

## CONTENTS

|                                    |    |
|------------------------------------|----|
| Foreword to the Definitive Edition | 1  |
| Preface to the First Edition       | 11 |

### Chapter 1. The Theory of Natural Selection

1. The theory of natural selection 13
2. The nature of variation 17
3. The eclipse of Darwinism 22

### Chapter 2. The Multiformity of Evolution

1. The heterogeneity of evolution 29
2. The paleontological data 31
3. Evolution in rare and abundant species 32
4. Adaptations and their interpretation 34
5. Adaptation and selection 37
6. The three aspects of biological fact 40
7. The main types of evolutionary process 42

### Chapter 3. Mendelism and Evolution

1. Mutation and selection 47
2. Genes and characters 62
3. The alteration of genic expression 68
4. The evolution of dominance 75
5. Types of mutation 87
6. Special cases: melanism; polymorphism; fluctuating populations 93
7. Mutation and evolution 115

### Chapter 4. Genetic Systems and Evolution

1. The factors of evolution 125
2. The early evolution of genetic systems 131
3. The meiotic system and its adjustment 136
4. The consequences of polyploidy 143
5. Species-hybridization and sex-determination: conclusion 146

### Chapter 5. The Species Problem; Geographical Speciation

1. The biological reality of species 151
2. The different modes of speciation; successional species 170

3. Geographical replacement: the nature of subspecies 174
4. Clines (character-gradients) 206
5. Spatial and ecological factors in geographical divergence 227
6. Range-changes subsequent to geographical differentiation 243
7. The principles of geographical differentiation 259

## Chapter 6. Speciation, Ecological and Genetic

1. Local *versus* geographical differentiation 263
2. Ecological divergence 265
3. Overlapping species-pairs 284
4. Biological differentiation 295
5. Physiological and reproductive differentiation 308
6. Special cases 316
7. Divergence with low competition; oceanic faunas 323
8. Genetic divergence 328
9. Convergent species-formation 339
10. Reticulate differentiation 351
11. Illustrative examples 356

## Chapter 7. Speciation, Evolution, and Taxonomy

1. Different types of speciation and their results 382
2. Species-formation and evolution 387
3. Modes of speciation and systematic method 390

## Chapter 8. Adaptation and Selection

1. The omnipresence of adaptation 412
2. Adaptation and function; types and examples of adaptation 417
3. Regularities of adaptation 430
4. Adaptation as a relative concept 438
5. Preadaptation 449
6. The origin of adaptations: the inadequacy of Lamarckism 457
7. The origin of adaptations: natural selection 466
8. Adaptation and selection not necessarily beneficial to the species 478

## Chapter 9. Evolutionary Trends

1. Trends in adaptive radiation 486
2. The selective determination of adaptive trends 494
3. The apparent orthogenesis of adaptive trends 497
4. Non-adaptive trends and orthogenesis 504

5. The restriction of variation 516
6. Consequential evolution: the consequences of differential development 525
7. Other consequential evolutionary trends 543

## Chapter 10. Evolutionary Progress

1. Is evolutionary progress a scientific concept? 556
2. The definition of evolutionary progress 559
3. The nature and mechanism of evolutionary progress 562
4. The past course of evolutionary progress 569
5. Progress in the evolutionary future 572

Introduction to the Second Edition 579

Introduction to the Third Edition 626

Bibliography 705

Index 740