can also be modified by testosterone treatment in adult animals.

The possibilities of neuronal division and neurogenesis in adults are discussed in more detail in four chapters authored by Bayer, Kaplan, Rakic, and Anderson and Waxman. All present evidence for adult brain plasticity greater than would be expected on the basis of classic views of the potential for regeneration in mature brain.

This volume is easy to read, summarizes a substantial portion of current thought about brain recovery, and is, for the uninitiated, a useful review. The material covered is well known to most neurobiologists, and the treatment does not provide new insights. Rather, the volume serves as an entry for those outside the field who are curious about where studies of central nervous system regeneration are going.

JOSEPH B. MARTIN
Neurology Service,
Massachusetts General Hospital,
Boston, MA 02114

Membrane Transport

Transport and Diffusion across Cell Membranes. WILFRED D. STEIN. With a contribution by W. R. Lieb. Academic Press, Orlando, FL, 1986. xviii, 685 pp., illus. $79.50.

Wilfred Stein's new book is successor to his *The Movement of Molecules across Cell Membranes*, published in 1967. The book is an excellent introduction to current research in traffic across membranes. The author writes well and has an infectious enthusiasm for his subject. The treatment is molecular, biochemical, descriptive, and therefore easy to understand. Stein does not address questions of physiological function related to membrane transport, nor does he deal with theoretical problems, even such simple ones as thermodynamic requirements in bioenergetics. The book contains a wealth of biochemical reaction schemes and kinetic data to support them, and it has extensive (and useful) tables of V_{max}'s and K_m's and other such parameters. It is an ideal "starter" book for students who have had a course in biochemistry.

Stein devotes successive chapters to passive diffusion across bilayers, channels across membranes and their regulation, simple carriers (here he uses the old-fashioned term "facilitated diffusion"), cotransport systems, and primary active transport (the treatment of which is concerned almost entirely with ATP-linked systems). Good examples are provided for each category of molecular movement, with copious literature references. The most interesting part is the chapter on diffusion across bilayers, which is coauthored by W. R. Lieb. Not only is its topic a relatively neglected one (there are frequent symposium volumes on other types of transport), the authors give the reader a feeling for exciting unresolved controversy—though they don't mention that essentially the same issues have been debated since Overton's classic paper in 1899. (Overton, the "father" of membrane permeability, is in fact not cited anywhere in the book.)

Other chapters, though they correctly quote what might be called current dogma, tend to be too pat (controversy and unresolved problems slid under the rug), and the text is not always accurate as to detail. For example, in the chapter on primary active transport Stein refers to the binding of two rubidium ions per molecule of the Na,K-ATPase, which, he says, "is just the number one would expect for an enzyme that pumps two potassium ions per molecule of ATP split." The cited reference, however, gives a rather different picture: "our results suggest that three rubidium ions are occluded per alpha chain. That is embarrassing . . . because it does not fit with the stoichiometry of pumping." This is not an isolated example.

Unlike its predecessor, the book lacks an author index, and that limits its usefulness as a reference volume. I wanted to see what the book said about the Goldman equation and the Hodgkin-Huxley equations. The journal articles are listed in the bibliography, but I could not find where in the text they were discussed.

CHARLES TANFORD
Department of Physiology,
Duke University Medical Center,
Durham, NC 27710

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Barawa and the Ways Birds Fly in the Sky. Michael Jackson. Smithsonian Institution Press, Washington, DC, 1986. xii, 212 pp., illus. $18.95. Smithsonian Series in Ethnographic Inquiry.

Basic Concepts in Population, Quantitative, and Evolutionary Genetics. James F. Crow. Freeman, New York, 1986. xiv, 273 pp., illus. $28.95; paper, $15.95. A book characterized by the author as "a shortened, less mathematical, updated version" of Crow and Kimura's *Introduction to Population Genetics* (1970).

Beyond the Bomb. Living Without Nuclear Weapons. A Field Guide to Alternative Strategies for Building a Stable Peace. Mark Sommer. Drawings by Ed Koren. Expro Press, Chestnut Hill, MA, 1986 (distributor, Talman, New York). xiii, 180 pp., illus. Paper, $7.95.

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Dimensions and Entropies in Chaotic Systems. Quantification of Complex Behavior. G. Mayer-Kress, Ed. Springer-Verlag, New York, 1986. x, 257 pp., illus. $41. Springer Series in Synergetics, 32. From a workshop, Pecos River Ranch, NM, Sept. 1985.

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The Night After . . . Climatic and Biological Consequences of a Nuclear War. Soviet Scientists' Committee for the Defence of Peace Against Nuclear Threat. Mir, Moscow, 1985 (U.S. distributor, Imported Publications, Chicago). xviii, 165 pp., illus. $8.95. Translated from the Russian.

Overproduction of Microbial Metabolites. Strain Improvement and Process Control Strategies. Zdenko Veněk and Zdeněk Hošťálek, Eds. Butterworths, Boston, 1986. xvi, 308 pp., illus. $46.95. Biotechnology Series, 7.

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