

Mechanics and Thermodynamics of Biomembranes. Evan A. Evans and Richard Skalak. CRC Press, Boca Raton, Florida, 1980. 254 pp., illus., refs., \$34.95.

The field of biomembrane mechanics is presented in this short treatise through the analysis of the membrane as a two-dimensional molecular layer. The discussions are highly technical for engineers and physical scientists with interests in surface deformation analysis and the derivation of elastic constitutive equations from thermodynamic properties of membranes. Following discussions of mechanical equilibria of flat and axisymmetric membranes, isothermal constitutive equations, shear hyperelasticity, viscosity, relaxation, and viscoplasticity, the last section introduces biological membrane experiments designed to demonstrate the physical concepts. The phenomenon of area dilation produced by isotropic tension is interesting and well described with reference to biological systems such as the red cell. The deformation produced by membrane shear is discussed as an important concept with biological applications. Other sections describe the thermoelasticity and thermodynamics of cell membranes, area compressibility of multilamellar lipid phases and water, and viscoelastic recovery of distorted membranes. The text is described as tutorial since it is meant to develop in the reader specific mathematical skills and an appreciation and understanding of the methods of physical analysis.

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The Human Organism. 5th Edition. R.M. De Coursey and J.L. Renfro. McGraw-Hill, New York, 1980. 767 pp., illus., glossary, index, \$20.95.

The Human Organism is set apart from most introductory biology texts due to its rather unique topic choice and presentation. The text includes osteology and skeletal muscle anatomy as individual chapters, and together they comprise one of the most complete descriptions of skeletal and muscle anatomy to be found in an introductory text. The anatomical chapters in conjunction with the traditional subjects of cellular structure and enzymology, neurophysiology, endocrinology, circulation, respiration, and the physiology of the kidneys, digestive and reproductive systems, enhance the usefulness of this text as a paramedical or health-science related primer. Even the material presented in the traditional biology sections is designed to emphasize the structure and function of the organism. For instance, a thorough introduction to neuroanatomy is included in the section describing the central and autonomic nervous systems, and there is an inclusive chapter on the anatomy of the eye and ear in the section on special senses. Many diagrams, tables, and photographs greatly enhance the discussions which present the elementary principles of biology in a clear and concise manner. Each chapter concludes with a description of the pertinent clinical aspects, and also includes review questions and a suggested reading list. The different sections of the text complement each other, and overall present an interesting elementary, but thorough, introduction to the structure and function of the human organism.

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Physiological Psychology. Thomas S. Brown and Patricia M. Wallace. Academic Press, New York, 1980. 643 pp., illus., index, \$19.95.

With exciting research developments, with increasing recognition of the biological bases/correlates of behavior, and with relatively large scale undergraduate enrollment in psychology, college level courses are provided increasingly under various names like Physiological Psychology. In addition, the labels might be Biopsychology, Psychobiology, Biological Bases of Behavior, Neural Bases of Behavior, Brain and Behavior, Neuropsychology, Biological Psychology, Physiology and Behavior, etc. This book is a contribution to the growing textbook literature to serve these areas which are set mainly in the departments of psychology for junior/senior level students.

The authors are experienced psychology teachers at DePaul University and Clarion State College. The focus is on the relationships between physiology and behavior. The level is introductory, and does not assume an extensive background in biology, psychology, or related areas.

Fifteen chapters after the introductory chapter follow a plan, which starts with the neuron-axonal conduction and synaptic transmission. An overview of the neurons system centers on the brain, spinal cord, and the peripheral nervous system. They cover a chapter on the senses with an emphasis on vision, followed by treatments of audition, the chemical senses, and somatosenses and vestibular senses. Brain control of movement is considered in the next chapter, Chapter 9. The next four units deal with emotion, motivations (hunger and thirst, sex), and rhythmic behavior (sleep, arousal, attention). Chapters 14 and 15 are under the heading of Plasticity in the nervous system and deal with Development and Learning and Memory. The closing chapter deals with Higher Processes — the association cortex, average evoked potential, the split-brain, and language. Each chapter has an introduction, and each unit in the chapter has a summary. Each chapter lists key terms as well as several suggested readings. The appendix has a human brain atlas, a glossary, references and author and subject index.

The stage is set in the Introduction to the physiological bases of behavior by presentation of three major continuing issues: the mind-body problem, localization for function, and nature versus nurture. The style is clear, fundamental, and the references are current. The illustrations are freshly drawn, and are excellently done. The topics dealt with are appropriate. The general stance is on the relationships between behavior and physiology. The book appears to be usable, introductory, reasonably self contained, effectively organized and well presented. One could readily develop a variant of the concepts and relationships of importance, but this selection is suitable, and indicates the physiological base from a primary concern with behavior. From my view I wish that the authors had taken stock and closed with a status analysis of the major continuing issues.

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