

PREFACE

During the second half of the twentieth century, the study of the nervous system moved from a peripheral position within the biological and psychological sciences to become an interdisciplinary field called neuroscience. The new discipline brought biochemists, cell biologists, anatomists, physiologists, psychologists, neurologists, and psychiatrists – scientists and clinicians from diverse backgrounds, all drawn to the promise and excitement of studying the brain. They aimed to discover the mechanisms of neuronal function, elucidate the neural substrates of behavior and cognition, and learn about the diseases of the nervous system. The development of the discipline was catalyzed in 1969 by the formation of the Society for Neuroscience, which now has nearly 37 000 members. The first academic training programs for neuroscience were established in medical schools (the Department of Neurosciences at the University of California, San Diego in 1965 and the Department of Neurobiology at Harvard University in 1966). The first undergraduate training programs in neuroscience were established in 1972 at Amherst College and at Oberlin College, alma mater of Nobelist Roger Sperry and three Past-Presidents of the Society for Neuroscience. Today, there are more than 300 neuroscience departments and programs around the world.

The *Encyclopedia of Neuroscience* is intended to catalog and explicate the rich, diverse subject matter of the discipline and to facilitate communication among its subspecialties. It is meant to be an authoritative source of information for all areas of neuroscience. It will hopefully make neuroscience more accessible to a wide range of readers, from students making their first acquaintance with the field to general readers seeking information about specific topics. It should also serve as a useful reference for working neuroscientists and be useful as well to undergraduate and graduate students in neuroscience training

programs, teachers in the life sciences, clinicians, and science writers.

The inaugural edition of this encyclopedia, which was the first comprehensive reference work for the field, was published in 1987 under the able leadership of George Adelman. It included some 700 entries and appeared in two volumes. The second edition, edited by George Adelman and Barry Smith, appeared in 1999 in two volumes and included more than 800 entries. A CD-ROM version of this edition was also published. A third edition, published only in electronic form, appeared in 2004.

The *Encyclopedia of Neuroscience* includes nearly 1500 entries. The full work will be published online at Science Direct, which can be accessed with subscription at www.sciencedirect.com. To assemble the entries, the Senior Editors identified 46 major areas of the discipline and then invited 46 Associate Editors, all experts in their field, to survey the content of neuroscience within each of these areas. Each Associate Editor then invited 30 to 40 authors to prepare articles on specific topics, with the objective of obtaining complete coverage for each area. Many of the authors are the recognized leaders in their field. The result is a compendium of expert articles representing the current world of neuroscience – the most important research, the most powerful tools, and the most promising applications.

Most of the entries are self-contained reviews that can be read as independent articles. Extensive cross-listing at the conclusion of each entry directs readers to articles on related topics. The principal organization of the *Encyclopedia* lies in the alphabetically arranged list of entries. In addition, the comprehensive subject classification will help readers find related topics and appreciate the structure of the discipline.

While no single reference work in neuroscience can claim to include every notable idea and fact about the

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