The Copyright Act forbids the reproduction of works without the permission of rights holders. Unauthorized photocopying has become widespread, causing a decline in book sales and compromising the production of new works by professionals. The goal of the logo is to alert readers to the threat that massive unauthorized photocopying poses to the future of the written work.
LUC-NORMAND TELLIER

URBAN WORLD HISTORY

AN ECONOMIC AND GEOGRAPHICAL PERSPECTIVE

© 2009 – Presses de l’Université du Québec


2009

Presses de l’Université du Québec
Le Delta I, 2875, boul. Laurier, bur. 450
Québec (Québec) Canada G1V 2M2
Table of Contents

List of Figures ................................................................. XIII
List of Maps ................................................................. XV

INTRODUCTION ................................................................. 1

CHAPTER 1
FROM THE BEGINNINGS OF AGRICULTURE AND URBANIZATION TO THE FIRST URBEXPLOSIONS ......................................................... 21
  The Origins and Beginning of Humankind ........................................ 25
The Beginnings of Agriculture .......................................................... 26
  Agriculture and Topodynamic Corridors ........................................ 28
  Agriculture, Mobility, and Urbanization ........................................ 29
Emergence of Urbanization in the Great Corridor ................................. 33
  Appearance of Pre-urban Cities .................................................. 35
Urbanization in the Sumer Region ........................................ 39
Appearance of Urbanization in Egypt .................................... 49
The Strategic Role of the Phoenician Cities ............................. 54
The Strategic Role of the Persian Gulf ................................. 59
The Babylonian Urbexplosion ............................................. 59
The Assyrians and the Tigris Axis ....................................... 62
The Expansion of the Babylonian Urbexplosion ..................... 66
The Greek Challenge ..................................................... 75
Urbanization in the Asian Corridor ..................................... 86
The Indus Valley ......................................................... 88
The Appearance of Urbanization on the Loess Plateau of China 92
The Emergence of Urbanization in America ............................. 96
Agriculture and Pre-Columbian Pottery ............................... 98
Urbanization in the Northern Pre-Columbian Corridor .......... 100
Urbanization in the Southern Pre-Columbian Corridor .......... 106

CHAPTER 2
UNDERSTANDING THE FIRST URBAN REVOLUTION .............. 113
The First Urban Revolution and Networks’ Critical Points 115
The First Urban Revolution and Breaking Points ...................... 117
1. The “Interface” Case ............................................. 118
2. The “Transshipment” Case ....................................... 119
The First Urban Revolution and Central Places ......................... 120
The First Urban Revolution and Network Systems .................... 123
The First Urban Revolution and Agglomeration Economies ........ 128

CHAPTER 3
THE TWO FIRST ECONOMY-WORLDS: THE ROMAN AND CHINESE EMPIRES ...................................................... 131
The Emergence of the Roman Economy-World ........................ 134
The Rise of Rome .................................................... 137
The Consolidation of the Roman Empire ................................ 142
The Triumph of Christianity and the Decline of the Western Roman Empire ......................... 145
The Fall of the Western Roman Empire ................................ 151
The Emergence of the Chinese Economy-World ....................... 154
From the Loess Plateau to the Great Plain of China ..................... 155
The Cities of the Great Plain of China ................................ 159
The Cities of the Red Basin ........................................ 162
The Greatness of the Chinese Economy-World ........................ 164

CHAPTER 4
UNDERSTANDING THE DYNAMICS OF URBAN EVOLUTION .................................................. 167
Topodynamic Evolution and Spatial Competition ...................... 169
Topodynamic Evolution and Management of Municipal Services 172
Topodynamic Evolution and Multiplier Effects ........................ 173
Topodynamic Evolution and Repulsive Forces ........................ 174
Table of Contents

Repulsive Forces and the Aging of Urban Structures ........................................ 177
Repulsive Forces and Polarization .................................................................. 178
Repulsive Forces and Geography ................................................................. 179

CHAPTER 5
THE GREAT EBB: ISLAM OUT TO CONQUER THE GREAT AND ASIAN CORRIDORS ......................................................... 181
From the Fall of Rome to the Advent of Islam ............................................... 185
The Rise of Islam ............................................................................................ 189
The Baghdad Urbexplosion ............................................................................ 195
The Moorish Outpost ...................................................................................... 198
South of the Sahara ......................................................................................... 202
The Eastern Outposts ..................................................................................... 206
Islam Re-Launched by the Turko-Mongol Invasions ..................................... 208
The Non-Military Progression of Islam in the Asian Corridor ...................... 215
The Great Ebb in Southeast Asia and the Far East ........................................ 218

CHAPTER 6
UNDERSTANDING TOPODYNAMIC INERTIA .................................................. 229
Topodynamic Inertia and Agriculture ............................................................ 233
Topodynamic Inertia and Industrialization ...................................................... 234
Topodynamic Inertia and Evolution of Socio-Economic Inequalities ............ 235
Topodynamic Inertia and Cumulative Process of Location Choices ............... 236
The Interaction Between Potentiality and Reality, a Possible Explanation of Topodynamic Inertia ............................................................. 236
A Deterministic Case of Topodynamic Inertia ............................................... 238
The Role of Topodynamic Inertia in Metropolitan and City Development .... 239
Topodynamic Inertia in Urbexplosion Development ...................................... 240
Topodynamic Inertia at the World Level ....................................................... 241
Reversibility of Topodynamic Movements ................................................... 242

CHAPTER 7
THE GREAT EBB: EUROPE’S FIGHT FOR SURVIVAL .................................. 243
The Byzantine Empire ..................................................................................... 245
Russia ............................................................................................................. 253
The Spanish Reconquista .............................................................................. 259
The Resurrection of the West European Urbexplosion .................................. 262
The Forming of France, a Territorial State .................................................... 281
The Expansion of the Germanic Holy Roman Empire .................................. 284
The Gestation of the Northern Europe Urbexplosion .................................... 292

CHAPTER 8
THE DISCOVERY OF AMERICA AND THE RETURN IN STRENGTH OF THE OCCIDENT ......................................................... 297
Building a Bridge Between Europe and America .......................................... 302
The Re-Alignment of the European Economy .............................................. 306
The Rhône, the Rhine, and the St. Gotthard Pass ........................................... 312
The New Pole of Northern Europe: Amsterdam and London ............................ 315
Three Territorial States ...................................................................................... 320
The American Periphery of the New European Economy-World .......................... 329

CHAPTER 9
THE ADVENT OF MOTORIZED TRANSPORTATION
AND THE SECOND URBAN REVOLUTION .......................................................... 351
Liberalism, Prelude to the Industrial Revolution .................................................. 358
The Impact of Motorized Transportation on Urban Systems ............................... 366
The Southeastward Movement in the European Section of the Great Corridor ......... 377
The Wave of Colonization that Overwhelmed Africa ............................................. 383
The European Expansion in Asia ......................................................................... 399

CHAPTER 10
UNDERSTANDING THE IMPACT OF MOTORIZED TRANSPORTATION .......... 417
The Impact on Polarization of Evolving from Animal to Motorized Transportation . 419
Reference, Attraction, and Repulsion Points ......................................................... 419
The Case of a Single Reference Point ................................................................. 422
The Case of Two Reference Points ..................................................................... 423
The Case of Animal Transportation .................................................................. 425
The Case of Relay ............................................................................................... 427
The Case of Motorized Transportation ................................................................ 428
The Case of Three Reference Points, or “Triangle” Case ..................................... 429
The Case of More Than Three Reference Points .................................................. 431
Explaining the Basic Paradox of Space-Economy ................................................. 432
Motors and Networks .......................................................................................... 432
Interdependence of Location Decisions ............................................................... 433
Information ......................................................................................................... 434
Spatial Competition ............................................................................................. 435
The Biased Reductions of Space-Friction ............................................................. 437
Larger Cities Made Possible ............................................................................... 438
Loading/Unloading Costs and Absolute Advantages .......................................... 439

CHAPTER 11
THE AGE OF AUTOMOBILE AND THE TRIUMPH
OF THE AMERICAN CORRIDOR ....................................................................... 441
From London to the Trans-Siberian .................................................................... 446
The Emergence of the American Corridor in North America ............................... 459
The Impact of the American Corridor on Latin America ...................................... 487
From America to Japan and Asia in the American Corridor ................................ 496

CHAPTER 12
UNDERSTANDING TOPODYNAMIC CORRIDORS ........................................ 511
The Creation and Spread of Innovations in the Geographical Space .................. 513
The True Meaning of Topodynamic Corridors ...................................................... 515
CHAPTER 13
POLES AND ROUTES THROUGH HISTORY ........................................ 521
The Evolution of City Locations .................................................. 523
The Evolution in the Form of Cities ............................................ 525
The Evolution of the Form of Communication Networks ............... 530
The Main Categories of Cities .................................................... 531
The Evolution of Centrality ....................................................... 535
Transportation and the Relocation of Activities in the City ............... 538
Are European and Canado-American Cities as Different as It Is Usually Said? ............ 540
Developed and developing cities .............................................. 542

CONCLUSION
THE BROAD PATTERNS OF HISTORY ........................................ 549

BIBLIOGRAPHY ........................................................................ 563

APPENDIX 1 ........................................................................... 575
TABLES OF DEMOGRAPHIC EVOLUTION ................................. 575
Demographic Evolution of Çatalhüyük, Jericho, Jarmo, Eridu, Ur, and Uruk, 7300–300 BC ..................................................... 576
Demographic Evolution of Memphis, Thebes, Byblos, Ugarit, and Tyre, 7300–300 BC ................................................................ 576
Demographic Evolution of Babylon, Ashur, Nimrud, and Nineveh, 7300–300 BC .............................................................. 577
Demographic Evolution of Hattusa, Damascus, Jerusalem, Petra, Susa, and Persepolis, 7300–300 BC ........................................... 577
Demographic Evolution of Mycenae, Troy, Syracuse, Catania, Taranto, and Ephesus, 7300–300 BC .................................................... 578
Demographic Evolution of Athens, Sparta, Thebes, Byzantium, Marseille, and Alexandria, 7300–300 BC ........................................ 578
Demographic Evolution of Ai Khanum, Khotan-Hotian, Harappa, Mohenjo-Daro, and Kalibangan, 2200 BC–AD 1300 ........................... 579
Demographic Evolution of Changan-Xi’an, Kaifeng, Luoyang, Beijing, Zhengzhou, Nanking, and Chengdu, 2200 BC–AD 1300 .................. 579
Demographic Evolution of Mexico, Cuzco, Chan Chan, Teotihuacan, Machu Picchu, Uxmal, Tikal, and Palenque, 100–1500 ............... 580
Demographic Evolution of Constantinople, Rome, Carthage, Lyon, Caesarea, and Nisa, 400 BC–AD 500 ............................................ 580
Demographic Evolution of Baghdad, Constantinople, Córdoba, Cairo, Paris, Fez, Antioch, and Marrakech, 450–1500 ................................. 581
Demographic Evolution of Palermo, Seville, Granada, Adrianople, Sarai, Milan, and Venice, 450–1500 ...................................................... 581
Demographic Evolution of Isfahan, Kairouan, Thessaloniki, Bruges, Mecca, Prague, and Benin, 450–1500 .............................................. 582
Demographic Evolution of Preslav, Ghent, Cologne, Bologna, M’banza Congo, Kiev, and Amalfi, 450–1500 ................................................................. 582
Demographic Evolution of Lisbon, Great Zimbabwe, Timbuktu, Ratisbon, Budapest, and Hamburg, 450–1500 .................................................. 583
Demographic Evolution of Vijayanagar, Delhi, Agra, Ahmadabad, and Surat, 450–1850 ................................................................. 583
Demographic Evolution of Peking-Beijing, Hangzhou, Lahore, Zayton, and Panaji-Goa, 450–1850 ................................................................. 584
Demographic Evolution of Manila, Jakarta, Samarkand, Malacca, Colombo, and Macau, 450–1850 ................................................................. 584
Demographic Evolution of Canton-Guangzhou, Tokyo, Kyoto, Pegu-Bago, Ningbo, Nara, and Angkor, 450–1850 ................................................................. 585
Demographic Evolution of Vienna, Naples, Amsterdam, Madrid, Brussels, Rome, and Bordeaux, 1500–1850 .................................................. 585
Demographic Evolution of Genoa, Florence, Antwerp, Norwich, Cádiz, Versailles, and Basel, 1500–1850 ................................................................. 586
Demographic Evolution of Mexico City, Rio de Janeiro, Lima, Bogotá, Caracas, and Potosí, 1500–1850 ................................................................. 586
Demographic Evolution of New York, Philadelphia, Boston, Charleston, and Quebec City, 1500–1850 ................................................................. 587
Demographic Evolution of Bombay, Shanghai, Calcutta, Bangkok, Karachi, Tehran, Hong Kong, Lagos, and Kinshasa, 1750–2000 ................................................................. 588
Demographic Evolution of Dakar, Belgrade, Ibadan, Tunis, Khartoum, Rotterdam, Zurich, and Kigali, 1750–2000 ................................................................. 589
Demographic Evolution of Madras, Sydney, and Singapore, 1750–2000 ................................................................. 589
Demographic Evolution of Moscow, Saint Petersburg, Berlin, Copenhagen, Warsaw, Stockholm, and Essen, 1825–2000 ................................................................. 590
Demographic Evolution of Tokyo, Mexico City, São Paulo, New York, Los Angeles, and Osaka, 1825–2000 ................................................................. 590
Demographic Evolution of Santiago, Dallas, Toronto, Detroit, Houston, and Minneapolis, 1825–2000 ................................................................. 591
Demographic Evolution of Atlanta, Seattle, Montreal, Vancouver, Pinkiang-Harbin, and Montevideo, 1825–2000 ................................................................. 592

APPENDIX 2
CITIES BY TYPES ................................................................. 593

APPENDIX 3
SILK ROAD NETWORK SYNTHESIS ................................................................. 601

INDEX ................................................................. 603
List of Figures

Figure 1: Evolution of the World Rate of Urbanization (cities having at least two thousand inhabitants) ............................................. 24
Figure 2: Braudel’s Scheme ................................................................. 38
Figure 10.1: Transportation Cost Functions Corresponding to Animal, Relay, and Motorized Transportation ................................. 424
Figure 10.2: Finding the Optimal Location: Animal Transportation with Two Attraction Points ............................................... 426
Figure 10.3: Finding the Optimal Location: Relay Transportation with Two Attraction Points ............................................... 427
Figure 10.4: Finding the Optimal Location: Motorized Transportation with Two Attraction Points ............................................... 429
List of Maps

Map 1:  The Three Topodynamic Corridors ................................................. 15
Map 2:  The Beginnings of Urbanization .................................................... 33
Map 3:  The World of Phoenicians and Greeks ......................................... 55
Map 4:  The Assyrian Empire, the New Babylonian Empire,  
        the Persian Empire, and the Empire of Alexander the Great ............. 63
Map 5:  The Silk Road, the Straight Road, and the Asian Corridor .............. 88
Map 6:  The Two Pre-Columbian Corridors ............................................. 99
Map 7:  The Roman Empire at Its Peak (around AD 100) .......................... 134
Map 8:  The Great Ebb and the Fusion of the Great and Asian Corridors ....... 185
Map 9:  The Great Ebb West of the Persian Gulf .................................... 187
Map 10: The Great Ebb West in the Indian Section of the Great Corridor ....... 211
Map 11: The Great Ebb in the Asian Corridor .......................................... 216
Map 12: The Great Ebb in Southeast Asia and the Far East ....................... 219
<table>
<thead>
<tr>
<th>Map Number</th>
<th>Map Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>The Venetian Empire from the Thirteenth to the Fifteenth Century</td>
<td>274</td>
</tr>
<tr>
<td>14</td>
<td>The New Westward Movement in Europe</td>
<td>307</td>
</tr>
<tr>
<td>15</td>
<td>The Five Main Passes of the Alps</td>
<td>313</td>
</tr>
<tr>
<td>16</td>
<td>The Americas between 1492 and 1825</td>
<td>330</td>
</tr>
<tr>
<td>17</td>
<td>The Epicenter of the Industrial Revolution</td>
<td>354</td>
</tr>
<tr>
<td>18</td>
<td>The Spreading of European Colonialism through the Great Corridor</td>
<td>384</td>
</tr>
<tr>
<td>19</td>
<td>The Spreading of European Colonialism through the Asian Corridor</td>
<td>405</td>
</tr>
<tr>
<td>20</td>
<td>The European Section of the American Corridor</td>
<td>447</td>
</tr>
<tr>
<td>21</td>
<td>Moscow at a Crossroads of the Network Linking the Saracen Route</td>
<td>456</td>
</tr>
<tr>
<td></td>
<td>and the “Route from the Varangians to the Greeks”</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>The American Section of the American Corridor</td>
<td>461</td>
</tr>
</tbody>
</table>
“There really are broad patterns to history, and the search for their explanation is as productive as it is fascinating.”

Jared Diamond

*Guns, Germs, and Steel* (1997), 32
Luc-Normand Tellier obtained a Ph.D. in Regional Science from the University of Pennsylvania in 1973. He founded the Department of Urban Studies and Tourism of the University of Quebec at Montreal in 1976. He is the author of numerous books, and has published in international journals such as the Journal of Regional Science, the Papers of Regional Science, Geographical Analysis, and Environment and Planning A.

Does the long history of urbanization present identifiable regularities through time and space? Are there long-run trends in the development process? In the complex evolution of human societies are there other determining factors than political decisions, statesmen, wars, economic crises, religions, races, cultures, languages, and sociological values? Is the geographical space a simple setting or a major element of the urban world’s evolution? Those are some fundamental questions this book addresses in an original way that mixes historical facts, a world scope, an encyclopedic culture, reflections, and space-economic theory. From Çatalhöyük and Jericho to London, São Paulo, Los Angeles, Johannesburg, Shanghai and Tokyo, it reconstitutes the fascinating journey of the urban evolution.