

# *Contents*

<b>Preface</b>	<b>vii</b>
<b>Acknowledgments</b>	<b>ix</b>
<b>1. The Production of New Substances</b>	<b>1</b>
The Nature of Developmental Processes 3    The Activities of Genes 9 The Control of Gene Activity 14    The Cytoplasmic Elaboration of Substances 36    Conclusion 42	
<b>2. Kinetic Organization and Cellular Ultrastructure</b>	<b>44</b>
Toward a Mathematical Theory of Epigenesis 45    Cytological Structures 51 Autoradiography of Developing Cells 78    The Significance of Ultrastructure 82	
<b>3. Types of Morphogenetic Process</b>	<b>85</b>
Unit-Generated Forms 90    Instruction-Generated Forms 118    Template-Generated Forms 119 Condition-Generated Forms 123    Conclusion 133	
<b>4. Morphogenesis in Single Cells</b>	<b>135</b>
Conclusion 161	
<b>5. Multicellular Morphogenesis</b>	<b>162</b>
In Small Groups of Cells 162    In Tissues 177    Conclusion 197	
<b>6. Biological Patterns</b>	<b>199</b>
All-Over Patterns or Textures 199    Area or Volume Patterns 203 Spot Patterns 215    Conclusion 233	
<b>Epilogue</b>	<b>235</b>
<b>Works Cited</b>	<b>243</b>
<b>Index</b>	<b>257</b>