Contents

List of Abbreviations of Marx's Works Introduction	
1. Establishing Phenomena, Claims, and Explanations	1
1.1. Phenomena	1.
1.2. Ecological claims and approaches	1.
1.3. Causes of ecological problems	2
1.3.1. Technology	2
1.3.2. Unintended consequences	3
1.3.3. Industrial accidents	3
1.3.4. Economic growth	30
1.3.5. Market, externalities, and the tragedy of the	Ο.
commons	3
1.3.6. Prisoners' dilemma	43
1.4. Summary	40
2. Ecology, the Social Sciences, and Marxism 2.1. How can we relate Marx to ecological problems?	4
	57
2.1.1. Marx's anthropocentrism	58
2.1.2. Population growth	64
2.1.3. Future generations	65
2.1.4. Unintended consequences and the 'tragedy of the commons'	
2.2. Marx's motivation for his critique	71
2.3. Three Marxist approaches	72
2.3.1 First approache aminaliar 1	75
2.3.1. First approach: capitalist production as a	
cause of ecological problems Excursus on law	75
2.3.2. Second approach: alienation	82
2.3.3. Third approach: man-nature metabolism	88
2.4. The concept of nature	90
2.5. Philosophical anthropology	91
2.5.1. Man as both a natural and social being	98
and as both a natural and social being	QQ

viii Contents

	2.5.2. Human needs	101
	2.5.3. Human nature essential to Marx	102
3	. Technology	107
	3.1. Marx as a student of technology	107
	3.1.1. Technology as part of the human condition	110
	3.1.2. Evolution and technological evolution	114
	3.1.3. Marx's machine definition	122
	3.1.4. The machinery question	127
	3.1.5. Science and technology	128
	3.1.6. What is wrong with machinery?	139
	3.1.7. Progress?	141
	3.2. Evolutionary approaches to technology in	
	economic theory	144
	3.2.1. The behavioural theory of the firm	144
	3.3. Technology as a social system?	147
	3.3.1. Criticisms: system and environment	154
	3.4. Marx: a technological determinist?	157
	3.5. Technological alienation	162
	3.5.1. Technological alienation in the Manuscripts	
	1861–3	162
	3.5.2. How Marx changed his view: Manuscripts	
	1861–3 v. Canital	166
	3.6. Alienation and the division of labour	171
4.	Historical Materialism	180
	4.1. The spectre of functionalism	183
	4.2. Capitalism and machinery as autopointic systems?	192
	4.3. Evolution and Darwinian systems	203
	4.3.1. A machino-capitalist hypercycle	209
	4.3.2. Structural coupling	212
	4.3.3. Summary	217
	4.4. An empirical illustration: the transition from	
	reducinsm to capitalism	217
	4.5. Evolution of technology and social institutions	
	UHUEL ECOLOGICAL Constraints	222
5.	Communism	232
	5.1. I Wo faces of communism	232
	5.7. Labour	238
		~00

Contonto	:
Contents	1X

5.2.1. The critical dimension of the concept of labou	r 238
5.2.2. Labour and enjoyment	239
5.2.3. The realm of necessity	241
5.3. Habermas: Marx between Kant, Fichte, and Hegel	247
5.3.1. Labour and interaction	249
5.4. Messianic Marxism	253
5.4.1. Ernst Bloch: Marxism of technology	253
5.4.2. Walter Benjamin: the resurrection of	
past generations	257
5.5. Conscious control and central planning	262
5.5.1. Marx, Vico, and social complexity	262
5.5.2. Central planning?	266
5.5.3. Social complexity and personal differences	272
5.6. Technology and the limits of the philosophy of the	
subject	277
Conclusion	282
Bibliography	296
Index	319