

Contents

<i>Acknowledgments</i>	x
1 Introduction	1
Part 1 Bioeconomics	
2 Exchange in human and nonhuman societies	9
Adam Smith's zoological digression	9
Symbiotic exchange	11
Kin and nepotistic exchange	14
Mercantile exchange	20
Tentative conclusions	24
3 Classical economics and classical Darwinism	26
Darwin and the Scottish economists: The first point of junction	26
The fundamental economic problem of human evolution	26
Darwin's self-restraint	27
Darwin's principle of utility: The second point of junction	31
Separate approaches to a common puzzle	34
Bootstrap encephalization	34
Diversity of human nature: The third point of junction	35
Wallace's "independent proof"	36
The blunder of Epimetheus	38
The second fundamental problem	41
4 Evolutionary implications of division of labor	44
The capacity for specialization and differentiation	45
The enigma within the enigma of domestication	49
The sexual division of labor	54
The capacity to operate in grand-scale formations	55
Division of labor in insect society	56
The invisible hand	58

5	The feeding ecology	62
	The incredible shrinking gut	62
	Laboratories under sail	62
	The economic approach to food consumption	64
	An adaptive approach to food consumption	65
	The shrinking human gut	66
	Externalization of function	67
	The expensive-tissue hypothesis	68
	Consumption of meat: pro and con	69
	The transition to hunting-gathering	71
	Life cycle versus evolutionary consequences	73
	Runaway arms races in a vertical feeding ecology	74
	The giraffe	75
	The sequoia tree	79
	Incidental advantages and disadvantages	82
6	The origins of nepotistic exchange	84
	Primordial exchange at the lowest levels of organization	84
	Convergent body structures	86
	Analogy as distinct from homology	87
	Bilateral convergence	88
	Multilateral convergence	89
	Mass convergence	90
	Convergent social structures	95
	The primate connection	98
7	Baboon speciation versus human specialization	105
	Parallels in the feeding ecology	105
	Antipredator behavior	110
	Adaptive radiation in the baboons	114
	The “southern ape”	115
	Founder-effect speciation	117
	Trade and adaptive specialization	118

Part 2 Paleoeconomics

8	Departure from the feed-as-you-go strategy	125
	The physical environment	125
	Stone tool technology according to Darwin	128
	Exchange augmented food-sharing	131
9	The origins of market exchange	138
	Bateman's syndrome	138
	The impetus to trade	142
	The nature of commodities and the structure of markets	143
	Fire: What's in a name?	151
10	Domestication of fire in relation to market exchange	153
	Nonhuman use of fire	153
	The question of fuel	155
	Incendiary skills	157
	Provision of fire in the absence of ignition technology	159
	Fire and occupation of caves	162
11	The Upper Paleolithic and other creative explosions	168
	The Upper Paleolithic toolkit	169
	Long-distance trade	172
	Economic and geographic expansions	173
	Monetarization of exchange in relation to symbolic behavior	179
12	Transition to agriculture: the limiting factor	190
	Five unexplained remarkable facts	190
	The history of the problem	192
	Agriculture versus hunting-gathering	194
	The temporal nature of farming	195
	Risk across states of nature	196
	Climates on average	196
	Topography of heat and moisture	198
	The atmospheric fertilizer	200

	Climates at variance: a clue in the ice caps	202
	The Fertile Crescent: a regional case study	207
13	Transition to agriculture: the facilitating factor	212
	The specialization-diversification dichotomy	212
	The question of autarky	212
	The caprine paradox	217
	Agrarian origins of ancient cities	222
	Agriculture: summary	226
	<i>References</i>	228
	<i>Index</i>	237