# HUMAN GEOGRAPHY An Integrated Approach



# HUMAN GEOGRAPHY An Integrated Approach

John Lowe
Eldor Pederson
The George Washington University

John Wiley & Sons

#### Cover photo by Michael Breskin/David Emberling Cover design by Kevin J. Murphy

Copyright © 1983, by John Wiley & Sons, Inc.

All rights reserved. Published simultaneously in Canada.

Reproduction or translation of any part of this work beyond that permitted by Sections 107 and 108 of the 1976 United States Copyright Act without the permission of the copyright owner is unlawful. Requests for permission or further information should be addressed to the Permissions Department, John Wiley & Sons.

#### Library of Congress Cataloging in Publication Data:

Lowe, John Carl, 1936– Human geography.

Includes index.

1. Anthropo-geography. I. Pederson, E. O. (Eldor Olin) II. Title.
GF41.L68 1983 304.2 82-17500
ISBN 0-471-09196-0

Printed in the United States of America

10987654321

# HUMAN GEOGRAPHY An Integrated Approach

## Preface

After many semesters of teaching introductory human geography, we decided to write a textbook that attempts to present current research themes in a coherent and unified fashion rather than as a series of unconnected modules. Moreover, it was our conviction that such a book should be written at a level that would be challenging to students. In this book we try to present human geography as a set of substantive ideas rather than as the proliferation of jargon and gratuitous techniques. The outcome, we hope, is a book that introduces the ideas of human geography in a manner that is indeed challenging and that will encourage students to further investigate the discipline.

The book is intended for a one-semester or one-quarter introductory course in human geography. It is designed as a unit with a flow of major ideas so that each chapter builds on ideas presented in earlier chapters. It provides an introduction to upper-division courses in the major systematic divisions of human geography. Suggested readings are

listed at the end of each chapter for students who wish to pursue a topic in greater depth.

As in any writing project, many people are owed a debt of gratitude, including Shirley, Tamara, and Denise for their perseverence. Butch Cooper, our acquiring editor, and Katie Vignery, his successor, have seen the manuscript through the "House of Wiley." Several anonymous reviewers provided useful comments as the initial manuscript was revised for publication. David Cuff, Mark Mattson, and the Cartographic Laboratory at Temple University designed and drafted all graphic materials. Janet Cole endured the frustrations of typing all drafts of the manuscript, and Stephen Eule good humoredly served as "gofer" and proofreader. Finally, our colleagues in the Department of Geography and Regional Science put up with closed doors and sullen faces during much of the past year.

> John Lowe Eldor Pederson

## Contents

PROLOGUE 1	Resource Images and Resource Utilization 21		
DADT A DEDOCIVINO	Summary 23		
PART A PERCEIVING ENVIRONMENTS 3	Chapter 2 Mental Maps 24		
Chapter 1 Images and the Environment 5	Distance and Images 24  The Image of Distance 24		
Environmental Images 5  Static Characteristics of Images 7	Distance Decay and Environmental Images 27		
Dynamic Characteristics of Images 9  Images and Actions 10	Individual Images and Mental Maps 29  Elements of Mental Maps 29		
Evaluating Environmental Hazards 14  Distribution and Perception of Hazard 14  Responses to Specific Hazards 16	Structure of Mental Maps 32  Mental Maps and Behavior 36  Mental Maps as Motivation 37		
Responses to Environment as Hazard 18  Evaluating Natural Resources 19  Time, Location, and Resource Evaluation 20	Spatial Search 38  Mental Maps and Decision Making 40  Summary 41		

PART B MOVING IN SPACE 43	Summary 85
Chapter 3 Individual Travel 45	Chapter 5 Migration 86
Time, Space, and Travel 45  Time and Geography 45  Time Budgets and Activity Routines 48  Meshing Space and Time 52  Activity Spaces 53	Space and Migration 86  Distance Bias 86  Directional Bias 89  Time and Migration 93  Cyclical Migration 93  Long-Term Migration 95
Concept of Activity Spaces 53  Elements of Activity Spaces 56  Transportation Choices and Activity Spaces 60  Technological Constraints 60  Economic Constraints 62	Chain Migration 98  Modeling Migration 102  Graphic Models 103  Migration Propensities 105  Social Gravitation 106  Summary 109
Travel Regularities 64	
Travel Regularities 64 Summary 65	Chapter 6 Commodity Flows 110
Summary 65  Chapter 4 Information Flows 66  Individual Information Flows 66  Sources of Information 66  Information Environments and Information	Chapter 6 Commodity Flows 110  The Bases of Spatial Interaction 110  Elements of Interaction 110  Commodity Flows as Interaction 112  Complementarity 115
Summary 65  Chapter 4 Information Flows 66  Individual Information Flows 66  Sources of Information 66  Information Environments and Information Fields 67  Social Networks 73  Characteristics of Social Networks 73	Chapter 6 Commodity Flows 110  The Bases of Spatial Interaction 110  Elements of Interaction 110  Commodity Flows as Interaction 112  Complementarity 115  Resource Endowments 115  Regional Specialization 116  Transferability 119

PART C CHOOSING		Transportation and Plant Location 167
LOCATIONS 131		Industrialization and Urbanization 169
Chapter 7 Transportation		Markets and Industrial Location 169
Networks 133		Infrastructure and Industrial Agglomeration 169
Evolution of Transportation Networks	133	Industrialization and Urban Growth or
Goals in Transportation Development	133	Decline 174
Patterns in Network Evolution 137		Summary 175
A Model of Transportation Network Evolution 139		Chapter 9 Systems of Cities 177
Structure of Transportation Networks	141	Evolution of Urban Systems 177
Characteristics of Transportation Networks 141		Functions of Cities and Urban Systems 177  Patterns in Urban System Evolution 181
Evaluating Transportation Networks	143	
Locational Impacts of Transportation	148	
Transportation and Economic Activity	148	Periodic Trading Systems 184  Retail Trade and Urbanization 187
Transportation and Cultural Patterns	149	Wholesale Trade and Urbanization 189
Transportation and Political		
Integration 151		
Summary 152		Social Organizations and Urban Systems 190
Chapter 8 Patterns of		Urbanization and Culture 195
Industrialization 154		Urbanization Strategies 196
Evolution of Industrialization 154		Summary 199
Emergence of Modern Industry 154		01 10 0 1 11 1 200
Industrial Location in Capitalist		Chapter 10 Symbolic Location 200
Economies 156		Ideals and the Organization of Space 200
Industrial Location in Noncapitalist Economies 160		The Proper Organization of Space 200
Elements of Plant Location 162		Ideals and Reality 203
Resources and Plant Location 162		Sacred Spaces 207
Labor and Other Factors of Plant		Sanctified Spaces 207
Location 165		Sanctification of Spaces 210

Secular Spaces 212	Communication and Political Subdivision 253		
"Disneyfication" and "Museumization" 213	3 Dat 311 end/0-201		
Profane Spaces 216	Links and Barriers 253		
Summary 219	Structuring Political Communication 254		
	Political Decisions and Location 256		
PART D PARTITIONING SPACE 221	Location of Political Centers 256		
TAKI B TAKING GIAGE 221	Location of Political Boundaries 258		
Chapter 11 Land Allocation 223	Summary 261		
Land-Use Patterns 223			
Segregation and Compatibility of Land Uses 223	Chapter 13 Social Structure and Spatial Processes 262		
Centrality and Land-Use Intensity 226	Social Goals, Social Systems, and Location 262		
Location and Demand 230	Inequality and Location 262		
Properties of Location 230	Social Systems and Location 266		
Demand for Land 232			
Processes of Land Allocation 237	Goals of Efficiency and the Private Sector 270		
Capitalist Allocation 238	The Nature of Locational Efficiency 270		
Noncapitalist Allocation 240 Summary 244	Efficient Locations and Locational Conflict 273		
Summary 244	Goals of Equity and the Public Sector 274		
Chapter 12 Control of Space 245	The Nature of Spatial Equity 275		
Patterns in Political Space 245	Equitable Locations and Public Policy 277		
The Geometry of Political Space 245	Summary 279		
Social Space and Political Space 248			
Stability and Change in Political Space 249	INDEX 281		

## **PROLOGUE**

From the time geography first emerged as a modern discipline, human geographers have studied a wide diversity of topics. Research has ranged from examining soil erosion caused by human activities; studying the redistribution of animal species due to human migration; analyzing the geometry of urban place location; to undertaking the mathematical modeling of travel behavior. Over time, certain major research themes have emerged. and several of these have become central to the discipline. It is the goal of this book to introduce the themes that are most important to contemporary geographical research along with themes that are of continuing interest.

At first glance, the titles of articles in major geographical journals straddle a wide array of themes, but a closer look reveals that several dominant ideas underlie most of them. Key among them is the recognition that human behavior does lead to regular patterns in the usage of the earth's surface. Consequently, some geographers have been pri-

marily concerned with aspects of behavior, including such topics as mental images and maps, time budgets and activity spaces, and social networks and communication. Complementing these endeavors, other geographers have focused on spatial distributions of human activities such as manufacturing, agriculture, and urbanization and on the nature of the transportation networks that link these activities together.

It is this combined perspective on behavior and location that differentiates human geography from cognate social-science disciplines. This perspective allows geographers to tackle problems in a novel manner that can lead to interesting and socially useful findings. In a variety of circumstances ranging from international relations to neighborhood development, research in human geography has made important contributions to private decisions and to public policy.

This book is strongly oriented toward the presentation of human geography as a research discipline. It strives to introduce both research themes that have already made important contributions and those that show promise of expanding the horizons of the discipline and increasing its utility. To this end, the book includes many examples drawn from recent geographical literature; thus the overall focus is on the contemporary intellectual thrusts of the field of human geography. This has required a careful editing of topics, meaning some once-popular ones are not discussed because geographers no longer treat these as important research themes and write little if anything about them.

Contemporary human geography is not a mere cataloging of facts and figures about societies and places. Instead it is an effort to understand behavior and its locational implications, making it a strong unified research discipline with interrelated ideas that are common to all of its subfields. For example, the images of space held by individuals are important to their personal and localized behavior, but such images are also vital to the activities of large social groups over large territories. Likewise, centrality as an element of locational patterns is evidenced in many contexts, such as the focus of individual behavior on home and the identification of central locations as sacred space by societies.

For the newcomer to human geography, an understanding of themes and ideas is far more important than familiarity with techniques and methods. Since this book is intended for just such an audience, it emphasizes themes and ideas. Jargon can be a major barrier to understanding a discipline, and for that reason, this book attempts to limit its technical language to those terms that have no ready substitutes and are essential to the further study of human geography.

Because human geography is a unified research discipline, it has some basic ideas that must be examined in sequence—ideas which are the foundations of others and must, con-

sequently, be examined first. The sequential development of ideas, and of research themes, requires a systematic approach to the discipline. Therefore this book is organized so that the most fundamental ideas are the first to be presented, while later chapters deal with major variants of those ideas. Just as geography is unified, the book is intended to be read as a coherent unit, not as a series of unconnected modules.

The logic of organization is primarily based on the key ideas of the discipline, but the book is also arranged so that the scale of analysis begins with an emphasis on individuals and their behavior, leading to a consideration of social collectives and their behavior in subsequent chapters. At each of the scales of analysis, patterns of spatial organization are examined, along with the factors that lead to them. In this manner, human behavior is linked to the organization and utilization of space, and throughout the emphasis is on regularities of behavior and of the spatial patterns they create.

The behavior of individual human beings is the fundamental factor in the structure of societies and in the organization of space. That behavior, in turn, is based upon perceptions of the environment, the subject of the first part of the book. Only from those perceptions, and the images and mental maps they create, can individuals make decisions that lead to movement in space. That movement, in its turn, requires the choice of locations for activities, choices which are increasingly dependent on the dynamics of the social collective. That collective is also responsible for the partitioning of space both for economic activities and for political purposes. This sequence—perceiving environments, moving in space, choosing locations, and partitioning space—becomes the organizing framework of the book.

# PERCEIVING ENVIRONMENTS

## CHAPTER ONE

### IMAGES AND THE ENVIRONMENT

#### **ENVIRONMENTAL IMAGES**

Each child has a unique image of the world. The map in Figure 1-1, drawn by a 10-yearold child, is her attempt to render her world image on paper. The map is centered on the area between the child's home and school (in contrast to maps drawn by younger children, which tend to be centered on their homes). Specifically identified are the homes of friends, the YMCA, the public swimming pool and playgrounds, and the neighborhood candy store; all places important to this child. The locational relationships of these places may be distorted, since the girl is translating the image into the conventional format of a map. As the map shows, this child's world extends over only a few square kilometers and has an irregular boundary beyond which the image is so vague as to be unmappable.

An adult's world image normally encompasses a larger territory and contains a larger number and greater variety of places and activities than a child's. Moreover, adult

members of most social groups, unlike children, tend to share a collective image of their world. Figure 1-2, based on the collective image of the world once held by members of the Yoruk tribe in northern California, is characteristic of views held by small and isolated groups. For this fishing tribe, the river was the most important feature of the world, and the center of that world was located near the branching of the river. Frequent experience gave tribal members firsthand knowledge of an area about 250 kilometers in diameter, beyond which experience was limited and strictly secondhand. The known territory, occupying the bulk of the mapped image, was bounded by an ocean (or oceans); the characteristics of the world outside this zone were partly depicted but were only dimly perceived. Unlike the child's image, which was bounded by the limits of frequent experience, the collective image of this tribe included territory beyond the limits of direct observation.

As social groups become larger and more sophisticated, their world image en-

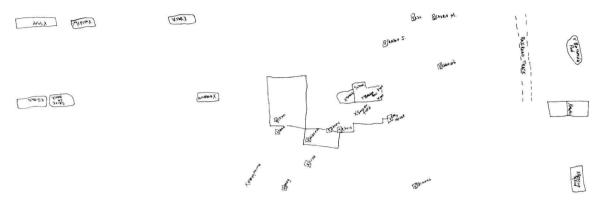
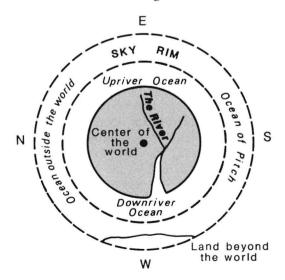


FIGURE 1-1 A Child's Image of Her World.

compasses a larger territory in which some distant features are more clearly perceived. Figure 1-3 is a simplified map of Victorian Britain's world image. This world is divided into two parts, one of which, "the Land Hemisphere" located inside the circle, contains half of the globe's surface area and the

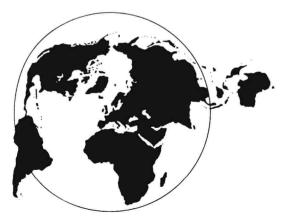
FIGURE 1-2
The Yurok Tribe's Image of the World.



bulk of its land masses. This "Land Hemisphere" is shown as centered on the British Isles, an image of an era when "the sun never set on the British Empire."

This sequence of examples represents a progression from a child's image to the world view of an imperial state. Although reflecting very different perspectives, the three examples have several characteristics in common. The self-centeredness of the child's image has an analogue in the group-centered

FIGURE 1-3 Victorian Britain's Image of the World.



images of social bodies, as evidenced by the focus of each map on a feature or location important to the individual or group. Images are constructed outwardly from features or locations most important to the observer. Although the scale varies from a few square kilometers to the entire earth, the image is clearest for those areas considered to be the most important. As an individual matures or a social group becomes larger and more sophisticated, the area encompassed by the clear image is enlarged.

The three maps just examined are attempts to represent mental images. Of necessity, such graphic representations are abstractions and simplifications of complex images. Mental images are the individual's or group's constructs of phenomena that have been experienced either directly or indirectly. Such images are appraisive both as they differentiate the importance of elements and as they evaluate the quality of those elements. The appraisive qualities of images are difficult to display on maps, but they are most important in their impact on human behavior. This chapter is concerned with mental imagery as a motivating force of behavior, especially behavior in the physical environment.

#### Static Characteristics of Images

If asked to describe Antarctica, most North Americans would offer a few general comments to the effect that it is cold, remote, and icy. In contrast, the same people would describe their home neighborhoods in considerable detail, descriptions which would include not just general physical aspects but also social characteristics. The image of Antarctica, for most people, is a casual one based on tidbits of information collected haphazardly. A similarly casual, but stronger, image of the Midwest is held by those easterners who fly over it on the way to the West Coast.

They catch glimpses through an airplane window and hear about the Midwest on radio and television. The weak image of Antarctica is formed from sources other than personal observation. The easterner's stronger mental image of the Midwest is based partly on personal observation, but most of it comes from secondary information. The image of the home neighborhood, in contrast, is constructed from regular personal encounters supplemented with copious supplies of other types of information. The more frequently one comes in contact with a specific area, the more information can be collected about it, and the sharper the image becomes. In the aggregate, images of nearby places tend to be stronger and more detailed than those of more distant places.

When mapmakers try to create details in images of distant places, those details are often fanciful attempts at filling gaps in knowledge. A Chinese view of Africa in the fourteenth century (Figure 1-4), for example, suggests some knowledge about the shape of the coast and the existence of major landmarks, including coastal cities and high mountain peaks. The location of these features, however, is largely unspecified, and the characteristics are placed haphazardly. Common to many images, spaces for which there is no information tend to be filled with fantasy. For most people in fourteenth-century China, Africa was at, or beyond, the edge of the known world. They viewed the world from their own vantage point. Africa was nearly as remote to nineteenth-century Europeans, who filled its interior with myriad fanciful features. That image was altered toward the end of the century as the search for commodities produced information about interior Africa.

The content of images and the manner in which the world is observed are dependent upon attitudes about the relationships be-



FIGURE 1-4
A Chinese View of Africa in the Fourteenth Century.

Source: P. Wheatley, "The Land of Zanj: Exegetical Notes on Chinese Knowledge of East Africa Prior to A.D. 1500," in R. W. Steel and R. M. Prothero, eds., Geographers and the Tropics: Liverpool Essays, Longmans, London, 1964, p. 158. Reprinted by permission.

tween human beings and nature. Historically, and in different parts of the world, people have adopted different sets of attitudes toward nature itself and toward the human role in it. These range from viewing human beings as helpless pawns in a chaotic and dangerous world to the belief that nature is orderly and subject to human control. Within societies that believe nature to be controllable, some individuals have such reverence for the physical environment that they hold any human-induced change to be wrong. Other groups have a scorn for the natural environment and consider it a basic human goal to change it.

The attitude toward wilderness areas among contemporary North Americans varies significantly. Some groups, such as the Sierra Club, essentially see wilderness as "sacred space" and consider any but the most minimal human activity to be sacrilegious. At the opposite extreme are people who view wilderness as little more than an untapped potential source of timber and minerals, who are willing to allow virtually any activity to take place there. Both of these attitudes reflect fundamental philosophies on the role of human beings in nature—philosophies that, in turn, mold images.