Preface: Cerebral Cortex Has Come of Age

The cerebral cortex is the cardinal achievement of brain evolution and the key neural structure subserving higher brain function and intellect. It occupies some 70% of our brain mass, and many agree that it is the part of the brain most closely associated with human individuality. More than a century ago, visionaries like Swedenborg, Bouillard, Broca, Hughlings-Jackson, Fritsch, and Hitzig established the importance of the cerebral cortex in the ascent of *homo sapiens*.

Today, for the first time, modern technological advances promise insight into the biological basis of the cerebral cortex's evolution, development, and function. Multidisciplinary research in this area is rapidly expanding into a large and exciting field with enormous theoretical, biomedical, and social implications. Given its size, scope, and significance, the field now needs a unifying voice to provide both information and cohesion.

Cerebral Cortex will bridge the basic and clinical sciences, providing a forum for researchers working on different systems and using varying approaches to study and levels of analysis. Cross-fertilization among the many research subfields is not only intellectually appealing but also essential to progress. Therefore the journal will encompass broad aspects of cortical research, ranging from molecules to behavior.

The traditional approaches to study—histology, surgical lesions, electroencephalography, electrical stimulation, and clinical observation—have been supplemented by numerous new, powerful, and ever-more-sophisticated methods. They include single cell recording in behaving animals and in slice preparations, a wide variety of axonal transport methods, identification of molecular distribution by immunohistochemistry at the light and electron microscope levels, receptor binding, *in situ* hybridization, and metabolic mapping with positron emission tomography. These methods have generated a plethora of new data now being categorized and interpreted through computational approaches and theoretical modeling.

Traditionally, our knowledge of the cerebral cortex has been acquired system by system, primarily in the sensory and motor areas. Recently, associational areas have received increased attention and also show substantial progress. In addition, studies of the cerebral cortex are becoming directly relevant to clinicians dealing with the many genetic and acquired neurological and psychiatric disorders. The normal molecular and cellular events that occur during development may result in both visible and subtle abnormalities in higher brain function. Moreover, the introduction of noninvasive methods into neurologic and psychiatric research has provided an unprecedented opportunity for understanding human disease.

This field of inquiry deserves a specialty journal of broad range and high quality, in which research can be expertly judged as well as viewed by scientists in other subfields who have common interests. *Cerebral Cortex* aims to define the field by publishing original research as well as reviews and commentaries on current and controversial issues.

We the editors, along with the editorial board, are confident that *Cerebral Cortex* will make a valuable contribution to the development of our field, and perhaps become one of its leading voices. We hope that, as the journal evolves, it will stimulate future generations of scholars to enter this exciting and important area of study.

Patricia S. Goldman-Rakic
Pasko Rakic

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Subcortical Dementia

Edited by JEFFREY L. CUMMINGS

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