#### Preface to the Eleventh Edition v

#### Acknowledgments VII

#### Introduction and User's Guide 1

### External Morphology of the Central Nervous System 9

The Spinal Cord: Gross Views and Vasculature 10

The Brain: Lobes, Principle Brodmann Areas, Sensory-Motor Somatotopy 13

The Brain: Gross Views, Vasculature, and MRI 16

The Cerebellum: Gross Views and MRI 36

The Insula: Gross View, Vasculature, and MRI 38

Vascular Variations of Clinical Relevance 40

#### Cranial Nerves 45

Synopsis of Cranial Nerves 46

Cranial Nerves in MRI 48

Deficits of Eye Movements in the Horizontal Plane 55

Cranial Nerve Deficits in Representative Brainstem Lesions 56

Cranial Nerve Cross Reference 57

### Meninges, Cisterns, Ventricles, and Related Hemorrhages 59

The Meninges and Meningeal and Brain Hemorrhages 60

Meningitis 62

Epidural and Subdural Hemorrhage 64

Cisterns and Subarachnoid Hemorrhage 66

Meningioma 68

Ventricles and Hemorrhage into the Ventricles 70

The Choroid Plexus: Locations, Blood Supply, Tumors 74

Hemorrhage into the Brain: Intracerebral Hemorrhage 76

	i Contraction
	1
6	<b>一</b>

## Internal Morphology of the Brain in Unstained Slices and in MRI 77

Part I: Brain Slices in the Coronal Plane Correlated with MRI 77
Part II: Brain Slices in the Axial Plane Correlated with MRI 87

6

# Internal Morphology of the Spinal Cord and Brain: Functional Components, MRI, Stained Sections 97

Functional Components of the Spinal Cord and Brainstem 98

The Spinal Cord with CT and MRI 100

Arterial Patterns within the Spinal Cord with Vascular Syndromes 110

The Degenerated Corticospinal Tract 112

The Medulla Oblongata with MRI and CT 114

Arterial Patterns within the Medulla Oblongata with Vascular Syndromes 126

The Cerebellar Nuclei 128

The Pons with MRI and CT 132

Arterial Patterns within the Pons with Vascular Syndromes 140

The Midbrain with MRI and CT 142

Arterial Patterns within the Midbrain with Vascular Syndromes 154

The Diencephalon and Basal Nuclei with MRI 156

Arterial Patterns within the Forebrain with Vascular Syndromes 176

7

# Internal Morphology of the Brain in Stained Sections: Axial–Sagittal Correlations with MRI 179

Axial-Sagittal Correlations with MRI 180

8

### Tracts, Pathways, and Systems in Anatomical and Clinic Orientation 191

Orientation 192

Sensory Pathways 194

Motor Pathways 212

Cranial Nerves 228

Spinal and Cranial Nerve Reflexes 236

Cerebellum and Basal Nuclei 244

Visual, Auditory, and Vestibular Systems 264

Internal Capsule and Thalamocortical Connections 288

Limbic System: Hippocampus and Amygdala 292

Hypothalamus and Pituitary 300

### Clinical Syndromes of the CNS 309

Part I: Herniation Syndromes of the Brain and Spinal Discs 309

Part II: Representative Stroke Syndromes 321

10

# Anatomical-Clinical Correlations: Cerebral Angiogram, MRA, and MRV 329

Cerebral Angiogram, MRA, and MRV 330 Overview of Vertebral and Carotid Arteries 341

11

# Q&As: A Sampling of Study and Review Questions, Many in the USMLE Style, All with Explained Answers 343

Sources and Suggested Readings Index 355

See online Interactive Atlas