

Preface

This volume is dedicated to the question on how neuro-physiological, neuro-physical and neuro-phenomenal aspects of modern brain science can possibly become integrated into a coherent neuro-theory. Coming to the question of how to relate physics to the phenomenology behind brain function such as mentation and conscious experience, differences and controversies among different views and concepts are still dominating the scene. Some of these different views seem to emerge from separated scientific traditions, educations and scientific practice rather than reflecting inherent inconsistencies of the subject itself. An increasing effort to combine different disciplines to resolve the mysteries of brain function should therefore be highly promising. This is the intention of the present collection of papers. The contributions span over diverse aspects, ranging from the question of data representation in the analysis of receptive field properties in the brain (Pribram and Yokoyama) to some fundamental problems concerning information representation in the brain (Taya) and the relation of physiology and physics (Takaki). Finally, two contributions deal with the highly debated question as to whether quantum-physics is necessary to bridge the phenomenal and neurophysical in brain dynamics (Roy and Bernroider). It is hoped that the present volume can contribute not only to crossing the Rubicon between experimental science and phenomenology, but also to narrow the gap between different aspects of scientific thinking in brain science. The editors would like to acknowledge the efforts of all contributing authors and are especially grateful to one of the founders of modern Neuroscience, Prof. Karl Pribram for his cooperation and contribution to this volume.

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