

glandular secretion, Sherrington on the neurone theory and the integrative action of the nervous system, and Dale and T.R. Elliott on humoral neurotransmitters. Foster therefore not only orchestrated the growth of research institutions, he also set the investigatory themes upon which his students and colleagues composed variations. Geison's argument, although necessarily founded on a detailed discussion of physiological theories and experiments, is a clear and well-executed counterpoint to his institutional history.

Perhaps the book's only weakness is the very dichotomy Geison's format makes between the institutional development of the Cambridge school and the sequence of Foster-inspired researches that led up to Gaskell's experimental proof of the myogenic theory. It would be fascinating to know if, between 1870 and 1883, there were any closer links between the stages of institutional growth and those of conceptual elaboration than that of supportive environment and supported research. But here I suspect Geison is at the mercy of his sources, for the pieces of evidence (correspondence, lecture notes, laboratory protocols, and the like) that might show the detailed interplay of men, milieu, and ideas seem not to have survived.

The book is beautifully produced and written with an unflinching felicity of expression, enlivened with touches of dry wit. It is in every way a model of literate and discerning scholarship in the history of science.

Robert G. Frank, Jr.

*Medical History Division
Department of Anatomy and
Department of History,
University of California,
Los Angeles 90024*

Reprinted with permission from *Science*.

Mathematical Techniques for Biology and Medicine, William Simon. MIT Press, Cambridge, MA 1977. Paperback Edition, 300 pp. 20 illus. \$9.95. Original Edition, Academic Press, 1972. \$14.00. See page 50.

The Vertebrates: Their Forms and Functions. Charles G. Crispens, Jr. Charles C. Thomas, Springfield, Ill, 1978. 176 pp. 34 illus. 14 tables. \$15.50.

This little book is an abbreviated text for the introductory vertebrate anatomy and physiology portion of a beginning biology course. In addition to the descriptive chapters of the various vertebrate organ systems there are introductory chapters discussing histology (The Building Blocks), classification and phylogeny.

The minimum amount of detail and the paucity of illustrations is offered as an "alternative to other texts which tend to be more classical in their approach and more detailed in their content."

The brevity of the text results in, at best, an outline of the subject. Although both anatomy and physiology are presented they remain distinct within the text. For example chapter 8, The Nervous System and Sense Organs has no description of a neuron or impulse conduction. Chapter 1, the Building Blocks, devotes pages 12 to 17 and one figure to Nervous Tissue. The figure is a diagram of a typical neuron and illustrates such features as myelin, node of Ranvier, neurolemma, and Schwann cell but there is no mention of the importance of these structures to the speed of impulse conduction. I could find no mention of saltatory conduction or of the difference in nerve conduction between myelinated and non-myelinated nerves.

Many features that are difficult to visualize are not illustrated (divisions of mesoderm; p. 52-53) while simple structures may be covered in detail (parts of a rib; p. 44) or minor subjects may be illustrated (Electroplaques, p. 59) while more important structures (ear, lymph organs, endocrine glands other than pituitary) are not shown.

The author also fails to take advantage of the comparative approach in dealing with organ systems so there is no real discussion of the evolution of the various systems or tissues. The skeletal system for example has a description of cartilage and bone but the notochord is dismissed as a structure of cyclostomes. The reader is left with the impression that this is its only appearance and that the notochord is absent in vertebrates although it persists as an adult structure in all fishes and forms the intervertebral disks of mammals.

Robert B. Chiasson
Department of Veterinary Science
University of Arizona
Tucson, Arizona 85721