Editors' Introduction

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This series of papers is based on a 1969 conference on 'subcortical visual systems' held at the Massachusetts Institute of Technology¹. It seems to us that our good luck in obtaining a confrontation between proponents of diverse disciplines, and among investigators of a number of vertebrate species, has reinforced the chief aims of this journal.

In emphasizing aspects of vision that have been generally slighted -under the misleading notion that the geniculostriate system was THE visual system - we have brought into focus other important issues as well. Biologists and psychologists - in scanning these articles - can see the common basis for visual behavior shared by vertebrate species from fish to man. We believe that the new surge of comparative neuroanatomical studies will induce an increasing number of physiologists and behaviorists to make similarly careful comparisons at their own levels of analysis. Secondly, our focus upon the optic tectum brings the visual system into direct apposition with the motor system. Perhaps this new awareness of 'visuomotor' links in behavior will help to heal our schizoid habit of segregating the study of *perception* from description and analysis of *action*. No doubt, any discussion of 'the evolution of vision' is still a pedantic parlor game. Since we lack satisfactory answers to most questions relating structure and function within this multi-component system. Yet, in the pages that follow, one may witness almost sudden crystallizations of new ways of thinking about fundamental issues: homologies of visual pathways, relationships of electrophysiology to classes of natural behavior, and the possibility of 'neural plasticity' during brain development. Whether

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we work with frogs or cats, observe rabbits or people, we have found ourselves asking the same essential questions: What information can a firing neuron convey to an animal about the structure of his surroundings? How might the multiple neural representation of retinal influx collaborate to provide both the richness and the unity of visual experience? How can their output channels converge upon the various subsystems of response control?

We trust that this journal will not lose sight of this kind of question and come to serve as a mere depository of new information, or as a showcase for technical tricks. It is easy enough to bury a conference within a journal; yet we believe that the cooperative spirit of our meeting might continue to enliven the purpose of the journal itself.

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