

CONTENTS

LIST OF CONTRIBUTORS	ix
FOREWORD	xi
PREFACE	xiii

PART I. ATTENTION AND SELECTION

Chapter 1. Mechanisms of Attention

Steven W. Keele and W. Trammell Neill

I. Introduction	3
II. Two Kinds of Processing Limitations	5
III. Illustrative Difficulties for Single-Channel Theory	7
IV. Processing Multiple Signals	9
V. Elaborations of Attention Theory	23
VI. The Final Model	40
References	42

Chapter 2. Perceptual Structure and Selection

David E. Clement

I. Introduction	49
II. Measurement of Structure	55
III. Ontogeny of Perceptual Selection	74
IV. General Discussion and Conclusions	80
References	81

Chapter 3. Sorting, Categorization, and Visual Search

Patrick Rabbitt

I. Introduction	85
II. Neisser's Experiments Reevaluated	88
III. Learning and Remembering the Target Set	94
IV. Categorization in Terms of Critical Perceptual Distinctions	96
V. Discriminations between Classes of Letters and Digits: Categorization Independent of Naming	100
VI. Semantic Class and Visual Search	105
VII. The Use of Acoustic Properties of Letter Names to Separate Target and Background Categories in Visual Search	107
VIII. The Bases of Word Superiority Effects in Visual Search for Individual Letters	110
IX. Rapid Serial Visual Presentation of Displays for Visual Search	113
X. Control Processes in Self-Paced Visual Search and Scanning of Text	116
XI. Conclusions	124
References	128

PART II. PATTERN PROCESSING

Chapter 4. Schemes and Theories of Pattern Recognition

Stephen K. Reed

I. Introduction	137
II. Template Theories	139
III. Feature Theories	141
IV. Structural Theories	145
V. Analysis by Synthesis	148
VI. Topological Theories	150
VII. Prototypes	153
VIII. Overview	158
References	160

Chapter 5. Perceptual Processing in Letter Recognition and Reading

W. K. Estes

I. Some Strategic Considerations	163
II. Properties of the Visual System Basic to Reading	165
III. Perception of Individual Letters	170
IV. Perception of Multiple-Letter Displays	180
V. Target-Background Relationships and Category Effects	195
VI. Parallel versus Serial Processing	201
VII. Linguistic Factors in Letter Recognition	205
VIII. Afterthoughts	213
References	214

Chapter 6. Eye Movements and Visual Perception

Geoff D. Cumming

I. Introduction	221
II. Types of Eye Movement	222
III. Measurement of Eye Position	226
IV. The Value of Eye Movements for Perception	231
V. Problems Introduced by Eye Movements	244
References	250

Chapter 7. Perceptual Learning

Richard D. Walk

I. Introduction	257
II. Examples of Perceptual Learning	259
III. Development and Perceptual Learning	262
IV. Theoretical and Research Issues	264
V. Conclusion	289
References	291

Chapter 8. Size, Distance, and Depth Perception

Walter C. Gogel

I. Introduction	299
II. Instances of Stimulus Ambiguity	302
III. Theories of the Resolution of Stimulus Ambiguity	313
IV. Résumé	329
References	331

PART III. ILLUSIONS AND DISORDERS

Chapter 9. Illusions and Hallucinations

Richard L. Gregory

I. Introduction	337
II. Processes of Perception	341
III. Physiological and Cognitive Illusions	343
IV. The Theory of Inappropriate Constancy Scaling	347
V. Concluding Remarks	356
References	357

Chapter 10. Disorders of Perceptual Processing

Francis J. Pirozzolo

I. Introduction	359
II. Lesions of the Visual Pathways	362
III. The Concept of Agnosia	363
IV. Visual Agnosia	364
V. The Somatosensory System and Tactile Agnosia	368
VI. Nociception and "Asymbolia for Pain"	369
VII. Lesions of the Auditory Pathways	370
VIII. Sensory Aphasia	371
IX. Auditory Agnosia	372
X. Related Disorders	374
XI. The Chemical Senses	375
XII. Developmental Disorders of Perceptual Processing	375
XIII. Conclusions	377
References	378
AUTHOR INDEX	385
SUBJECT INDEX	397