



"Leopold [second from left] and students prepare a restored prairie for burning at the University of Wisconsin Arboretum, about 1945." [Bradley Center Archives; from Aldo Leopold: *His Life and Work*]

science, western lands, and environmentalism, this definitive biography should be read as well by those interested in our nation's past in general, for it portrays the transformation of the United States from a frontier culture into an increasingly scientific society—a transformation which, as Leopold's life shows, has not been entirely detrimental to our environment.

SUSAN R. SCHREPPER
Department of History,
Rutgers University,
New Brunswick, NJ 08903

Research in Neuroscience

Fidia Research Foundation Neuroscience Award Lectures. Vol. 2, 1986–1987. ALFRED G. GILMAN, ERWIN NEHER, TOMAS HÖKFELT, JOSEPH B. MARTIN, and VIKTOR HAMBURGER. Raven, New York, 1988. x, 164 pp., illus. \$39.

Recent advances in biophysical and molecular approaches to neuroscience have affected areas as distinct as signal transduction and inherited neurological disorders. This collection contains the lectures of the 1986 Fidia Foundation Award recipients, who represent a broad range of disciplines in neuroscience. The lectures honor Rita Levi-Montalcini, Luigi Galvani, Camillo Golgi, and Vittorio Erspamer. Dedicated as a whole to Levi-Montalcini, the volume commemorates her contributions to neuroscience by reprinting the report on the partial purification of nerve growth factor that she published with Stanley Cohen in the *Proceedings of the National Academy of Sciences*.

In addition to the diversity of subject

matter, the lectures vary in approach, ranging from general reviews to outlines of the author's own work. Although some of them suffer from attempts to combine these approaches in too little space, their accessibility outweighs any deficiencies; the volume is well worth the reading, especially for non-specialists.

In the first lecture, A. Gilman discusses the role of G proteins in transmembrane signaling. Then E. Neher describes his innovative patch clamp approach to solving the mechanisms of secretion. Hökfelt and colleagues analyze the ups and downs of various immunohistochemical approaches to determining peptide and transmitter phenotypes of central and peripheral neurons. This discussion is supplemented by summary tables that help the novice understand where particular transmitters and peptides are located. It includes a brief foray into the physiological implications of peptide and transmitter coexistence and speculation on their potential relevance to disease. J. Martin's lecture provides an excellent introduction to molecular genetic approaches to clinical neurology. The use of linkage analysis to locate the genes responsible for several inherited neurological disorders is described in a manner that conveys both the technical essentials and the excitement of this endeavor.

Each lecture is preceded by a biographical sketch of the neuroscientist for whom it is named. Pietro Corsi deftly condenses the lifelong contributions of Levi-Montalcini, Galvani, Golgi, and Erspamer into one-and-a-half-page essays. These summaries add a valuable dimension to the lectures that follow, since the work of each award recipient is somewhat related to that of the neuroscientist whom the lecture honors.

The final complement is a special lecture given by Viktor Hamburger on the occasion of his receiving the Fidia-Georgetown Award in Neuroscience, given every three years. Hamburger, the acknowledged father of neuroembryology, is the first recipient of this award in his field. His brief discourse—also preceded by a biographical sketch by Corsi—covers some of the first experiments of Mangold, Spemann, Harrison, and Detwiler on neural induction. Hamburger then traces the path of his investigations and collaborations that led to the discovery of the role of target tissue in neuronal survival, of naturally occurring neuronal cell death, and ultimately of nerve growth factor—an appropriate ending for this volume dedicated to Levi-Montalcini.

In sum, this collection is highly readable, bringing several key areas in neuroscience within easy reach of the newcomer. The volume also contains sufficient new perspec-

tive to be reasonably informative to the seasoned neurobiologist. One cannot, however, help being frustrated by the brevity of some of the contributions, given their high quality.

LORNA W. ROLE
Department of Anatomy and Cell Biology,
Center for Neurobiology and Behavior,
College of Physicians and Surgeons,
Columbia University,
New York, NY 10032

Nucleosynthesis in Stars

Cauldrons in the Cosmos. Nuclear Astrophysics. CLAUS E. ROLFS and WILLIAM S. RODNEY. University of Chicago Press, Chicago, 1988. xviii, 561 pp., illus. \$74.95; paper, \$34.95.

In this book the authors effectively communicate their fascination with a subject that has motivated the large volume of experimental work produced in their respective careers. As is stated by William A. Fowler in the foreword, "*Cauldrons in the Cosmos* is a potent witches' brew distilled from the ferment in the authors' hearts and minds, stimulated by their joy and delight in the nature of the universe which they, and we, inhabit." The authors describe how nuclear astrophysics has developed as a merger of astronomy, astrophysics, and low-energy nuclear physics sustained by "two of the most fundamental traits of human character: the need to explore and the need to understand." The book is written in an informal style that those uninitiated in the jargon of nuclear astrophysics and astronomy will find readable and illuminating. It covers essentially every topic of relevance to nuclear astrophysics, with emphasis on those that are most readily studied by modern laboratory techniques.

Since the book is written from the viewpoint of experimentalists, it includes many intuitive discussions of astrophysical concepts in place of rigorous theoretical treatments. It is an excellent supplement to D. D. Clayton's *Stellar Evolution and Nucleosynthesis*, both because of its pragmatic viewpoint and because it updates a number of developments in nuclear astrophysics during the 20 years since that book was first published. The preface also includes an interesting historical overview of the development of modern astronomy.

A major fraction of the book is devoted to stellar reaction rates, with an in-depth discussion of the accelerator and detection techniques for measuring them. Indeed, I have not found such a thorough discussion of modern low-energy nuclear laboratory techniques even in textbooks on nuclear