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| Nota di contenuto | COMPARATIVE VERTEBRATE NEUROANATOMY; Dedication; Contents; Preface; Acknowledgments; List of Boxes; Part One EVOLUTION AND THE ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM; 1 Evolution and Variation; Introduction; Diversity Over Time; Evolutionary Mechanisms; Genetic Factors; Natural Selection; Evolution of the Vertebrate Central Nervous System; Sameness and Its Biological Significance; Analogy; Historical Homology; Homoplasy; Biological Homology; Generative Homology or Syngeny; Analysis of Variation; Cladistic Analysis; Parsimony; Tests of Homology; A Word of Caution; Reconstructing Evolution |

2 Neurons and Sensory Receptors Introduction; The Nervous System; Neurons and Sensory Receptors; Transport Within Neurons; Classification of Neurons; Somata; Dendrites; Axons; Synapses; Chemical Synapses; Neuroactive Substances; Electrical Synapses; Volume Transmission; Neuronal Populations; Golgi Type I and II Cells; Nuclei and Planes of Section; Techniques for Tracing Connections Between Nuclei; Receptors and Senses; How Many Senses?; Receptors and Awareness; Sensory Experience as a Private Mental Event; Sensory Adaptation; Receptor Types; Mechanoreceptors; Radiant-Energy Receptors

Chemoreceptors Nervus Terminalis: An Unclassified Receptor; Electoreceptors; Nociceptors; Magnetoreceptors; Topographic Organization; Receptive Fields; The Senses and Evolution of the Central Nervous System; 3 The Vertebrate Central Nervous System; Introduction; Development of the Brain; Segmental Development of the Vertebrate Brain; Neurogenesis and Migration of Neurons; Cortices and Nuclei; Differing Patterns of Development; Ontogeny and Recapitulation; The Brain and Spinal Cord; Cellular Organization of the Central Nervous System; Regional Organization of the Nervous System The Spinal Cord The Brain; The Meninges and the Ventricular System; Major Systems of the Brain; Sensory Systems; Motor Systems; Nomenclature of the Brain; 4 Vertebrate Phylogeny and Diversity in Brain Organization; Introduction; Vertebrate Phylogeny; Chordate Relationships; Jawless Vertebrates; Chondrichthyes; Actinopterygii; Sarcopterygii; The Big Picture of Vertebrate Evolution; Two Types of Brain Organization; Laminar Brains (Group I); Elaborated Brains (Group II); Glia and Brain Elaboration; Laminar and Elaborated Brains across Evolution

5 Evolution and Adaptation of the Brain, Behavior, and Intelligence Phylogeny and Adaptation; Phyletic Studies; Adaptation Studies; The Phylogenetic Scale; The Phylogenetic Tree; Complexity and Evolution; Anagenesis; Grades of Evolutionary Advancement; Evolutionary Change; Brain Evolution and Behavioral Adaptation; Brain Size and Brain Allometry; Brain Size and Behavioral Adaptation; Brain Size and Intelligence; What Is Intelligence?; Summary and Conclusions; 6 Theories of Brain Evolution; Introduction; Some Common Assumptions

Previous Theories of Vertebrate Brain Evolution: Addition of Structures or Areas

Sommario/riassunto

Comparative Vertebrate Neuroanatomy Evolution and Adaptation Second Edition Ann B. Butler and William Hodos The Second Edition of this landmark text presents a broad survey of comparative vertebrate neuroanatomy at the introductory level, representing a unique contribution to the field of evolutionary neurobiology. It has been extensively revised and updated, with substantially improved figures and diagrams that are used generously throughout the text. Through analysis of the variation in brain structure and function between major groups of vertebrates, readers can
