Contents

I THEORY AND PRACTICE OF NEUROPSYCHOLOGICAL ASSESSMENT

Introduction, 3

1. The Practice of Neuropsychological Assessment, 7

2. Basic Concepts, 17

Examining the Brain, 17

Brain Damage and Organicity, 18

Concerning Terminology, 19

Dimensions of Behavior, 20

Cognitive Functions, 22

Neuropsychology and the Concept of Intelligence, 23

Classes of Cognitive Functions, 25

Receptive Functions, 25

Memory, 27

Thinking, 34

Expressive Functions, 35

Mental Activity Variables, 38

Personality/Emotionality Variables, 40

Executive Functions, 42

3. The Behavioral Geography of the Brain, 45

Brain Pathology and Psychological Functions, 45

The Cellular Substrate, 46

The Structure of the Brain, 47

The Hindbrain, 48

The Midbrain, 49

xii CONTENTS

The Forebrain: Diencephalic Structures, 50

The Forebrain: The Cerebrum, 53

The Cerebral Cortex and Behavior, 56

Lateral Organization, 56

Longitudinal Organization, 69

Functional Organization of the Posterior Cortex, 71

The Occipital Lobes and Their Disorders, 71

The Posterior Association Cortex and Its Disorders, 74

The Temporal Lobes and Their Disorders, 81

The Precentral (Anterior) Cortex: Frontal Lobe Disorders, 87

Precentral Division, 87

Premotor Division, 87

Prefrontal Division, 89

Clinical Limitations of Functional Localization, 95

4. The Rationale of Deficit Measurement, 97

Comparison Standards for Deficit Measurement, 98

Normative Comparison Standards, 99

Individual Comparison Standards, 101

The Measurement of Deficit, 102

Direct Measurement of Deficit, 102

Indirect Measurement of Deficit, 102

The Deficit Measurement Paradigm, 108

5. The Neuropsychological Examination: Procedures, 110

Conceptual Framework of the Examination, 110

Purposes of the Examination, 110

Examination Questions, 111

Hypotheses as Examination Guidelines, 112

Conduct of the Examination, 113

Foundations, 113

Procedures, 116

Procedural Considerations in Neuropsychological Assessment, 127

Testing Issues, 127

Examining Special Populations, 131

Common Assessment Problems with Brain Damage, 136

Maximizing the Patient's Performance Level, 139

Optimal versus Standard Conditions, 140

When Optimal Conditions Are Not Best, 142

Talking to Patients, 142

Constructive Assessment, 143

CONTENTS

6. The Neuropsychological Examination: Interpretation, 144

The Nature of Psychological Examination Data, 144

The Different Kinds of Examination Data, 144

Quantitative and Qualitative Data, 146

Common Interpretation Errors, 151

Evaluation of Neuropsychological Examination Data, 152

Qualitative Aspects of Examination Behavior, 152

Test Scores, 154

Reporting Scores, 158

Interpreting the Examination Data, 160

Screening Techniques, 160

Pattern Analysis, 165

Integrated Interpretation, 168

7. Neuropathology for Neuropsychologists, 170

Head Trauma, 171

Severity Classifications and Outcome Prediction, 173

Penetrating Head Injuries, 175

Closed Head Injuries, 176

Closed Head Injury: Nature, Course, and Outcome, 182

Neuropsychological Assessment of Traumatically Brain Injured Patients, 191

Moderator Variables Affecting Severity of Traumatic Brain Injury, 192

Uncommon Sources of Traumatic Brain Injury, 193

Vascular Disorders, 193

Stroke and Related Disorders, 194

Multi-infarct Dementia, 200

Hypertension, 202

Migraine, 203

Degenerative Disorders, 203

Cortical Dementias, 204

Alzheimer's Disease, 204

Frontal Lobe Degenerations: Pick's Disease and Frontal Lobe Dementia, 218

Subcortical Dementias, 221

Parkinson's Disease, 223

Huntington's Disease, 231

Progressive Supranuclear Palsy (PSP), 238

Other Progressive Disorders of the Central Nervous System in Which Neuropsychological Effects May Be Prominent, 241

Multiple Sclerosis (MS), 241

Normal Pressure Hydrocephalus (NPH), 249

Toxic Conditions, 250

Alcohol-Related Disorders, 250

Street Drugs, 258
Social Drugs, 261
Environmental and Industrial N

Environmental and Industrial Neurotoxins, 262

Infectious Processes, 267

HIV Infection and AIDS, 268

Herpes Simplex Encephalitis, 270

Neoplasms, 270

Oxygen Deprivation, 272

Acute Oxygen Deprivation, 272

Chronic Oxygen Deprivation, 273

Carbon Monoxide Poisoning, 273

Metabolic and Endocrine Disorders, 274

Hypothyroidism (Myxedema), 274

Uremia, 274

Diabetes Mellitus, 275

Nutritional Deficiency, 275

8. Neurobehavioral Variables and Diagnostic Issues, 277

Lesion Characteristics, 277

Diffuse and Focal Effects, 277

Site and Size of Focal Lesions, 278

Depth of Lesion, 279

Distance Effects, 279

Nature of Lesion, 280

Time, 282

Nonprogressive Brain Disorders, 282

Progressive Brain Diseases, 287

Subject Variables, 288

Age, 288

Gender, 297

Lateral Asymmetry, 300

Race, 308

Premorbid Psychological Status, 308

Social and Cultural Variables, 310

Medication, 311

Epilepsy, 312

Problems of Differential Diagnosis, 319

Neurotic and Personality Disorders, 320

Psychotic Disturbances, 323

Depression, 325

Malingering, 330

CONTENTS

II A COMPENDIUM OF TESTS AND ASSESSMENT TECHIQUES, 333

9. Orientation and Attention, 335

Orientation, 335

Place, 336

Time, 336

Body Orientation, 339

Directional (Right-Left) Orientation, 341

Space, 344

Attention, Concentration, and Tracking, 352

Vigilance, 353

Short-Term Storage Capacity, 356

Mental Tracking, 366

Complex Attention, 376

10. Perception, 385

Visual Perception, 385

Visual Inattention, 385

Visual Scanning, 397

Color Perception, 398

Visual Recognition, 399

Visual Organization, 405

Visual Interference, 413

Auditory Perception, 417

Auditory Acuity, 418

Auditory Discrimination, 418

Aphasia, 420

Auditory Inattention, 420

Auditory-Verbal Perception, 420

Nonverbal Auditory Perception, 421

Tactile Perception, 423

Tactile Sensation, 424

Tactile Inattention, 424

Tactile Recognition and Discrimination Tests, 425

Olfaction, 427

11. Memory I: Tests, 429

A General Review of Memory Functions, 429

Verbal Memory, 431

Verbal Automatisms, 432

xvi CONTENTS

Letters and Digits, 432

Increasing the Tested Span, 434

Syllables, 435

Words, 435

Sentence Recall, 456

Story Recall, 456

Incidental Learning Using Digit Symbol or Symbol Digit Pairs, 463

Nonverbal Auditory Memory, 465

Visual Memory, 465

Visual Recognition, 465

Visual Recall: Paired Associates, 470

Visual Recall: Design Reproduction, 471

Visual Learning, 486

Tactile Memory, 490

Incidental Learning, 494

Remote Memory, 494

Recall of Public Events and Famous Persons, 495

Autobiographical Memory, 496

Forgetting, 497

12. Memory II: Batteries, Paired Memory Tests, and Questionnaires, 499

Memory Batteries, 499

Paired Memory Tests, 514

Memory Questionnaires, 517

13. Verbal Functions and Language Skills, 523

Aphasia, 523

Aphasia Tests and Batteries, 524

Aphasia Screening, 530

Verbal Expression, 536

Naming, 536

Vocabulary, 539

Discourse, 543

Verbal Fluency, 544

Verbal Academic Skills, 550

Reading, 550

Writing, 553

Spelling, 554

Knowledge Acquisition and Retention, 555

14. Construction, 559

Drawing, 560

Copying, 561

Free Drawing, 581

CONTENTS

Building and Assembling, 587

Two-Dimensional Construction, 587

Three-Dimensional Construction, 598

15. Concept Formation and Reasoning, 602

Concept Formation, 603

Concept Formation Tests in Verbal Formats, 603

Concept Formation Tests in Visual Formats, 608

Symbol Patterns, 616

Sorting, 617

Sort and Shift, 619

Reasoning, 628

Verbal Reasoning, 628

Reasoning about Visually Presented Material, 634

Mathematical Procedures, 641

Arithmetic Reasoning Problems, 641

Calculations, 647

16. Executive Functions and Motor Performance, 650

The Executive Functions, 650

Volition, 651

Planning, 653

Purposive Action, 658

Effective Performance, 674

Executive Functions: Wide Range Assessment, 675

Motor Performance, 676

The Neuropsychological Assessment of Motor Functions, 676

Examining for Apraxia, 678

Manual Dexterity and Strength, 680

17. Batteries for Assessment of Brain Damage, 686

Ability and Achievement, 687

Individual Administration, 688

Paper and Pencil Administration, 707

Batteries Developed for Neuropsychological Assessment, 709

Batteries for General Use, 709

Batteries Composed of Preexisting Tests, 722

Batteries for Assessing Specific Conditions, 723

HIV+, 723

Neurotoxicity, 724

Dementia: Batteries Incorporating Preexisting Tests, 725

Dementia: Constructed Batteries, 727

xviii CONTENTS

Traumatic Brain Injury, 730 Right Hemisphere Disease, 730

Screening Batteries for General Use, 731

18. Observational Methods, Rating Scales, and Inventories, 736

The Mental Status Examination, 736

Rating Scales and Inventories, 738

Dementia Evaluation, 738

Mental Status Scales for Dementia Screening and Rating, 739

Mental Status and Observer Rating Scale Combinations, 745

Scales for Rating Observations, 748

Rating Relative Reports, 750

Epilepsy Patient Evaluations, 751

Psychiatric Symptoms, 753

Traumatic Brain Injury, 754

Evaluating Severity, 754

Outcome Evaluation, 759

Evaluating the Psychosocial Consequences of Head Injury, 759

19. Tests of Personal Adjustment, 767

Projective Personality Tests, 767 Story Telling Techniques, 774

Drawing Tasks, 775

Objective Tests of Personality and Emotional Status, 776

20. Testing for Functional Complaints, 791

Examining for Functional Complaints with Tests in General Use, 792

Individually Administered Tests Sensitive to Functional Complaints, 792

Battery Tests Sensitive to Functional Complaints, 794

Memory Tests Sensitive to Functional Complaints, 795

Personality and Emotional Status Tests for Examining Functional Complaints, 797

Examining Functional Complaints with Special Techniques, 799

Techniques for Examining Suspected Nonmemory Functional Complaints, 799

Techniques for Examining Suspected Functional Memory Complaints, 802

Appendix: Test Publishers and Distributors, 807

References, 808 Test Index, 985 Subject Index, 995