## Contents

Pref	face ix		
	I. SYSTEMS AND METHODOLOGY		
1.	A Systems Approach to Research on Aggressive Behavior		
	J. P. Scott		1
	General Principles of Systems Theory  Techniques for the Study of Organizational Processes Applications of the Systems Concept to Current Research on Aggression  7 Systems-Oriented Research on Human Aggression	3	
2.	New Strategies for Aggression Research		
	Neal G. Simon		19
	Hormonal Regulation of Intermale Aggression in Mice: An Example of the Need for Integration 19 The Evaluation of Intermale Aggression in Mice: An Example of the Need for Cohesion 27		

## II. GENETICS, EVOLUTION, AND AGGRESSION

3.	Genetic Architecture and the Evolution of Aggressive Behavio	)r
	J. K. Hewitt and P. L. Broadhurst	37
	Genetic Architecture and Evolution 39 The Analysis of Genetic Architecture 43 The Genetic Architecture of Aggressive Behavior in Mice Selection Studies 47 Crossbreeding Studies 49 Discussion and Conclusions 59	47
4.	Genetic "Artifacts" and Aggressive Behavior	
	Martin E. Hahn	67
-	Introduction 67 Diallel Studies of Aggressive Behavior 73 Summary and Conclusions 86	
5.	Genes and Aggression	
	Kirsti M. J. Lagerspetz and Kari Y. H. Lagerspetz	89
	The Limitations of Human Behavior Genetics 89 Selective Breeding 91 The Measurement of Aggression in Mice 91 Conclusion 98	
6.	Selection for Aggression in a Natural Population	
	Patricia D. Ebert	103
	Aggression in Wild Mice 104 Selection for Interfemale Aggression 106 Other Kinds of Aggression as Correlated Characters 1 Is Aggression a Unitary Trait? 122 Adaptive Functions of Aggression in Natural Populations 123	17

125

Concluding Remarks

	Bruce Svare	129
	Introduction 129 Descriptive and Environmental Factors 130 Neuroendocrine Factors 136 Peptides and Neurotransmitters 140 Genetic Factors 141 Biological Functions of Maternal Aggression 141 Directions for Future Research 143	
	III. NEURAL ASPECTS	
8.	Ethopharmacology of Aggression, Defense, and Defeat	
	Klaus A. Miczek	147
	Historical Background 147 Laboratory Paradigms for Aggression in Animals Multitransmitter Control of Aggression 151 Ethological Analysis of Agonistic Behavior 154 Brain Catecholamines and Aggression 156 Endogenous Opioids and Defeat 161	
9.	Aggressive Behavior: Effects of Neural Modulation By Serotonin	
	Michael H. Sheard	167
	IV. SUMMARY	
10.	Synthesis and New Directions	
	Edward C. Simmel, Martin E. Hahn, and James K. Walters	183

7. Psychobiological Determinants of Maternal

Aggressive Behavior

**Author Index** 

**Subject Index** 

191

199