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Preface

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The 20th Annual Karger Workshop had, as its theme, forebrain evolution in fishes. It was conceived to honor Professor Rudolf Nieuwenhuys, who celebrated his 80th birthday the previous year. Without question, Rudolf is the most eminent living comparative neurobiologist, and he is part of a long and illustrious tradition of Dutch neuroanatomy. In 1992, 'Brain, Behavior and Evolution' published a celebratory article honoring Rudolf on his 65th birthday. At that time, he had published over 100 research papers, had authored or co-authored three books – 'Chemoarchitecture of the Brain,' 'The Human Central Nervous System,' and 'The Central Nervous System of Cartilaginous Fishes' – and had still found time to direct the thesis work of some 30 graduate students. It is impossible to name a group of vertebrates, or a part of the brain, that he has not studied or, more importantly, in which he has not made new and important discoveries. After retiring in 1992, Rudolf completed what will almost certainly be his crowning achievement: 'The Nervous System of Vertebrates,' published in 1998 in three volumes, comprising over 2000 pages. Rudolf did not stop there, however, and earlier this year he published the fourth edition of 'The Human Nervous System,' which now runs to 1000 pages. Not bad for someone retired. We were all fortunate to have Rudolf reprise the telencephalic organization of ray-finned fishes in a sinfully funny presentation at the Workshop and again in his written contribution. In agreement with Walt Wilczynski, Editor of 'Brain, Behavior and Evolution,' the latter appeared in a previous issue of the journal [Nieuwenhuys, 2009], an arrangement allowing the other contributors more space in the Karger Workshop issue and also giving Rudolf the opportunity to provide a short commentary on their contributions therein.

In spite of the worst climate for research funding that any of us can remember, there has been remarkable progress made recently in our understanding of forebrain organization and evolution in fishes. Much of this progress is due to new molecular markers revealing new insights into forebrain development and organization in fishes, which is reflected in the Workshop papers. The organizers of the Workshop were fortunate to be able to call upon a number of active researchers to cover all major groups of fishes. Manuel A. Pombal and colleagues [Pombal et al., 2009] summarized the segmental organization of the forebrain in lampreys; Isabel Rodríguez-Moldes [2009] presented the first molecularly oriented description of forebrain development in a cartilaginous fish; Thomas Mueller and Mario Wullimann [Mueller and Wullimann, 2009] summarized and compared the distribution of developmental markers in the zebrafish and laboratory mouse, proposing a new evolutionary interpretation of teleostean forebrain anatomy; Agustín González and R. Glenn Northcutt [Gonzalez and Northcutt, 2009] summarized similar information on the forebrain in lungfishes, whose anatomy has long puzzled neuroanatomists; and Mark R. Braford, Jr. [2009] reviewed the extensive

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literature on the highly variable forebrain in ray-finned fishes and suggested a new interpretation of pallial relationships and possible homologues.

The main thrust of most of the papers was related to our remarkable progress in understanding the development of the forebrain in fishes. Unfortunately, experimental studies of the connections and functions of forebrain regions have not kept pace with the molecular studies and are sorely needed. If this situation is corrected in the future, it would be particularly interesting to see how the data from each discipline contribute to a new understanding of forebrain organization and evolution in fishes; 'Forebrain Evolution in Fishes, Revisited' could make for a lively Karger Workshop topic.

Like the previous 19th, the 20th Annual Karger Workshop owes its existence to the generous support of S. Karger AG. To them, our deepest thanks. We are also grateful to Cliff Summers, Andrew Iwaniuk, and Sabrina Burmeister (the 2008 Program Committee of the J. B. Johnston Club) and to Walt Wilczynski and his Assistant Managing Editor, Blinda McClelland. The hard work and dedication of all of these people helped to ensure a successful Workshop.

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