# INTRODUCTION: KNOWLEDGE MOST WORTH HAVING IN THE DECADE OF THE BRAIN

*by H. Rodney Holmes*

When President George Bush and the Congress of the United States designated the 1990s the Decade of the Brain, they not only recognized the tremendous advances being made in the neurosciences, but they also recognized that this new information speaks directly to a core question of our society: What does it mean to be human?

A pluralistic society interested in the brain comes with its own goals, preconceptions, and values. The best way that our neuroscience can enlighten the most profound questions of what it means to be human is not to negate these goals, preconceptions, and values, but somehow to address them in light of unfolding knowledge.

Neuroscience in the past twenty years has taken great strides toward helping us understand ourselves as linguistic beings. We have begun to explore new horizons of knowledge and potential therapy using transplants and grafts into the human brain. We are learning the nature and causes of severe depression and schizophrenia, which afflict a sizable proportion of this society. Such learning has implications for deeply held human values, and important transformations in our self-understanding are already resulting. For these reasons, and because of potential benefits to people close to us, we need good information and serious reflection on these topics.

The Institute for Religion in an Age of Science (IRAS) has taken the measure of the neurosciences midway through the decade of the brain in the form of two conferences titled "Knowledge Most Worth Having in the Decade of the Brain." The first took place at the 1993 annual meeting of the American Association for the Advancement of Science, and the second comprised the 1994 IRAS Star Island conference. *Zygon* is herein publishing versions of some of the papers presented at those conferences. The writers present conclusions from contemporary neuroscience that, when taken at their depth, may transform our understanding of what it

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means to be human. Theology and the humanities agree that humans are distinctive in that they are fundamentally mindful. Modern science, because it is rooted in evolutionary theory, treats mind, not as a distinctive entity, but as an emergent property that is the dominant cognitive strategy of our species. For human beings, the whole is the background against which the particular foreground is measured: the ultimate is ontologically prior to the proximate. The papers in this issue of *Zygon* offer a portrait of a neuroscientific answer to the metaphysical question, What kinds of creatures are we that we conceive the divine?

James Ashbrook opens the discussion with a retrospective of modern scholarship on religion and neuroscience. This review article represents not only a critical overview of three decades of thought, but also a prognosis by a figure who in large measure has been responsible for the very existence of scholarship on religion and neuroscience.

The questions of meaning and existence are never far from the minds of philosophers and theologians, and those questions are addressed by Don Keyes. An accomplished author in theology and medical ethics, Keyes plumbs the depth dimensions of modern neuroscience in light of the work of Kant, Camus, and Tillich.

Marya Schechtman, a philosopher of mind, examines one of the most serious problems of modern life: how to think about schizophrenia and depression. Many of neuroscience's greatest advances have been made by elucidating the genetic bases of mental illness—but simply acknowledging and treating the material bases of mind does not explain mind or behavior. Schechtman finds resources for integrating psychological and biological views about the mind and brain in narratives about treating mental illness.

Neural transplants have been performed experimentally for almost a century, but recently their clinical application has raised a number of ethical questions. Lois Nora and Mary Mahowald delve into the history of those questions and find that behind them lies our core concern with personhood.

Terrence Deacon offers the most neurologically sound and the most comprehensive interdisciplinary account of human brain evolution appearing in the scientific literature. Reprinted here, with a foreword written specially for *Zygon*, is one of his recent papers. It takes as its theme a controversy in evolutionary science and illuminates what it means to be a holistic thinker. If linguistic beings who think abstractly are one of evolution's greatest anomalies, how are we to reconcile our internal world and its abstractions of "I" and "Thou" with the world in which we live, which is fundamentally social and interindividual? Deacon finds insight, if not an answer, in understanding the natural processes that produced such a being.