

Contents

Introduction	5
1: A Different Kind of Space	13
Gravitation	15
Many Galaxies	16
The Big Bang	17
The Universe Undergoes Inflation	19
Black Holes	21
The Dark Universe	24
Dark Energy	26
Supersymmetry	29
Dark Energy Symmetry	32
Primordial Black Holes	35
Conclusions	37
2: Something From Nothing	39
Deeper Puzzles	40
Energy and Gravity	45
Time	47
Conclusions	53
3: What is a Dimension?	55
The Anthropic Principle	59
Multiverse Theories	65
A Complexity Dimension?	67
Emergence	70
Further Questions	75
Quantum Gravity	81
Entropy and the Second Law of Thermodynamics	85
Life, Entropy and Information	88
What Can We Conclude?	94

4: Non-locality	99
The Quantum Puzzle Emerges	101
The Double-Slit Experiment	105
What is the Non-local Ingredient?	114
Wheeler's Delayed-Choice Experiment	115
The EPR experiment	117
Bell's Theorem	121
The Copenhagen Interpretation	126
Observer-Created Realities	127
The Many Worlds Interpretation of Quantum Mechanics	129
Bohm's Interpretation of Quantum Mechanics	130
A Non-material Interpretation of the Quantum State	131
Comparison with Bohm	133
Where Does This Lead Us?	136
5: Consciousness	139
Dualism versus Monism	143
From Descartes to the 20th Century	144
Neuroscience and the Brain	147
The New Materialism	150
The Binding Problem: Unity of Conscious Experience	153
Neural Correlates of Consciousness	154
Phenomenal Qualities	155
Dualism is Stubbornly Persistent	157
Free Will	159
Classical Physics versus Substance Dualism	167
Emergent Materialism is the Answer?	168
Classical Physics versus Quantum Mechanics	169
Quantum Mechanical Indeterminism Represents Mind?	170
Mechanisms of Quantum Consciousness	173
Is There Other Evidence of Quantum Non-locality in Consciousness?	175
A Non-material Theory of Consciousness	180

6: Upward Spirals, Downward Spirals	187
Stress	191
Childhood Adversity and Mental Illness	193
Prenatal Stress	197
How can we Integrate Stress as the Cause of Mental Illness?	198
Emotion	200
Emotional Valence	202
Differentiation and Co-Occurrence	203
Attention	205
Can Non-Material Factors Influence Attention?	206
Internal Attention	207
Depression	209
Positive affect	210
Mood, Attention and Thought are Congruent	210
Decision-Making	214
Downward Spirals	215
Positive Affect—The Upward Spiral	217
Information In; Information Out	218
A Battle of Wills	222
Coping and Maladaptive Coping	223
Antisocial Personality Disorder and Psychopathy	228
Morals	230
Addiction	234
Psychological Time	240
Mania—When Positive Emotion Goes Awry	244
Constructive Thinking—Seymour Epstein	246
Flow	250
Negative Emotions—Destructive or Not?	253
More Reasons for Confusion	255
Conclusions	256
7: Implications	261
Some Words in Favour of Mental Illness	263
Some Practical Advice	264
Appropriateness	266

Information Hygiene	267
The Pursuit of Wisdom	269
Meaning and Purpose	270
Free Will, or Not So Free?	271
Choice	274
Moral Progress	275
PSI Abilities	277
What is Conscious?	278
God	281
Mystical Experience and Meditation	284
Meditation and Samadhi	287
Near-Death Experience	289
Is God in Charge of Everything?	292
Acknowledgements	299
References	301
Index	339