hans Rademacher and Otto Toeplitz. Translated by Herbert Zuckerman. Princeton University Press, Princeton, N.J., 1957. 204 pp. $4.50.

Microcalorimétrie. Applications physicochimiques et biologiques. E. Calvet and H. Prat. Masson, Paris, 1956. 395 pp. Paper, F. 4500; cloth, F. 5200.

Integrated Anatomy and Physiology. Carl C. Francis and Gordon L. Farrell. Mosby, St. Louis, ed 3, 1957. 641 pp. $5.85.

Electrical Measurements and Their Applications (based on *Advanced Electrical Measurements,* 1932, 1941). Walter C. Michels. Van Nostrand, Princeton, N.J., 1957. 331 pp. $6.75.

Climate and Economic Development in the Tropics. Douglas H. K. Lee. Harper (for the Council on Foreign Relations), New York, 1957. 182 pp. $3.50.

The Grenville Problem. Royal Society of Canada Special Publs. No. 1. James E. Thomson, Ed. University of Toronto Press and The Royal Society of Canada, Toronto, 1956. 119 pp. $3.95.

Plant Propagation. John P. Mahlstede and Ernest S. Haber. Wiley, New York; Chapman & Hall, London, 1957. 413 pp. $7.50.

How to Prospect for Uranium. Hubert L. Barnes. Dover, New York, 1956. 117 pp. $1.

Handbuch der Physik. vol. XXXV, *Atoms I.* 454 pp. DM. 99.50. vol. XXXII, *Structural Research.* 603 pp. DM. 144. S. Flugge, Ed. Springer, Berlin, 1957.

Why Wages Rise. F. A. Harper. Foundation for Economic Education, Inc. Irvington-On-Hudson, N.Y., 1957. 124 pp. $1.50.