Ord, M.G., Stocken, L.A. (ed.): **Foundations of Modern Biochemistry. Vol. 1. Early Adventures in Biochemistry.** - JAI Press, Greenwich - London 1995. ISBN 1-55938-960-5. 219 pp., USD 97.50.

This multivolume treatise was prepared for students of biochemistry, biology, and medicine who often do not exactly know how many trials and failures were necessary for reaching the present state of knowledge in various fields of biochemistry. Progress was always connected with development of new methods, new technics of synthesis and analysis of substances. Volume one summarises the development up to *ca.* 1960.

The introductory chapter overviews contents of the whole volume. Chapter 2 deals with biochemistry before 1900, including isolation of natural products (*e.g.*, tartaric acid in 1770, and morphine as early as 1805), rise and downfall of vitalism, the development of cell theory, and way from physiological chemistry (chemistry of living matter) to biochemistry. The development was accompanied by launching first specialised journals, Zeitschrift für physiologische Chemie (1877), Journal of Biological Chemistry (1905), and Biochemical Journal (1906). Chapter 3 is on early metabolic studies: the determination of energy need in animals and humans, their dietary requirements of proteins, amino acids, vitamins, minerals, unsaturated fatty acids, *etc.*; growth studies with pathogenic microorganisms (blocking growth of streptococci, staphylococci, *etc.*, production of mutants), studies of metabolic (endocrine and thyroid diseases, *diabetes mellitus*) and genetic diseases ("inborn errors in metabolism"). Chapter 4 explains glycolytic pathways (in yeast and muscle, function of glyceraldehyde 3-phosphate dehydrogenase), glycogen synthesis and breakdown, glycolysis, and muscle contraction. Chapter 5 deals with oxidation of saccharides, electron transfer, and oxidative phosphorylation. The chapter starts with methods (Thunberg tube, Warburg's manometric technique), cyclic concept of respiratory processes, the tricarboxylic acid cycle (effects of heavy metals, asymmetric and lethal syntheses of citrate), terminal oxidation in cytochrome chain, oxidative photophosphorylation, *etc.* Chapter 6 is on amino acid catabolism in animals (roles of liver, urea, release of ammonia, transamination, *etc.*). Chapter 7 explains the utilisation of fatty acids.

Chapter 8 deals with the use of isotopes in biochemical research between 1925 and 1965. The detection of radioisotopes (including ^{14}C, ^{3}H, ^{32}P) and stable isotopes is explained here, as well as dynamic studies of animal body constituents, experiments on transmethylation, biosynthesis of cholesterol. The chapter ends with discovery of the Calvin cycle, and hence finally with plant biochemistry. Chapter 9 shows how introduction of biochemistry changed the classical microscopic observations of cells, and also the development from visible microscopy to electron microscopic studies, using among others fractions obtained by differential centrifugation. In this way structure and functions of mitochondria, the Golgi apparatus, nuclei, and plasma membranes were discovered. Last chapter reviews concepts of protein structure and function.

Appendices contain a chronological summary of main events up to 1960, and schemes of six principal metabolic pathways. Detailed author and subject indexes are supplemented. In the portrait gallery (between chapters 5 and 6) photosynthesis researchers will find some familiar (let us hope) faces, of Otto Warburg, Peter Mitchell, and Michael Tswett (three from thirty two pictures).

All the chapters are written in an understandable style. They offer an amusing reading. Only basic references are supplemented, mainly to books and review articles. Every biochemist should know historical facts contained in this book.

Z. ŠESTÁK (*Praha*)