

# CONTENTS

	PAGE
PREFACE	vii
ACKNOWLEDGMENTS	ix
PART ONE: THE ART OF KNOWING	
CHAPTER	
1. OBJECTIVITY	
1. The lesson of the Copernican revolution	3
2. The growth of mechanism	6
3. Relativity	9
4. Objectivity and modern physics	15
2. PROBABILITY	
1. Programme	18
2. Unambiguous statements	18
3. Probability statements	20
4. Probability of propositions	24
5. The nature of assertions	27
6. Maxims	30
7. Grading of confidence	31
3. ORDER	
1. Chance and order	33
2. Randomness and significant pattern	37
3. The Law of chemical proportions	40
4. Crystallography	43
4. SKILLS	
1. The practice of skills	49
2. Destructive analysis	50
3. Tradition	53
4. Connoisseurship	54
5. Two kinds of awareness	55
6. Wholes and meanings	57
7. Tools and frameworks	58
8. Commitment	59
9. Unspecifiability	62
10. Summary	63

*Contents*

PART TWO: THE TACIT COMPONENT

CHAPTER		PAGE
5.	ARTICULATION	
	1. Introduction	69
	2. Inarticulate intelligence	71
	3. Operational principles of language	77
	4. The powers of articulate thought	82
	5. Thought and speech. I. Text and meaning	87
	6. Forms of tacit assent	95
	7. Thought and speech. II. Conceptual decisions	100
	8. The educated mind	102
	9. The re-interpretation of language	104
	10. Understanding logical operations	117
	11. Introduction to problem-solving	120
	12. Mathematical heuristics	124
6.	INTELLECTUAL PASSIONS	
	1. Sign-posting	132
	2. Scientific value	134
	3. Heuristic passion	142
	4. Elegance and beauty	145
	5. Scientific controversy	150
	6. The premisses of science	160
	7. Passions, private and public	171
	8. Science and technology	174
	9. Mathematics	184
	10. The affirmation of mathematics	187
	11. Axiomatization of mathematics	190
	12. The abstract arts	193
	13. Dwelling in and breaking out	195
7.	CONVIVIALITY	
	1. Introduction	203
	2. Communication	204
	3. Transmission of social lore	207
	4. Pure conviviality	209
	5. The organization of society	212
	6. Two kinds of culture	214
	7. Administration of individual culture	216
	8. Administration of civic culture	222
	9. Naked power	224
	10. Power politics	226
	11. The magic of Marxism	227
	12. Spurious forms of moral inversion	233
	13. The temptation of the intellectuals	235
	14. Marxist-Leninist epistemology	237
	15. Matters of fact	239
	16. Post-Marxian liberalism	243

## *Contents*

### **PART THREE: THE JUSTIFICATION OF PERSONAL KNOWLEDGE**

<b>CHAPTER</b>		<b>PAGE</b>
<b>8.</b>	<b>THE LOGIC OF AFFIRMATION</b>	
	1. Introduction	249
	2. The confident use of language	249
	3. The questioning of descriptive terms	250
	4. Precision	251
	5. The personal mode of meaning	252
	6. Assertions of fact	253
	7. Towards an epistemology of Personal Knowledge	255
	8. Inference	257
	9. Automation in general	261
	10. Neurology and psychology	262
	11. On being critical	264
	12. The fiduciary programme	264
<b>9.</b>	<b>THE CRITIQUE OF DOUBT</b>	
	1. The doctrine of doubt	269
	2. Equivalence of belief and doubt	272
	3. Reasonable and unreasonable doubt	274
	4. Scepticism within the natural sciences	275
	5. Is doubt a heuristic principle?	276
	6. Agnostic doubt in courts of law	277
	7. Religious doubt	279
	8. Implicit beliefs	286
	9. Three aspects of stability	288
	10. The stability of scientific beliefs	292
	11. Universal doubt	294
<b>10.</b>	<b>COMMITMENT</b>	
	1. Fundamental beliefs	299
	2. The subjective, the personal and the universal	300
	3. The coherence of commitment	303
	4. Evasion of commitment	306
	5. The structure of commitment: I	308
	6. The structure of commitment: II	312
	7. Indeterminacy and self-reliance	316
	8. Existential aspects of commitment	318
	9. Varieties of commitment	320
	10. Acceptance of calling	321

*Contents*

PART FOUR: KNOWING AND BEING

CHAPTER		PAGE
11.	THE LOGIC OF ACHIEVEMENT	
	1. Introduction	327
	2. Rules of rightness	328
	3. Causes and reasons	331
	4. Logic and psychology	332
	5. Originality in animals	335
	6. Explanations of equipotentiality	340
	7. Logical levels	343
12.	KNOWING LIFE	
	1. Introduction	347
	2. Trueness to type	348
	3. Morphogenesis	354
	4. Living machinery	359
	5. Action and perception	361
	6. Learning	364
	7. Learning and induction	369
	8. Human knowledge	373
	9. Superior knowledge	374
	10. At the point of confluence	379
13.	THE RISE OF MAN	
	1. Introduction	381
	2. Is evolution an achievement?	382
	3. Randomness, an example of emergence	390
	4. The logic of emergence	393
	5. Conception of a generalized field	398
	6. The emergence of machine-like operations	401
	7. First causes and ultimate ends	402
	INDEX	407