

# CONTENTS

<b>PREFACE</b>	XI	
<b>ACKNOWLEDGMENTS</b>	XIII	
<b>I</b>	<b>IN THE BEGINNING</b>	
	<b>EVERYTHING EVOLVES, AND EARTH IS VERY OLD</b>	
<b>1</b>	<b>EVERYTHING EVOLVES AND CHANGES</b>	3
	<b>DISCOVERY OF THE EVOLVING UNIVERSE</b>	
<b>2</b>	<b>THE ABYSS OF TIME</b>	16
	<b>THE IMMENSE AGE OF THE EARTH</b>	
<b>II</b>	<b>DARWIN'S EVIDENCE FOR EVOLUTION</b>	
<b>3</b>	<b>EVOLUTION IN ACTION</b>	31
	<b>TRANSFORMATION IN REAL TIME</b>	
<b>4</b>	<b>OUR COMMON BODY PLAN</b>	47
	<b>HOMOLOGY</b>	
<b>5</b>	<b>ONTOGENY RECAPITULATES PHYLOGENY</b>	61
	<b>EVIDENCE IN EMBRYOS</b>	
<b>6</b>	<b>THE SINKING OF NOAH'S ARK</b>	72
	<b>BIOGEOGRAPHY</b>	
<b>7</b>	<b>THE BRANCHING TREE OF LIFE</b>	86
	<b>PHYLOGENY</b>	
<b>8</b>	<b>THE CASE OF THE CRUEL WASPS</b>	97
	<b>NATURE IS NOT MORAL</b>	
<b>9</b>	<b>JURY-RIGGED CONTRIVANCES</b>	108
	<b>NATURE IS NOT OPTIMALLY DESIGNED</b>	

<b>III</b>	<b>GREAT TRANSITIONS IN THE HISTORY OF LIFE</b>	
<b>10</b>	<b>A WHALE OF A TALE</b> VESTIGIAL ORGANS AND WALKING WHALES	121
<b>11</b>	<b>INVASION OF THE LAND</b> AMPHIBIANS CRAWL OUT OF THE WATER	136
<b>12</b>	<b>MISSING LINKS FOUND</b> MACROEVOLUTION AND TRANSITIONAL FOSSILS	150
<b>13</b>	<b>BIRDS WITH TEETH</b> THE DINOSAURS AMONG US	168
<b>14</b>	<b>A HORSE! A HORSE! MY KINGDOM FOR A HORSE!</b> THE EVOLUTION OF EQUINES	179
<b>15</b>	<b>HOW THE GIRAFFE GOT ITS NECK</b> LAMARCK, DARWIN, AND THE LEFT RECURRENT LARYNGEAL NERVE	195
<b>16</b>	<b>HOW THE ELEPHANT GOT ITS TRUNK</b> THE EVOLUTION OF PROBOSCIDEANS	207
<b>IV</b>	<b>EYES AND GENES</b>	
<b>17</b>	<b>A WARM LITTLE POND</b> HOW DID LIFE ORIGINATE?	225
<b>18</b>	<b>GENETIC JUNKYARD</b> MOST OF OUR DNA IS USELESS	241
<b>19</b>	<b>LEGS ON THEIR HEADS</b> HOMEOTIC MUTANTS AND EVO-DEVO	253
<b>20</b>	<b>THE EYES HAVE IT</b> THE EVOLUTION OF PHOTORECEPTION	260
<b>V</b>	<b>HUMANS AND EVOLUTION</b>	
<b>21</b>	<b>A TINKERER, NOT AN ENGINEER</b> ARE HUMANS WELL DESIGNED?	273
<b>22</b>	<b>THE THIRD CHIMPANZEE</b> ARE WE REALLY 99 PERCENT THE SAME?	289
<b>23</b>	<b>THE APE'S REFLECTION</b> ARE HUMANS REALLY THAT DIFFERENT FROM OTHER ANIMALS?	297
<b>24</b>	<b>BONES OF OUR ANCESTORS</b> THE HUMAN FOSSIL RECORD	311
<b>25</b>	<b>THE ONCE AND FUTURE HUMAN</b> ARE HUMANS STILL EVOLVING?	332
	<b>INDEX</b>	345