

TABLE OF CONTENTS

PREFACE	ix
ACKNOWLEDGEMENTS	xi
SYMBOLS AND ABBREVIATIONS	xiii
1. CORRESPONDENCE PRINCIPLE	1
1.1. Bohr's Principle	1
1.2. The Attitude of Philosophers	2
1.3. A General Methodological Principle in Physics	6
1.4. Descriptive and Normative Versions	8
1.5. Some Logical Difficulties	10
Notes to Chapter 1	11
2. IDEALIZATION AND FACTUALIZATION	13
2.1. Scientific Law and its Implication	13
2.2. Factual and Idealizational Laws	15
2.3. Idealization in Science	17
2.4. The Attitude of Philosophers	19
2.5. Idealization and Factualization	23
2.6. Idealization and Essence	25
2.7. Some Controversial Issues	27
Notes to Chapter 2	28
3. REDUCTION	30
3.1. The Concept of Reduction	30
3.2. Heterogeneous Reduction	31
3.3. Non-Mechanistic Reductionism	33
3.4. Trivial Homogeneous Reduction	35
3.5. Non-Trivial Homogeneous Reduction	36

3.6. Reduction of an Idealizational Law to a Factual One	38
Notes to Chapter 3	40
4. CORRESPONDENCE RELATION	41
4.1. Definition	41
4.2. Simple Implicative Version	42
4.3. Approximative Version	43
4.4. Explanative Version	45
4.5. 'Dialectical' Version	47
4.6. Renewed Implicative Version	49
4.7. Some Formal Features	50
4.8. Correspondence Sequence and Correspondence Network	53
Notes to Chapter 4	54
5. THE PROBLEM OF THE INCOMMENSURABILITY AND RELATIONS AMONG THEORIES	55
5.1. The Claim of Incommensurability	55
5.2. The Problem of Meaning Variance	56
5.3. The Problem of 'Untranslatable' Languages	59
5.4. The Problem of the 'Theory-Ladenness' of Facts	60
5.5. Various Relations Among Theories	63
Notes to Chapter 5	68
6. THE TYPES OF METHODOLOGICAL EMPIRICISM	69
6.1. Inductivism	69
6.2. Hypothetism	71
6.3. Pluralistic Hypothetism	73
6.4. Idealizational Hypothetism	76
6.5. Pluralistic Idealizational Hypothetism	78
6.6. A Confrontation: the Diversity of Methods	79
Notes to Chapter 6	82
7. REVOLUTIONS AND CONTINUITY	83
7.1. Simple Cumulativism (No Revolutions or One Revolution)	83
7.2. Simple Anticumulativism (Permanent Revolution or Occasional Revolutions Without Continuity)	85

7.3. A Dialectical View (Revolutions and Continuity)	86
7.4. The Threshold of Maturity (Two Kinds of Revolutions)	88
7.5. Periods of Evolution and of Revolution	91
7.6. The Concept of Revolution and Anti-Cumulative Changes	95
Notes to Chapter 7	99
 8. RELATIVE AND ABSOLUTE TRUTH	 101
8.1. Relative Truth	101
8.2. Absolute Truths in Science	104
8.3. Truth-Content and Approximate Truth	105
8.4. The Truth of Idealizational Laws and of Their Factualizations	108
8.5. Relative Truth and Essence	110
8.6. Towards the Absolute Truth	111
Notes to Chapter 8	113
 9. INTERNAL AND EXTERNAL HISTORY OF SCIENCE	 114
9.1. Internal and External Factors	114
9.2. The Problem of the Methodological Historicism	118
9.3. Internal History as an Idealization	120
Notes to Chapter 9	123
 BIBLIOGRAPHY	 125
 INDEX OF NAMES	 136