

prisingly diverse, providing several instructive examples of autogenous control at the translational level. Yet another discovery of note is that ribonuclease P, the enzyme that cleaves the leader sequence from the 5' end of precursor tRNA, is a ribonucleoprotein and, even more astonishing, that it is the RNA component that is catalytically active, at least in vitro.

Many mysteries about tRNA remain, however, from the extra base pair in the aminoacyl acceptor stem of histidine-specific tRNAs to the oddly truncated tRNA species found in certain mitochondria. In addition, the function of most base modifications outside the anticodon loop is still unknown, although there is evidence that some serve as sensors of environmental stress. It has also been suggested that besides its role in tRNA transport, EFTu—as well as its eukaryotic counterpart eIF-1 $\alpha$ —may be in a position to report on the status of the translational machinery to other parts of the cell. One may hope that these and other puzzles will be resolved before the next tRNA book appears.

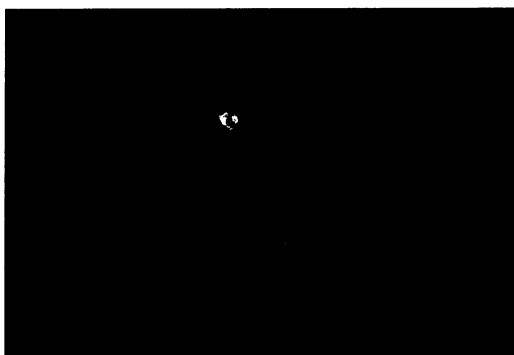
The present work is well produced, with a pleasing two-column layout, an easy-to-read typeface, abundant illustrations, an adequate index, and a minimum of typographical errors. It will unquestionably become a basic primer in the field of RNA structure and function and will surely find a prominent place on the bookshelves of those who study and teach the molecular biology of tRNA.

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## Also Noteworthy

**Cephalopod Neurobiology.** Neuroscience Studies in Squid, Octopus, and Cuttlefish. N. JOAN ABBOTT, RODDY WILLIAMSON, and LINDA MADDOCK, Eds. Oxford University Press, New York, 1995. xviii, 542 pp., illus. \$125 or £70.

Noting that cephalopods are of neurobiological interest both because of their own highly developed (by invertebrate standards) capabilities and because they provide useful preparations for the study of more general processes, the editors describe the present work as “a book to be enjoyed by both vertebrate and invertebrate neuroscientists, and by anyone interested in the basic principles that control neural function.” The book attempts no synthesis of cephalopod neurobiology but sets forth 32 papers on specific research topics, including some advances in technique. An



The squid *Loligo pealei* with egg mass. [Steinhart Aquarium; Andrew J. Martinez]

opening group of four papers deals with squid axon structure, biochemistry, and transport, including an account of the cytoskeleton and a discussion of the nervous system of *Loligo pealei* as a model of organelle motility. An ensuing nine papers deal with squid axon ion channels. Three each are then devoted to interactions between squid axons and Schwann cells and the squid giant synapse. Broadening the range of genera considered is a group of three papers on neuromuscular control, with emphasis on the chromatophore system, unique to the Cephalopoda. A group of six papers on the central nervous system includes accounts of diffusion characteristics of extracellular space, electrophysiological recording, cerebrovascular organization and dynamics, the blood-brain barrier, and the two interacting memory systems (visual and touch) that make learning possible. The final four papers in the book take up sensory function—visual pigments and olfactory physiology in squid and muscular function and the organs (statocysts) that facilitate balance and orientation in Cephalopoda generally. The book, which had its origins in a symposium held in Plymouth, England, at an unspecified date, has an international authorship, with contributions from Western Europe, North and South America, and Japan as well as the United Kingdom. Each paper has an abstract, and a subject index is provided.

**Katherine Livingston**

**The Cortical Neuron.** MICHAEL J. GUTNICK and ISTVAN MODY, Eds. Oxford University Press, New York, 1995. xvi, 406 pp., illus. \$75 or £49.50.

This book is a presentation of state-of-the-art research about neurons and local neuronal circuits in the mammalian cortex. A compilation of 22 chapters by 33 authors that had its origin in a symposium honoring the 60th birthday of David Prince, an early pioneer in the study of cortical neurons as related to epilepsy, it addresses a wide range of topics. A general overview by Prince is followed by

sections on cellular and synaptic properties of cortical neurons, neurons in networks, development of cortical neurons, and cortical neurons in disease. Because of Prince's interest in epilepsy this disease is emphasized more than others. One of the striking features of epileptic seizures is that they are sudden and often occur in what would otherwise appear to be normally functioning individuals. During a seizure cortical neurons undergo sudden depolarizations and rapid firings followed by relatively normal modes of activity. In studying cortical neurons in animal models of epilepsy much is therefore learned about normal neurophysiology,

and basic research in cortical electrophysiology owes a great deal to this disease. In addition to epilepsy, there are a number of other important themes that permeate the book, including synaptic plasticity, neurotransmitter function, and local circuit inhibition. Gutnick and Crill provide a particularly nice review of the basic electrophysiology of cortical neurons and of the differences between regular spiking, fast spiking, and intrinsic bursting neurons. The chapter by Bush and Sejnowski is noteworthy for its presentation of a scheme for simplifying computer models of single cortical neurons for use in more complex neuronal network models. Overall, the book provides a valuable “snapshot” of various aspects of neuroscience research related to cortical neurons.

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## Books Received

**Aspartic Proteinases.** Structure, Function, Biology, and Biomedical Implications. Kenji Takahashi, Ed. Plenum, New York, 1995. xxiv, 629 pp., illus., + plates. \$39.50. Advances in Experimental Medicine and Biology, vol. 362. From a conference, Gifu, Japan, Sept. 1993.

**At Home in the Universe.** The Search for Laws of Self-Organization and Complexity. Stuart Kauffman. Oxford University Press, New York, 1995. xii, 321 pp., illus. \$25.

**At the Nuclear Crossroads.** Choices about Nuclear Weapons and Extension of the Non-Proliferation Treaty. John B. Rhineland and Adam M. Scheinman, Eds. Lawyers Alliance for World Security, Washington, DC, and University Press of America, Lanham, MD, 1995. xvi, 113 pp., illus. \$37.50; paper, \$21.50.

**Atlas of Human Cross-Sectional Anatomy.** With CT and MR Images. Donald R. Cahill, Matthew J. Orland, and Gary M. Miller. 3rd ed. Wiley-Liss, New York, 1995. xii, 312 pp. \$159.95.

**Atlas of the Human Brainstem.** George Paxinos and Xu-Feng Huang. Academic Press, San Diego, 1995. Various pagings. Spiralbound, \$99.

**Copepoda.** Introduction to the Copepoda. B. H. Dussart and D. Defaye. SPB Academic, Amsterdam, 1995. viii, 277 pp., illus. Paper, \$69. Guides to the Identification of the Microinvertebrates of the Continental Waters of the World, 7.

**The Coronaviridae.** Stuart G. Siddell, Ed. Plenum, New York, 1995. xviii, 418 pp., illus. \$89.50. Viruses.

**Cosmic Questions.** Galactic Halos, Cold Dark Mat-