THE MOTOR CORTEX.

By Hiroshi Asanuma. Raven Press, New York. $65.00. xi + 189 p.; ill.; subject index. ISBN: 0-88167-541-5. 1989.

This book provides an excellent and succinct introduction to the history and current status of research into motor-cortex function. The intended audience includes graduate students and medical residents interested in cortical control of motor activity. Nonscientists looking for an introduction to the subject would also find it valuable. The book is very readable, with 31 brief and well-illustrated chapters.

Starting with a review of the clinical and anatomical origins of motor-cortex research, the book discusses the mapping of motor-cortex output using electrical intracortical microstimulation (pioneered by the author), the role of sensory input in motor-cortex function, anatomical studies of pathways, and recent experiments on plasticity of synaptic interactions and motor learning. Most of the topics relate to work done in the author's laboratory at the Rockefeller University, but numerous other related findings (e.g., post-tetanic potentiation in the hippocampus) are also included.

A recurrent theme is the effect of sensory input in modulating motor-cortical activity and the potential contribution of input from sensory cortex (area 2) to learning new motor skills. One field of motor-cortex research that is treated relatively lightly is the coding of movement parameters in the activity of neurons recorded in behaving animals. Evarts's earliest experiments are briefly mentioned, but these represent only the beginning of an extensive literature on the relation of the activity of motor-cortex cells to movements. The author discusses his "preferential bias theory" of movement initiation, which involves recurrent activity between motor-cortex and the periphery; this is related in many ways to the concept of motor set, which again has a more extensive history than is discussed in this book. One commendable feature of the book is the extensive discussion of neural mechanisms involved in motor learning.

The treatment of this range of topics in 160 pages is necessarily somewhat abbreviated in parts, and researchers may quibble about certain simplistic interpretations of experimental results. Nevertheless, the book can be recommended as a useful and read-

able introduction to many areas of motor-cortex research.

EBERHARD E. FETZ, *Physiology & Biophysics* and *Regional Primate Research Center, University of Washington, Seattle, Washington*