Wiley Visualizing

VISUALIZING Human Geography

Alyson L. Greiner

2nd Edition





WILEY

SECOND EDITION

VISUALIZING HUMAN GEOGRAPHY

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WILEY

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Preface

How Is Wiley Visualizing Different?

Wiley Visualizing differs from competing textbooks by uniquely combining three powerful elements: a visual pedagogy, integrated with comprehensive text, the use of authentic situations and issues from the National Geographic Society collections, and the inclusion of interactive multimedia in the *WileyPLUS* learning environment. Together these elements deliver a level of rigor in ways that maximize student learning and involvement. Each key concept and its supporting details have been analyzed and carefully crafted to maximize student learning and engagement.

1. Visual Pedagogy. Wiley Visualizing is based on decades of research on the use of visuals in learning (Mayer, 2005).[1] Using the Cognitive Theory of Multimedia Learning, which is backed up by hundreds of empirical research studies, Wiley's authors select visualizations for their texts that specifically support students' thinking and learning—for example, the selection of relevant materials, the organization of the new information, or the integration of the new knowledge with prior knowledge. Visuals and text are conceived and planned together in ways that clarify and reinforce major concepts while allowing students to understand the details. This commitment to distinctive and consistent visual pedagogy sets Wiley Visualizing apart from other textbooks.

2. Authentic Situations and Problems. Through Wiley's exclusive publishing partnership with National Geographic, *Visualizing Human Geography* has benefited from National Geographic's more than century-long recording of the world and offers an array of remarkable photographs, maps, media, and film from the National Geographic Society collections. These authentic materials immerse the student in real-life issues in human geography, thereby enhancing motivation, learning, and retention (Donovan & Bransford, 2005).[2] These authentic situations, using high-quality materials from the National Geographic Society collections, are unique to Wiley Visualizing.

3. Interactive Multimedia. Wiley Visualizing is based on the understanding that learning is an active process of knowledge construction. *Visualizing Human Geography* is therefore tightly integrated with *WileyPLUS*, our online learning environment that provides interactive multimedia activities in which learners can actively engage with the materials. The combination of textbook and *WileyPLUS* provides learners with multiple entry points to the content, giving them greater opportunity to explore concepts, interact with the material, and assess their understanding as they progress through the course. Wiley Visualizing makes this online *WileyPLUS* component a key element of the learning and problem-solving experience, which sets it apart from other textbooks whose online component is a mere drill-and-practice feature.

Wiley Visualizing and the *WileyPLUS* Learning Environment are designed as a natural extension of how we learn

Visuals, comprehensive text, and learning aids are integrated to display facts, concepts, processes, and principles more effectively than words alone can. To understand why the visualizing approach is effective, it is first helpful to understand how we learn.

1. Our brain processes information using two channels: visual and verbal. Our *working memory* holds information that our minds process as we learn. In working memory we begin to make sense of words and pictures and build verbal and visual models of the information.
2. When the verbal and visual models of corresponding information are connected in working memory, we form more comprehensive, or integrated, mental models.
3. After we link these integrated mental models to our prior knowledge, which is stored in our *long-term memory*, we build even stronger mental models. When an integrated mental model is formed and stored in long-term memory, real learning begins.

The effort our brains put forth to make sense of instructional information is called *cognitive load*. There are two kinds of cognitive load: productive cognitive load, such as when we're engaged in learning or exert positive effort to create mental models; and unproductive cognitive load, which occurs when the brain is trying to make sense of needlessly complex content or when information is not presented well. The learning process can be impaired when the amount of information to be processed exceeds the capacity of working memory. Well-designed visuals and text with effective pedagogical guidance can reduce the unproductive cognitive load in our working memory.

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[1] Mayer, R. E. (Ed.) (2005). *The Cambridge Handbook of Multimedia Learning.* New York: Cambridge University Press.
[2] Donovan, M.S., & Bransford, J. (Eds.) (2005). *How Students Learn: Science in the Classroom.* The National Academy Press. Available online at http://www.nap.edu/openbook.php?record_id=11102&page=1.

Wiley Visualizing is designed for engaging and effective learning

The visuals and text in *Visualizing Human Geography 2e* are specially integrated to present complex processes in clear steps and with clear representations, organize related pieces of information, and integrate related information with one another. This approach, along with the use of interactive multimedia, provides the level of rigor needed for the course and helps students engage with the content. When students are engaged, they're reading and learning, which can lead to greater knowledge and academic success.

Research shows that well-designed visuals, integrated with comprehensive text, can improve the efficiency with which a learner processes information. In this regard, SEG Research, an independent research firm, conducted a national, multisite study evaluating the effectiveness of Wiley Visualizing. Its findings indicate that students using Wiley Visualizing products (both print and multimedia) were more engaged in the course, exhibited greater retention throughout the course, and made significantly greater gains in content area knowledge and skills, as compared to students in similar classes that did not use Wiley Visualizing.[3]

The use of *WileyPLUS* can also increase learning. According to a white paper titled "Leveraging Blended Learning for More Effective Course Management and Enhanced Student Outcomes" by Peggy Wyllie of Evince Market Research & Communications[4], studies show that effective use of online resources can increase learning outcomes. Pairing supportive online resources with face-to-face instruction can help students to learn and reflect on material, and deploying multimodal learning methods can help students to engage with the material and retain their acquired knowledge. *WileyPLUS* provides students with an environment that stimulates active learning and enables them to optimize the time they spend on their coursework. Continual assessment/remediation is also key to helping students stay on track. The *WileyPLUS* system facilitates instructors' course planning, organization, and delivery and provides a range of flexible tools for easy design and deployment of activities and tracking of student progress for each learning objective.

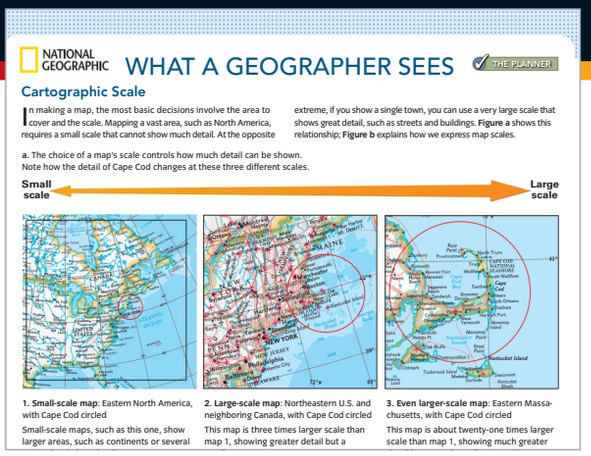


Figure 1: What a Geographer Sees: Cartographic Scale (Ch. 1) Through a logical progression of visuals and graphic features such as the arrow and circles, this illustration directs learners' attention to the underlying concept.

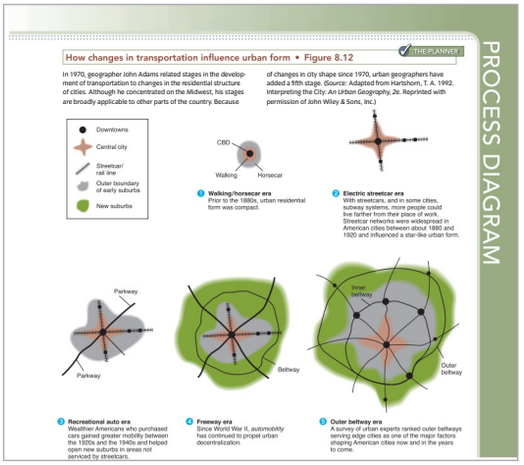


Figure 2: How changes in transportation influence urban form (Figure 8.12) Textual and visual elements are physically integrated. This eliminates split attention (when we must divide our attention between several sources of different information).

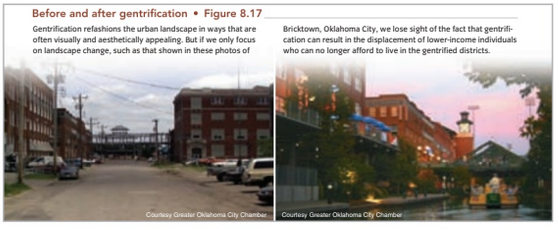


Figure 3: Before and after gentrification (Figure 8.17) Photos are paired so that students can compare and contrast them, thereby grasping the underlying concept.

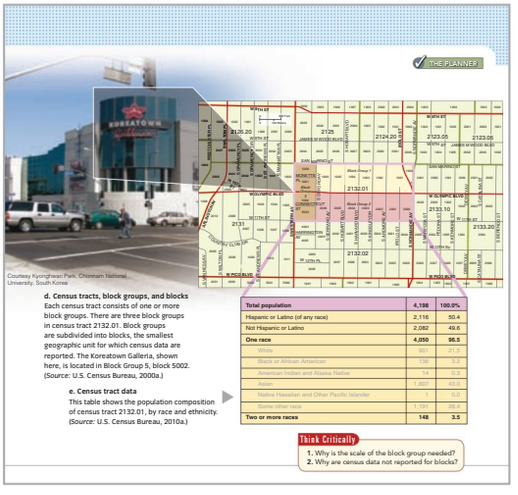


Figure 4: What a Geographer Sees: U.S. Census Geography (Ch. 6) From reality to abstraction: Linking a photo of a place to its position on census tracts and then showing the data derived from that tract helps students understand how geographic data are produced.

[3] SEG Research (2009). Improving Student-Learning with Graphically Enhanced Textbooks: A Study of the Effectiveness of the Wiley Visualizing Series. Available online at www.segmeasurement.com/

[4] Peggy Wyllie (2009). Leveraging Blended Learning for More Effective Course Management and Enhanced Student Outcomes.

Guided Chapter Tour

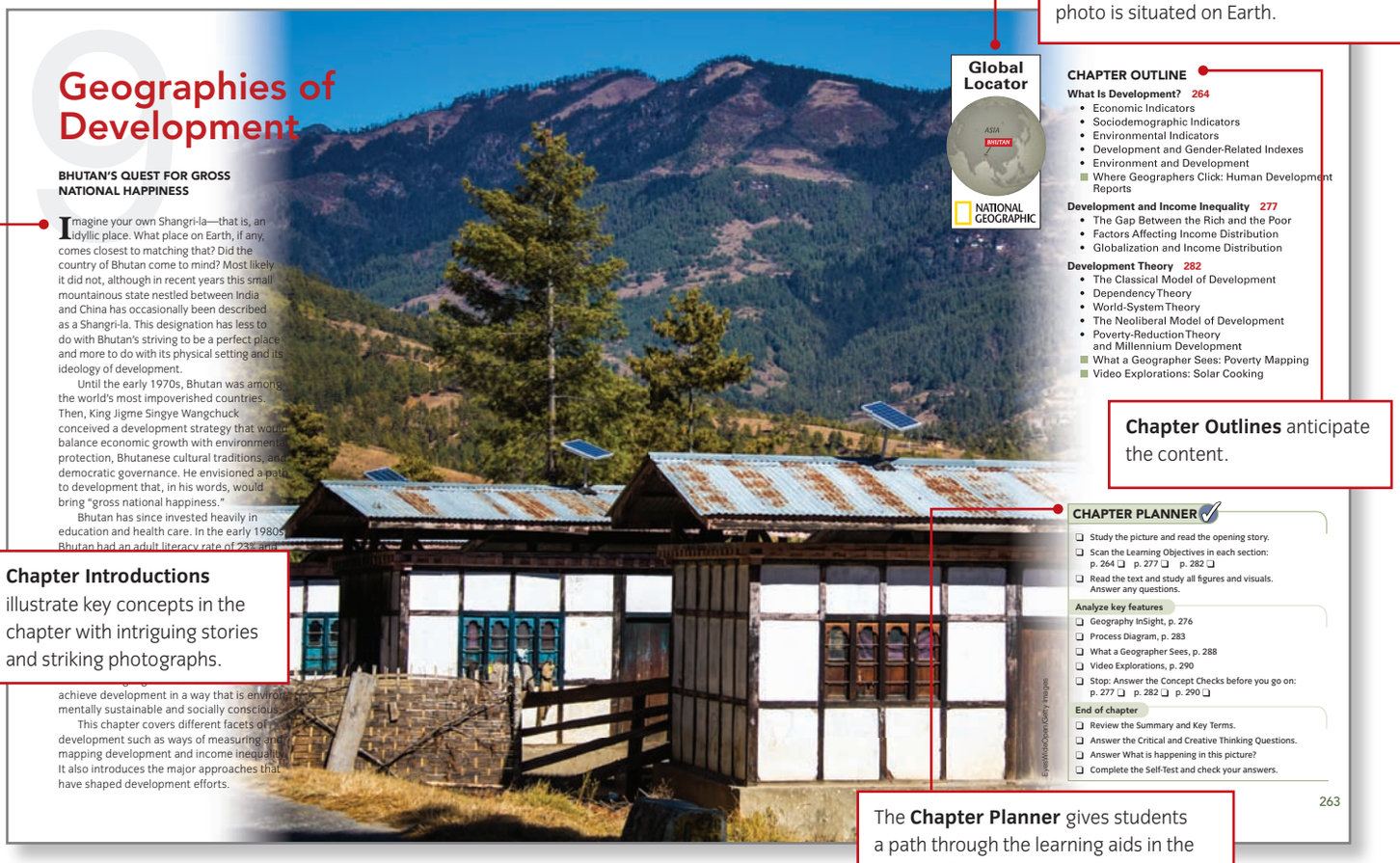
How Are the Wiley Visualizing Chapters Organized?

Student engagement requires more than just providing visuals, text, and interactivity—it entails motivating students to learn. Student engagement can be behavioral, cognitive, social, and/or emotional. It is easy to get bored or lose focus when presented with large amounts of information, and it is easy to lose motivation when the relevance of the information is unclear. Wiley Visualizing and *WileyPLUS* work together to reorganize course content into manageable learning objectives and relate it to everyday life. The design of *WileyPLUS* is based on cognitive science, instructional design, and extensive research into user experience. It transforms learning into an interactive, engaging, and outcomes-oriented experience for students.

The content in Wiley Visualizing and *WileyPLUS* is organized in learning modules. Each module has a clear instructional objective, one or more examples, and an opportunity for assessment. These modules are the building blocks of Wiley Visualizing.

Each Wiley Visualizing chapter engages students from the start

Chapter opening text and visuals introduce the subject and connect the student with the material that follows.



Global Locator Maps, prepared specifically for this book by the National Geographic Society cartographers, help students visualize where the area depicted in the photo is situated on Earth.

Chapter Outlines anticipate the content.

Chapter Introductions illustrate key concepts in the chapter with intriguing stories and striking photographs.

The **Chapter Planner** gives students a path through the learning aids in the chapter. Throughout the chapter, the Planner icon prompts students to use the learning aids and to set priorities as they study.

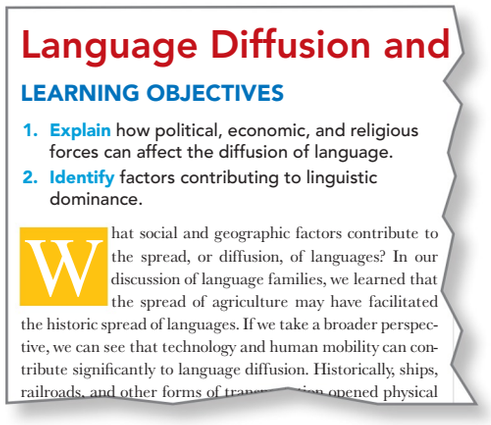
WileyPLUS

Experience the chapter through a *WileyPLUS* course. The content through *WileyPLUS* transports the student into a rich world of online experience that can be personalized, customized, and extended.

Wiley Visualizing media guides students through the chapter

Wiley Visualizing in *WileyPLUS* gives students a variety of approaches—visuals, words, illustrations, interactions, and assessments—that work together to provide students with a guided path through the content. But this path isn't static: It can be personalized, customized, and extended to suit individual needs, and so it offers students flexibility as to how they want to study and learn.

Learning Objectives at the start of each section indicate in behavioral terms the concepts that students are expected to master while reading the section.



Language Diffusion and

LEARNING OBJECTIVES

1. **Explain** how political, economic, and religious forces can affect the diffusion of language.
2. **Identify** factors contributing to linguistic dominance.

What social and geographic factors contribute to the spread, or diffusion, of languages? In our discussion of language families, we learned that the spread of agriculture may have facilitated the historic spread of languages. If we take a broader perspective, we can see that technology and human mobility can contribute significantly to language diffusion. Historically, ships, railroads, and other forms of trans[illegible]ion opened physical

WileyPLUS

Every content resource is related to a specific learning objective so that students will easily discover relevant content organized in a more meaningful way.

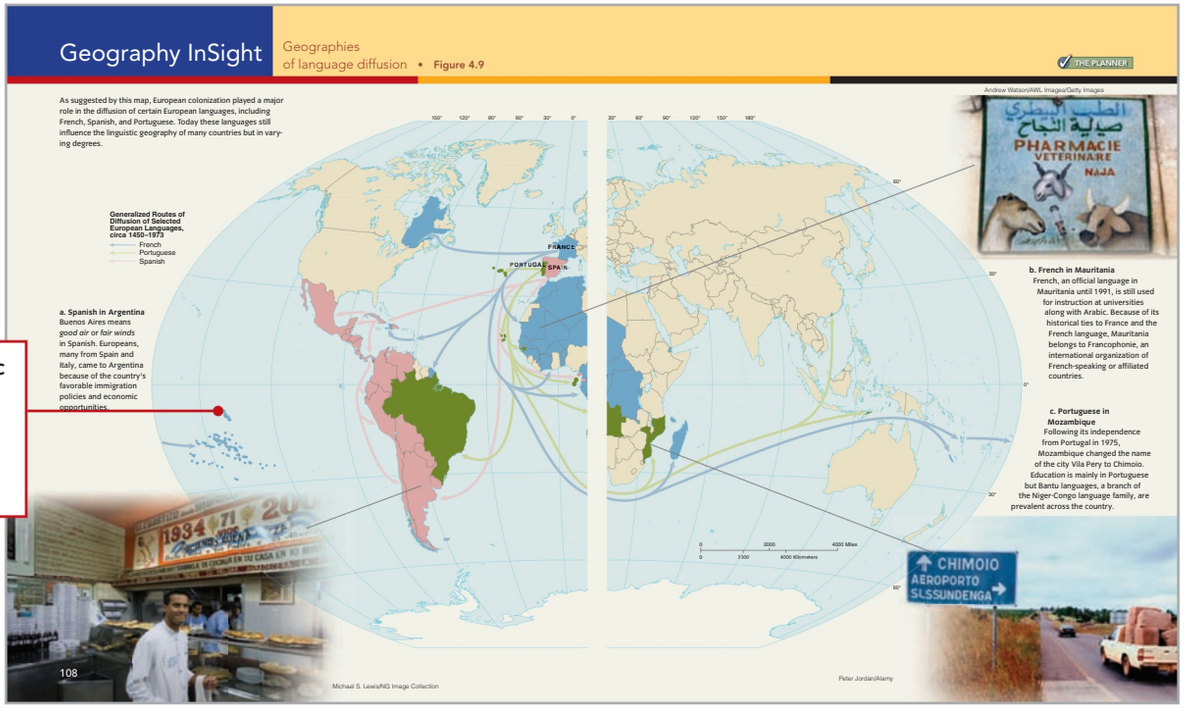
Process Diagrams provide in-depth coverage of processes correlated with clear, step-by-step narrative, enabling students to grasp important topics with less effort.

WileyPLUS

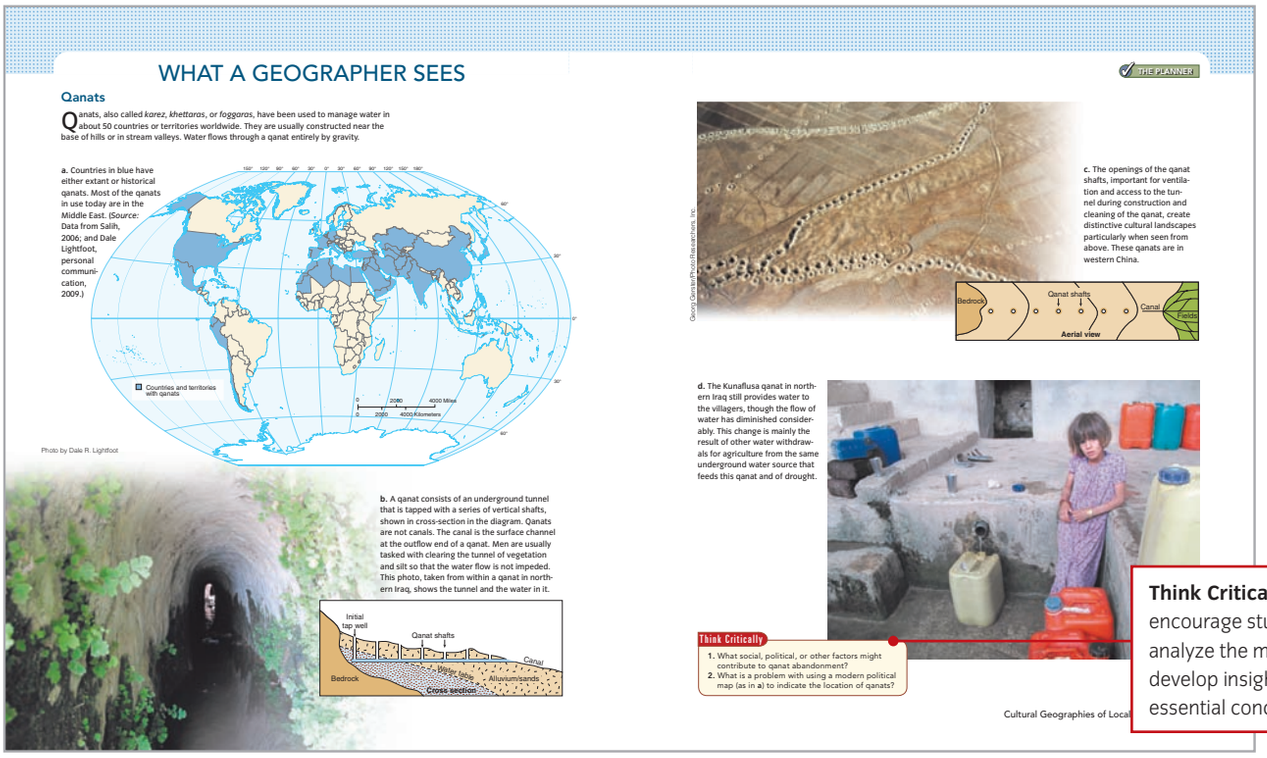
Interactive Process Diagrams provide additional visual examples and descriptive narration of a difficult concept, process, or theory, allowing the students to interact and engage with the content. Many of these diagrams are built around a specific feature such as a Process Diagram.

Geography InSights are multipart visual features that focus on a key concept or topic in the chapter, exploring it in detail or in broader context using a combination of photos, diagrams, maps, and data.

Maps from the **National Geographic** collection and maps created for this text by NGS cartographers immerse the student in a variety of real-life issues in human geography.



What a Geographer Sees highlights a concept or phenomenon that would stand out to geographers. Photos and figures are used to improve students' understanding of the usefulness of a geographic perspective and to enable students to apply their observational skills to answer questions.



Think Critically questions encourage students to analyze the material and develop insights into essential concepts.

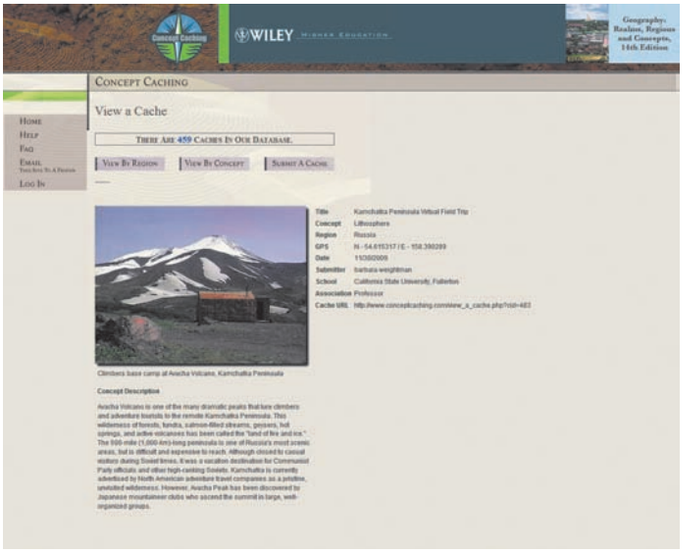
In each chapter, the **Video Explorations** feature, researched by Joy Adams of the Association of American Geographers, showcases one of more than 30 **National Geographic videos** from the award-winning NGS collection. The videos are linked to the text and provide visual context for key concepts, ideas, and terms addressed in the chapter.

Where Geographers Click showcases a website that professionals use and encourages students to try out its tools.

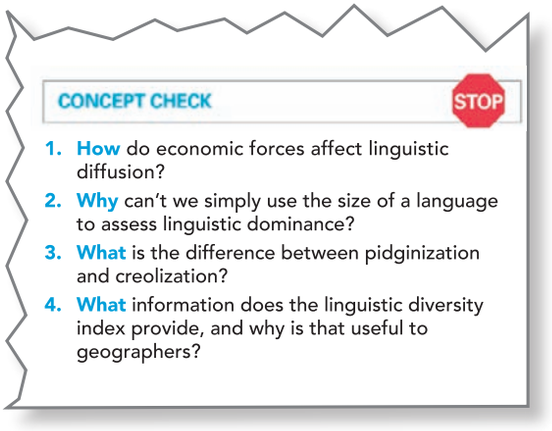
WileyPLUS

Streaming videos are available to students in the context of *WileyPLUS*, and accompanying assignments can be graded online and added to the instructor gradebook.

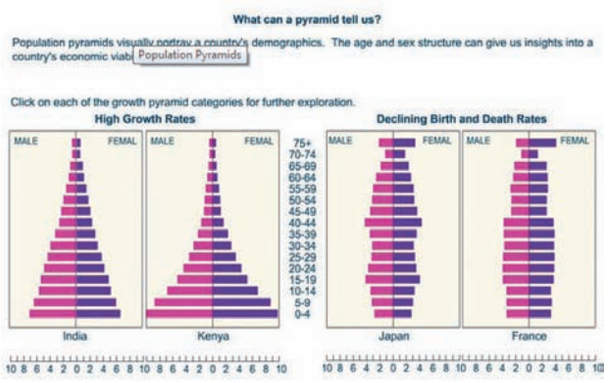
In concert with the visual approach of the book, **www.ConceptCaching.com** is an online collection of photographs that explores places, regions, people, and their activities. Photographs, GPS coordinates, and explanations of core geographic concepts are "cached" for viewing by professors and students alike. Professors can access the images or submit their own by visiting the website. Caches on the website are integrated in the *WileyPLUS* course as examples to help students understand the concepts.



Coordinated with the section-opening **Learning Objectives**, at the end of each section **Concept Check** questions allow students to test their comprehension of the learning objectives.



Geo Media Library is an interactive media source of animations, simulations, and interactivities allowing instructors to visually demonstrate key concepts in greater depth.



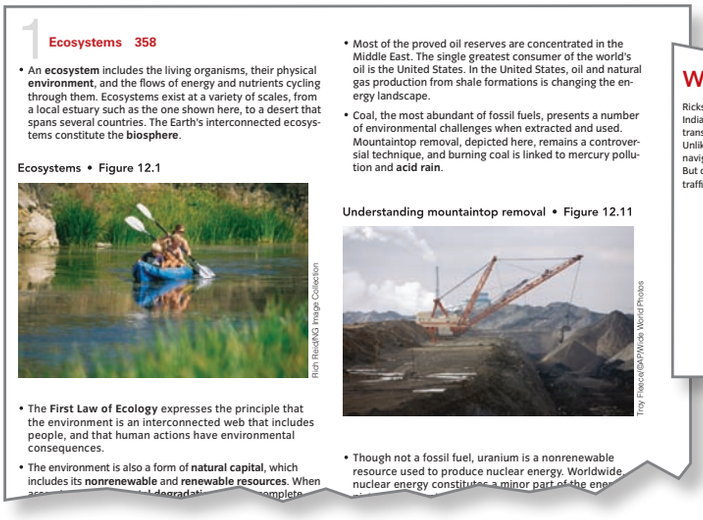
WileyPLUS In **Google Earth™ Links, Tours, and Activities**, photos from the *WileyPLUS* eBook are linked from the text to their actual location on the Earth using Google Earth. Tours and activities created by professors engage students with geographic concepts addressed in the text. Contributing professors include Randy Rutberg, Hunter College (New York); Jeff DeGrave, University of Wisconsin-Eau Claire; and James Hayes-Bohanan, Bridgewater State University.

WileyPLUS At the end of each learning objective module, students can assess their progress with independent practice opportunities and quizzes. This feature gives them the ability to gauge their comprehension and grasp of the material. Practice tests and quizzes help students self-monitor and prepare for graded course assessments.

Student understanding is assessed at different levels

Wiley Visualizing with *WileyPLUS* offers students lots of practice material for assessing their understanding of each study objective. Students know exactly what they are getting out of each study session through immediate feedback and coaching.

The **Summary** revisits each major section, with informative images taken from the chapter. These visuals reinforce important concepts.



1 Ecosystems 358

- An **ecosystem** includes the living organisms, their physical **environment**, and the flows of energy and nutrients cycling through them. Ecosystems exist at a variety of scales, from a local estuary such as the one shown here, to a desert that spans several countries. The Earth's interconnected ecosystems constitute the **biosphere**.

Ecosystems • Figure 12.1

Rich Reid/NGI Image Collection

- The **First Law of Ecology** expresses the principle that the environment is an interconnected web that includes people, and that human actions have environmental consequences.
- The environment is also a form of **natural capital**, which includes its **nonrenewable** and **renewable resources**. When

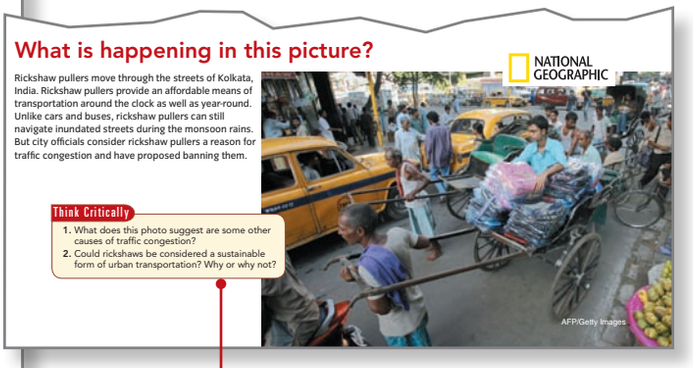
- Most of the proved oil reserves are concentrated in the Middle East. The single greatest consumer of the world's oil is the United States. In the United States, oil and natural gas production from shale formations is changing the energy landscape.
- Coal, the most abundant of fossil fuels, presents a number of environmental challenges when extracted and used. Mountaintop removal, depicted here, remains a controversial technique, and burning coal is linked to mercury pollution and **acid rain**.

Understanding mountaintop removal • Figure 12.11

Troy Fleece/Getty/AP/Wide World Photos

- Though not a fossil fuel, uranium is a nonrenewable resource used to produce nuclear energy. Worldwide, nuclear energy constitutes a minor part of the ener

What is happening in this picture? presents an uncaptioned photograph that is relevant to a chapter topic and illustrates a situation students are not likely to have encountered previously.



What is happening in this picture?

NATIONAL GEOGRAPHIC

Rickshaw pullers move through the streets of Kolkata, India. Rickshaw pullers provide an affordable means of transportation around the clock as well as year-round. Unlike cars and buses, rickshaw pullers can still navigate inundated streets during the monsoon rains. But city officials consider rickshaw pullers a reason for traffic congestion and have proposed banning them.

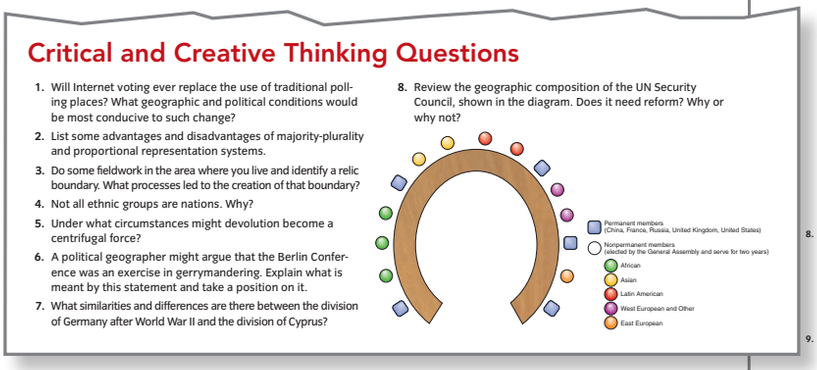
AFP/Getty Images

Think Critically

1. What does this photo suggest are some other causes of traffic congestion?
2. Could rickshaws be considered a sustainable form of urban transportation? Why or why not?

Think Critically questions ask students to apply what they have learned in order to interpret and explain what they observe in the image.

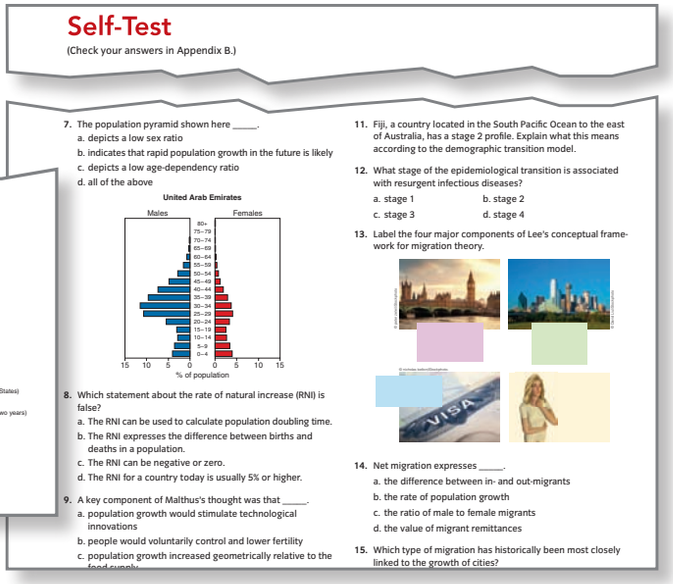
Critical and Creative Thinking Questions challenge students to think more broadly about chapter concepts. The level of these questions ranges from simple to advanced; they encourage students to think critically and develop an analytical understanding of the ideas discussed in the chapter.



Critical and Creative Thinking Questions

1. Will Internet voting ever replace the use of traditional polling places? What geographic and political conditions would be most conducive to such change?
2. List some advantages and disadvantages of majority-plurality and proportional representation systems.
3. Do some fieldwork in the area where you live and identify a relic boundary. What processes led to the creation of that boundary?
4. Not all ethnic groups are nations. Why?
5. Under what circumstances might devolution become a centrifugal force?
6. A political geographer might argue that the Berlin Conference was an exercise in gerrymandering. Explain what is meant by this statement and take a position on it.
7. What similarities and differences are there between the division of Germany after World War II and the division of Cyprus?
8. Review the geographic composition of the UN Security Council, shown in the diagram. Does it need reform? Why or why not?

Permanent members (China, France, Russia, United Kingdom, United States)
Nonpermanent members (elected by the General Assembly and serve for two years)
African
Asian
Latin American
West European and Other
East European



Self-Test

(Check your answers in Appendix B.)

7. The population pyramid shown here _____.
   a. depicts a low sex ratio
   b. indicates that rapid population growth in the future is likely
   c. depicts a low age-dependency ratio
   d. all of the above

United Arab Emirates
Males Females
% of population

8. Which statement about the rate of natural increase (RNI) is false?
   a. The RNI can be used to calculate population doubling time.
   b. The RNI expresses the difference between births and deaths in a population.
   c. The RNI can be negative or zero.
   d. The RNI for a country today is usually 5% or higher.
9. A key component of Malthus's thought was that _____.
   a. population growth would stimulate technological innovations
   b. people would voluntarily control and lower fertility
   c. population growth increased geometrically relative to the

11. Fiji, a country located in the South Pacific Ocean to the east of Australia, has a stage 2 profile. Explain what this means according to the demographic transition model.
12. What stage of the epidemiological transition is associated with resurgent infectious diseases?
    a. stage 1 b. stage 2
    c. stage 3 d. stage 4
13. Label the four major components of Lee's conceptual framework for migration theory.

VISA

14. Net migration expresses _____.
    a. the difference between in- and out-migrants
    b. the rate of population growth
    c. the ratio of male to female migrants
    d. the value of migrant remittances
15. Which type of migration has historically been most closely linked to the growth of cities?

Visual end-of-chapter **Self-Tests** pose review questions that ask students to demonstrate their understanding of key concepts.

Why *Visualizing Human Geography 2e*?

We live in an ever-changing world in which geographical knowledge is central to the well-being of our communities and society. Perhaps nowhere is the urgency of geographical knowledge made clearer to us than through issues involving the local, national, and global impacts of climate change; the earthquake, tsunami, and nuclear disaster in Japan; or the civil war in Syria. Simultaneously, technological innovations continue to open new horizons in mapping and techniques for visualizing geographic information that enable us to see, explore, and understand local and global processes as never before. What a challenging and invigorating time to be either a student or an instructor of geography.

Geographic literacy

Visualizing Human Geography 2e provides a fresh, new pathway for building geographic literacy and introducing students to the richness of geography, including its many different approaches, perspectives, techniques, and tools. Geographic literacy seeks to endow students with geographic and analytical skills to be creative and capable decision makers and problem solvers. More specifically, geographic literacy includes:

1. fostering the skills of spatial analysis so that students gain an understanding of the importance of scale and can evaluate and interpret the significance of spatial variation;
2. enhancing students' comprehension of the interconnectedness of social and environmental dynamics, and the implications of this for people's livelihoods, their use of the Earth, and environmental change;
3. cultivating global awareness in students and exposing them to divergent views so they are prepared and equipped to participate in an increasingly interconnected world; and
4. educating students about the advantages and limitations of tools such as GIS and GPS in the acquisition and use of geographic information.

A fundamental premise guiding the presentation of material in this book is that such key geographical concepts as place, space, and scale cannot be divorced from a study of process. In other words, questions of why and how are vital to our understanding of where activities, events, or other phenomena are located. Thus, every chapter contains at least one Process Diagram in order to show the diverse factors and complex relations among them that drive social and environmental change.

Human geography is well suited to a visually oriented approach for three reasons. First, maps and images are fundamental tools of geographers that help to reveal patterns or trends that might not otherwise be apparent. Second, within the practice of human geography there is a longstanding tradition of studying cultural landscapes for evidence about such processes as diffusion, urbanization, or globalization in order to more fully understand social difference and to assess human use of the Earth. Third, many human geographers are interested in representation, including the kinds of images that are used by different agencies and entities to characterize places, regions, people, and their activities. Therefore, a visual approach enables a more complete instructional use of photographs, maps, and other visually oriented media to explore and evaluate the significance of different representations.

Other features of this book include:

- content that reflects the latest developments in geographic thought;
- coverage of geographical models and theory as well as their real-world applications;
- top-notch cartography;
- accurate and up-to-date statistics;
- an appendix devoted to understanding map projections.

Organization

Visualizing Human Geography 2e is a college-level textbook intended for use in introductory human or cultural geography courses. Students need not have had any previous coursework in geography to use this book. The structure of the book is based on a 12-chapter framework suitable for institutions using either the semester or quarter system. The chapters are arranged according to conventional practice. Globalization and gender issues are covered throughout the book. The outline below provides a brief overview of the content of each chapter.

- **Chapter 1, What Is Human Geography?** This foundational chapter introduces students to the discipline of geography and the subfield of human geography. It covers the key concepts of nature, culture, place, space, spatial diffusion, spatial interaction and globalization, and scale. One section of the chapter explains and gives examples of the applications of geographic tools including remote sensing, GPS, and GIS. Students are also introduced to possible careers in geography.
- **Chapter 2, Globalization and Cultural Geography.** This chapter expands on the process of globalization introduced in Chapter 1, then moves to the cultural impacts of globalization such as the diffusion of popular culture and local responses to it. The chapter also explores the commodification of culture through case studies of the diamond industry, representations of indigenous culture, and world heritage. The chapter uses the term *local culture* instead of *folk culture* and examines geographies of local knowledge, including traditional medicine.

- **Chapter 3, Population and Migration.** Such fundamental concepts as population density, fertility, mortality, life expectancy, and their regional differences are discussed and explained in this chapter. Population pyramids, the rate of natural increase, and the demographic transition model are used to examine population change. The chapter also introduces theories about population growth, resource use, food insecurity, and migration, and discusses the patterns of global migration.
- **Chapter 4, Geographies of Language.** Linguistic diversity is an important theme throughout this chapter. Present-day and historical factors help anchor the discussion of the distribution of languages and language families. The relationships among linguistic dominance, status, geographic space, and language endangerment are also covered. The chapter closes with a discussion of dialect geography and toponyms.
- **Chapter 5, Geographies of Religion.** The contrasting geographies of six major religious traditions are discussed in this chapter: Judaism, Christianity, Islam, Hinduism, Buddhism, and Sikhism. The concept of civil religion is introduced and is used to explore the emergence of sacred places and spaces. The chapter addresses the tension between modernism and traditionalism in religion, geographical aspects of religious law, and the origins, diffusion, and globalization of Renewalism. The concept of geopiety provides one way of considering the connections among religion, nature, and landscape.
- **Chapter 6, Geographies of Identity.** Chapters 4, 5, 6, and 7 cover different facets of identity, and this chapter expressly examines race, ethnicity, sexuality, and gender. The chapter treats race as a social construction and examines geographies of racism produced in South Africa during apartheid. The chapter also addresses the complexity of ethnicity, the representation of ethnicity and identity on censuses, theories of ethnic interaction, ethnic conflict, and environmental justice. The section on sexuality and gender challenges students to think about the geographic implications of a heterosexual norm, and the persistence of gender roles and gender gaps.
- **Chapter 7, Political Geographies.** Crucial to this chapter are the development of the state, the geographical characteristics of states, and the geographical implications of centripetal and centrifugal forces as well as separatism and devolution. Discussions of the United Nations and European Union provide contrasting studies of supranational organizations. The topic of global geopolitics is explored through a mix of traditional and contemporary theories as well as globalization and terrorism. Students are introduced to the fundamentals of electoral geography and ways in which cultural landscapes can be used to convey political power and ideologies.
- **Chapter 8, Urban Geographies.** This chapter opens with a discussion of the different types of urban settlements, global patterns of urbanization, the development of megacities and primate cities, and urban hierarchies. The next section of the chapter focuses on models of urban structure. This is followed by a study of the impact of public policy on residential change and urban redevelopment. The extent of urban poverty and the causes of slum formation are detailed, and the chapter closes with a discussion of trends in urban planning.
- **Chapter 9, Geographies of Development.** Students learn what development is, what makes it a normative project, and how it can be measured using development indicators or indexes. The chapter discusses the geography of income inequality, one expression of uneven levels of development, then turns to an examination of the evolution of development theory. Students are introduced to dependency theory, world-system theory, neoliberalism, and poverty-reduction theory, among others, and their geographical ramifications. Students also learn about the technique of poverty mapping.
- **Chapter 10, Changing Geographies of Industry and Services.** This chapter explains distinctions among primary, secondary, tertiary, quaternary, and quinary types of industry. It introduces commodity dependency and staple theory. Students learn about the origins and diffusion of the Industrial Revolution as well as the impact of Fordism and flexible production on manufacturing in the core. The chapter distinguishes between outsourcing and offshoring, and addresses the emergence of newly industrialized economies, export-processing zones, and the globalization of commodity chains. The chapter also examines the process of deindustrialization, characteristics of postindustrial societies, changing patterns of employment in manufacturing and services, and gender mainstreaming.
- **Chapter 11, Agricultural Geographies.** This chapter follows the chapter on industry because agriculture has been and is still strongly influenced by technological change and systems of industrial production. The chapter identifies three major agricultural revolutions and distinguishes between the Green Revolution and the Gene Revolution. Students are encouraged to think about types of agriculture as agricultural systems, and the global distribution of several examples of subsistence and commercial agriculture is discussed. The chapter also covers the impacts of agriculture on the environment, sustainable agricultural practices, the impact of globalization on agriculture and dietary practices, and the causes of the recent global food crises.
- **Chapter 12, Environmental Challenges.** The nature and functioning of ecosystems provides a framework for this chapter. A discussion of the concept and process of environmental degradation leads to an examination of Garrett Hardin's work on the tragedy of the commons and common property resources more broadly. The chapter covers the geographical aspects of the distribution, use, and consumption of all major nonrenewable and renewable energy resources. Students learn about the greenhouse effect, global warming, carbon footprints, and land-use and land-cover change. The chapter closes with a discussion of international policies on greenhouse gas reductions.

New to this edition

This Second Edition of *Visualizing Human Geography* incorporates new content and pedagogical features, including:

- **Up-to-date content.** Throughout the text, the information and data have been updated to reflect the most recent data available at the time of the revision. All world maps have been revised to show the newest country, South Sudan.

- **Enhanced visuals.** The photos, maps, charts, and diagrams in every chapter have been scrutinized for their clarity, relevance, and pedagogical effectiveness. Many maps and diagrams have been revised, and a wide variety of new photos have been added throughout. Multipart figures now consistently include overarching captions that clarify the relations among the different parts of the figures. In support of the book's emphasis on active learning, additional critical thinking questions have been incorporated into a number of photo and figure captions.

- **New *Ask Yourself* questions.** These are short answer closed-ended questions that are linked to a visual. Each chapter has one or more of these features. The *Ask Yourself* questions are designed to help students engage with the core content presented in the visual. The use of closed-ended questions with answers provided at the back of the book ensures that students have a way to obtain immediate feedback on their comprehension of concepts at different points in the chapter.

- **New coverage of important topics.** This edition continues the practice of incorporating examples and discussions from relevant current affairs.

- **Chapter 1** includes new visuals that enhance the coverage of the scope of geography, including the relationship among human and physical geography, environment–society dynamics, and the major subfields of geography.

- **Chapter 3** features a completely revised, updated, and expanded section on migration with several new photos and illustrations. Instead of using a regional framework, the migration section is now organized around the following topics: migration principles, internal migration, international migration, and immigration to the United States. This new organization now includes a discussion of amenity migration, counterurbanization, historical and contemporary patterns of immigration to the United States, and the categories of immigrants on which the U.S. immigration system is based.

- **Chapter 4** has been revised to include an expanded discussion of the Kurgan and Anatolian hypotheses about the origins of the Indo-European language family.

- **Chapter 6** expands the coverage of gender issues with a new discussion of women in the military. The chapter also includes new visuals in its coverage of ethnicity and the U.S. Census, and incorporates an expanded discussion of the conflict in Darfur.

- **Chapter 7** introduces new content on the euro-zone crisis, including the topics of sovereign debt and austerity, and features updated coverage of gerrymandering.

- **Chapter 8** revisions include an augmented discussion of redlining and the impact of neighborhood rating systems on the social geography of the city, as well as a discussion of housing patterns and residential segregation. New material has been added on urban poverty and the collapse of the housing market in the United States.

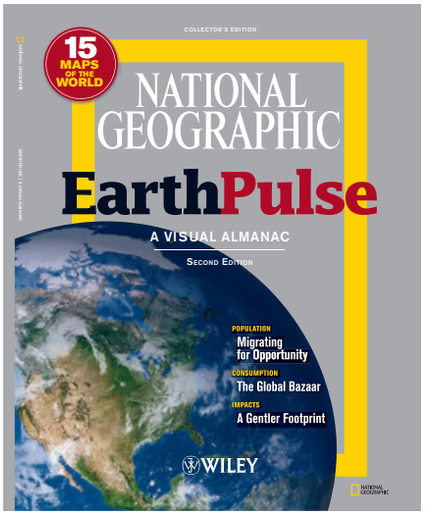
- **Chapter 9** has been revised to incorporate the newest development indexes, specifically the inequality-adjusted human development index and the gender inequality index. This chapter also includes new illustrations to help students understand the changes in levels of development experienced by different countries over time. A new *Geography InSight* feature focuses on environment, tourism and development in Costa Rica. A discussion of the Occupy Wall Street movement has been added to the section on income inequality.

- **Chapter 10** has been reorganized to incorporate expanded coverage of services, including a discussion of growth in the service sector. A new *Geography InSight* feature enhances the discussion of types of services, and a revised *Process Diagram* relates steps in the manufacturing processes to manufacturing value added and profit captured using the example of an iPad.

- **Chapter 12** now includes a new section on the production of oil and natural gas from shale as well as a *Geography InSight* feature that examines the new geography of oil and natural gas production in the United States, landscape transformation associated with it, and the advantages and disadvantages of fracking. The chapter also includes revised sections on global environmental change and nuclear energy.

Also available

Earth Pulse 2e. Utilizing full-color imagery and National Geographic photographs, *EarthPulse* takes you on a journey of discovery covering topics such as *The Human Condition, Our Relationship with Nature, and Our Connected World*. Illustrated by specific examples, each section focuses on trends affecting our world today. Included are extensive full-color world and regional maps for reference. *EarthPulse* is available only in a package with *Visualizing Human Geography*. Contact your Wiley representative for more information or visit www.wiley.com/college/earthpulse.



How Does Wiley Visualizing Support Instructors?

WILEY VISUALIZING™

The Wiley Visualizing site hosts a wealth of information for instructors using Wiley Visualizing, including ways to maximize the visual approach in the classroom and a white paper titled "How Visuals Can Help Students Learn," by Matt Leavitt, instructional design consultant. You can also find information about other texts published in our program. Visit Wiley Visualizing at www.wiley.com/college/ visualizing.

Wiley Visualizing

Wiley Custom Select

Wiley Custom Select gives you the freedom to build your course materials exactly the way you want them. Offer your students a cost-efficient alternative to traditional texts. In a simple three-step process create a solution containing the content you want, in the sequence you want, delivered how you want. Visit Wiley Custom Select at http://customselect.wiley.com.

National Geographic Videos

Researched by Joy Adams of the Association of American Geographers the **Video Explorations** presented in each chapter of the textbook, are just some of the 30+ NGS videos available to provide visual context for key concepts, ideas, and terms addressed in the textbook. Streaming videos are available to students in the context of *WileyPLUS*, and accompanying assignments can be graded online and added to the instructor gradebook.

Book Companion Site www.wiley.com/college/greiner

All instructor resources (the Test Bank, Instructor's Manual, PowerPoint presentations, and all textbook illustrations and photos in jpeg format) are housed on the book companion site (www.wiley.com/college/greiner). Student resources include self quizzes and flashcards.

PowerPoint Presentations

(available in *WileyPLUS* and on the book companion site)

A complete set of highly visual PowerPoint presentations—one per chapter—is available online and in *WileyPLUS* to enhance classroom presentations. Tailored to the text's topical coverage and learning objectives, these presentations are designed to convey key text concepts, illustrated by embedded text art. Lecture Launcher PowerPoints also offer embedded links to videos to help introduce classroom discussions with short, engaging video clips.

Test Bank (available in *WileyPLUS* and on the book companion site)

The visuals from the textbook are also included in the Test Bank by Carolyn Coulter, Atlantic Cape Community College. The Test Bank has a diverse selection of test items including multiple-choice and essay questions, with at least 20 percent of them incorporating visuals from the book. The Test Bank is available online in MS Word files as a Computerized Test Bank, and within *WileyPLUS*. The easy-to-use test-generation program fully supports graphics, print tests, student answer sheets, and answer keys. The software's advanced features allow you to produce an exam to your exact specifications.

Instructor's Manual (available in *WileyPLUS* and on the book companion site)

The Instructor's Manual includes creative ideas for in-class activities, discussion questions, and lecture transitions.

Guidance is also provided on how to maximize the effectiveness of visuals in the classroom.

1. **Use visuals during class discussions or presentations.** Point out important information as the students look at the visuals, to help them integrate separate visual and verbal mental models.
2. **Use visuals for assignments and to assess learning.** For example, learners could be asked to identify samples of concepts portrayed in visuals.
3. **Use visuals to encourage group activities.** Students can study together, make sense of, discuss, hypothesize, or make decisions about the content. Students can work together to interpret and describe the diagram, or use the diagram to solve problems, conduct related research, or work through a case study activity.

Image Gallery

All photographs, figures, maps, and other visuals from the text are online and in *WileyPLUS* and can be used as you wish in the classroom. These online electronic files allow you to easily incorporate images into your PowerPoint presentations as you choose, or to create your own handouts.

Wiley Faculty Network

The Wiley Faculty Network (WFN) is a global community of faculty, connected by a passion for teaching and a drive to learn, share, and collaborate. Their mission is to promote the effective use of technology and enrich the teaching experience. Connect with the Wiley Faculty Network to collaborate with your colleagues, find a mentor, attend virtual and live events, and view a wealth of resources all designed to help you grow as an educator. Visit the Wiley Faculty Network at www.wherefacultyconnect.com.

How Has Wiley Visualizing Been Shaped by Contributors?

Wiley Visualizing and the *WileyPLUS* learning environment would not have come about without lots of people, each of whom played a part in sharing their research and contributing to this new approach.

Academic Research Consultants

Richard Mayer, Professor of Psychology, UC Santa Barbara. Mayer's *Cognitive Theory of Multimedia Learning* provided the basis on which we designed our program. He continues to provide guidance to our author and editorial teams on how to develop and implement strong, pedagogically effective visuals and use them in the classroom.

Jan L. Plass, Professor of Educational Communication and Technology in the Steinhardt School of Culture, Education, and Human Development at New York University. Plass co-directs the NYU Games for Learning Institute and is the founding director of the CREATE Consortium for Research and Evaluation of Advanced Technology in Education.

Matthew Leavitt, Instructional Design Consultant, advises the Visualizing team on the effective design and use of visuals in instruction and has made virtual and live presentations to university faculty around the country regarding effective design and use of instructional visuals.

Independent Research Studies

SEG Research, an independent research and assessment firm, conducted a national, multisite effectiveness study of students enrolled in entry-level college Psychology and Geology courses. The study was designed to evaluate the effectiveness of Wiley Visualizing. You can view the full research paper at www.wiley.com/college/visualizing/huffman/efficacy.html.

Instructor and Student Contributions

Throughout the process of developing the concept of guided visual pedagogy for Wiley Visualizing, we benefited from the comments and constructive criticism provided by the instructors and colleagues listed below. We offer our sincere appreciation to these individuals for their helpful reviews and general feedback:

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Students and Class Testers

To make certain that *Visualizing Human Geography 2e* met the needs of current students, we asked several instructors to class-test a chapter. The feedback that we received from students and instructors confirmed our belief that the visualizing approach taken in this book is highly effective in helping students to learn. We wish to thank the following instructors and their students who provided us with helpful feedback and suggestions:

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Dedication

I dedicate this edition to my husband, Luis Montes, and also to all of my in-laws, "out-laws," and family members for their support and understanding over the years.

Special Thanks

Visualizing Human Geography 2e has benefited in countless ways from the many thoughtful and generous contributions of others. I owe a special thanks to Publisher Jay O'Callaghan and Executive Editor Ryan Flahive for their steadfast commitment to this book and their ability to assemble such an amazing project team. It is an honor to work with so many dedicated, creative, and professional people.

I am especially grateful to have had the opportunity to work with Developmental Editor Rebecca Heider, who has been a wonderful source of novel and inspiring ideas. Her crisp exposition has improved the clarity of concepts and artwork throughout the book. The book's style, structure, and cohesiveness has also benefited from the comprehensive vision of master craftswoman, Nancy Perry, Manager of Product Development. My thanks also go to Julia Nollen, Editorial Assistant, for her invaluable assistance with the art manuscript and the cheerful disposition with which she provided day-to-day guidance on this project.

Micheline Frederick, Senior Content Manger, and Sandra Rigby, Senior Production Editor, have provided expert oversight and leadership on this edition. I am deeply indebted to Senior Marketing Manager Margaret Barrett and Jeffrey Rucker, Associate Director, Marketing, for all of their hard work and unflagging dedication to this book. It has been a real pleasure working with Jeanine Furino of Furino Production, a skillful and conscientious manager with a keen eye for detail. This edition would not have been possible without the superb work of codeMantra, the compositor, and Mapping Specialists, for their cartography. All the new photos have been made possible by the indefatigable efforts of Sheena Goldstein, Senior Photo Editor, Billy Ray, Photo Editor, and Teri Stratford, Photo Researcher. In addition, I sincerely appreciate the guidance and assistance on permissions provided by Christine Moore, Associate Development Editor.

I also wish to thank the students and instructors who have provided feedback on this book; I welcome your comments at any time. To all of my colleagues in the Department of Geography at Oklahoma State University, thank you for being so collegial and supportive.

About the Author

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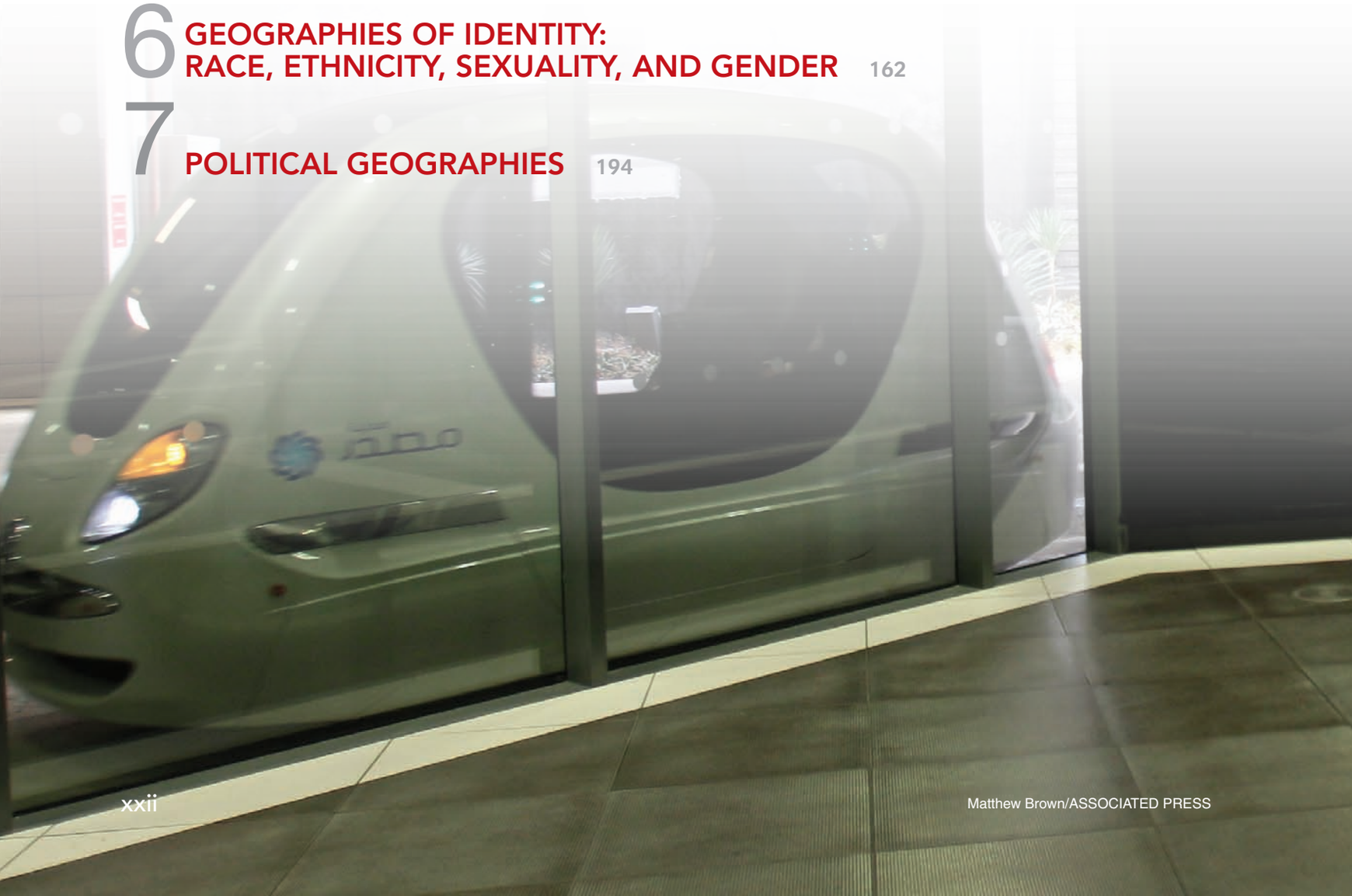
Contents in Brief



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INSIGHT FEATURES

Multi-part visual presentations that focus on a key concept or topic in the chapter

Chapter 1
The scope of geography
Remote sensing of post-earthquake damage
A GIS for studying disease incidence

Chapter 2
Diamond production and consumption

Chapter 3
Population densities
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Chapter 4
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Language endangerment
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Chapter 5
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Change in the Corn Belt

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PROCESS DIAGRAMS

A series or combination of figures and photos that describe and depict a complex process

Chapter 1
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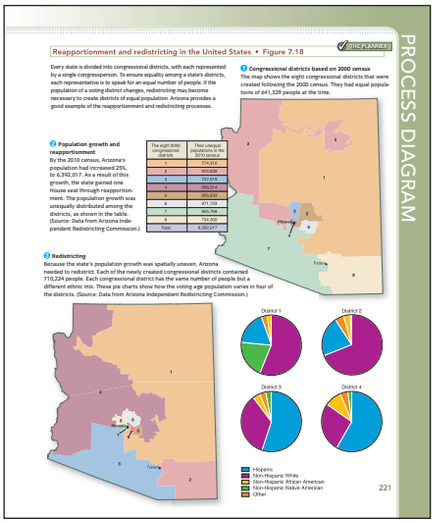

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Four-course crop rotation
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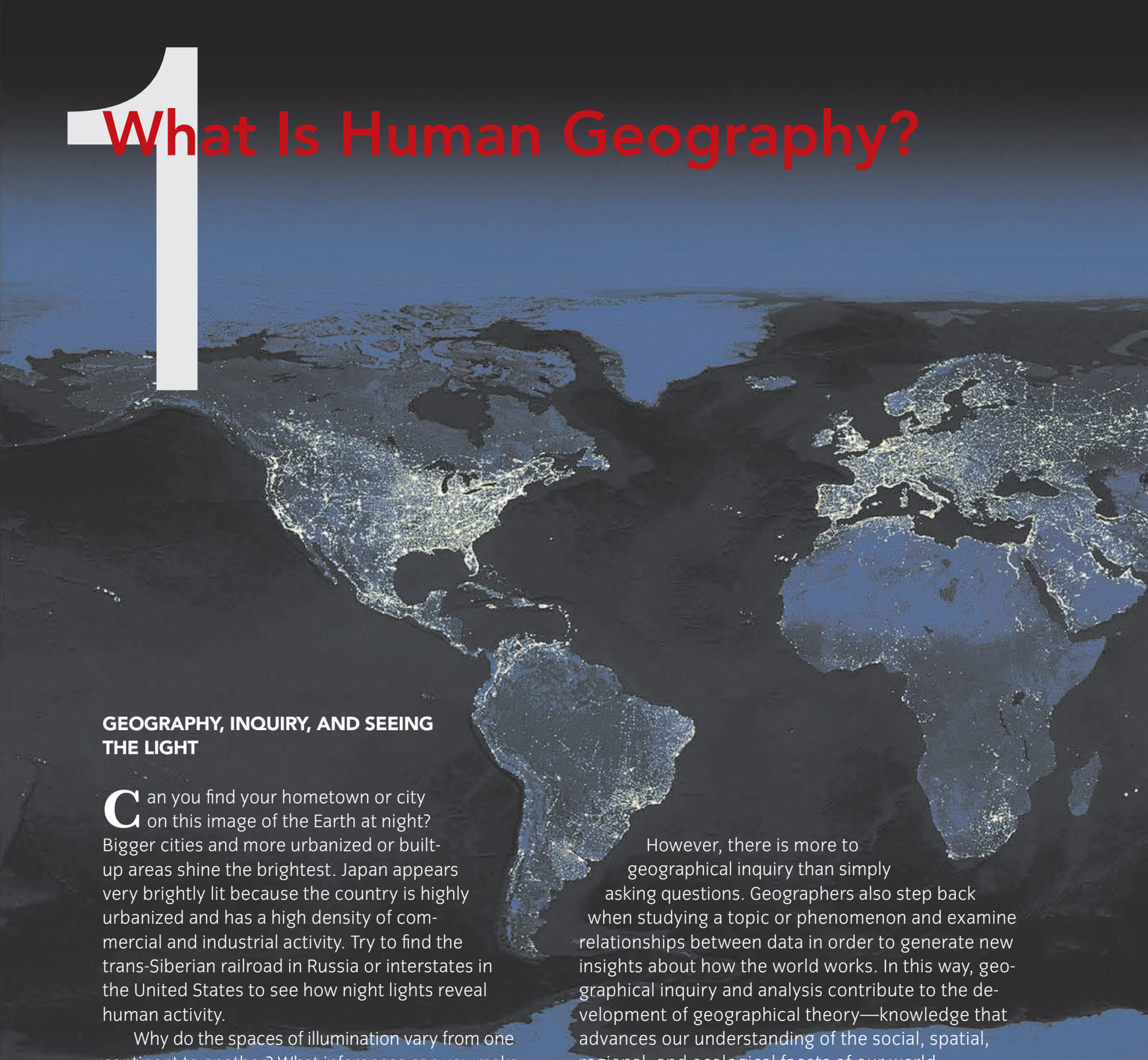
SECOND EDITION

VISUALIZING HUMAN GEOGRAPHY

1 What Is Human Geography?



GEOGRAPHY, INQUIRY, AND SEEING THE LIGHT

Can you find your hometown or city on this image of the Earth at night? Bigger cities and more urbanized or built-up areas shine the brightest. Japan appears very brightly lit because the country is highly urbanized and has a high density of commercial and industrial activity. Try to find the trans-Siberian railroad in Russia or interstates in the United States to see how night lights reveal human activity.

Why do the spaces of illumination vary from one continent to another? What inferences can you make about well-lit places and settlement patterns, wealth, or environmental modification? Geographers ask these and similar kinds of questions. Embedded within such questions are concepts relating to location, place, space, region, scale, distribution, and interconnectedness. Thus, geographical inquiry has its roots in a fundamental curiosity about the world.

However, there is more to geographical inquiry than simply asking questions. Geographers also step back when studying a topic or phenomenon and examine relationships between data in order to generate new insights about how the world works. In this way, geographical inquiry and analysis contribute to the development of geographical theory—knowledge that advances our understanding of the social, spatial, regional, and ecological facets of our world.

Simply stated, this book is designed to introduce you to geographical inquiry and theory through a perspective that emphasizes people and the spatial variation in their activities around the world. This chapter introduces human geography and illustrates how geographers approach their work, including some of the tools they use.

Data courtesy Marc Imhoff of NASA GSFC and Christopher Elvidge of NOAA NGDC. Image by Craig Mayhew and Robert Simmon, NASA GSFC

CHAPTER OUTLINE

CHAPTER PLANNER

- ❑ Study the picture and read the opening story.
- ❑ Scan the Learning Objectives in each section:
  p. 4 ❑ p. 12 ❑ p. 23 ❑
- ❑ Read the text and study all visuals.
  Answer any questions.

Analyze key features

- ❑ Geography InSight, p. 6 ❑ p. 24 ❑ p. 29 ❑
- ❑ Process Diagram, p. 16
- ❑ What a Geographer Sees, p. 21
- ❑ Video Explorations, p. 23
- ❑ Stop: Answer the Concept Checks before you go on:
  p. 11 ❑ p. 23 ❑ p. 29 ❑

End of chapter

- ❑ Review the Summary and Key Terms.
- ❑ Answer the Critical and Creative Thinking Questions.
- ❑ Answer What is happening in this picture?
- ❑ Complete the Self-Test and check your answers.

Introducing Human Geography

LEARNING OBJECTIVES

1. **Describe** the scope of geography and its main branches of study.
2. **Outline** the four main geographical approaches to the relationship between nature and culture.
3. **Explain** how geographers study landscapes and regions.

We are going to let you in on a little secret: Geography majors go places—in their careers, that is. They also have a lot of fun in the process. This is quite likely because geography is a discipline that encourages people to find a topic or region they are passionate about and explore its many different dimensions. Are you interested in music? Music geographers are needed to understand the globalization of hip-hop as well as its local variations. If you are a sports fan, sports geographers help identify optimal locations for stadiums, golf courses, and other athletic facilities. If your passion is nutrition or health, medical geographers help track and limit the spread of epidemics and study ways to improve people's access to medical care. See *Where Geographers Click* to learn more about careers in geography.

Some nongeographers rather naively thought that globalization would make geography irrelevant. Globalization, they claimed, made the world smaller, more accessible, and therefore, easier to know and understand. Meanwhile, geographers politely noted that globalization was not a new phenomenon and that geography had, to the contrary, taken on even greater relevance. For example, understanding the consequences of global climate change on different countries, agricultural production, and coastal populations demands geographic awareness. Similarly, we cannot solve the problem of poverty until we know better its geographic dimensions—where it occurs, how spatially extensive it is, who it affects, and how it is related to access to resources, such as land, water, and housing. Globalization has moved geography to center stage. Simultaneously, improvements and innovations in technology have expanded the geographer's toolbox. These new tools include ways of acquiring data about the Earth with improved GPS receivers, higher resolution satellite imagery, and new ways of visualizing this information with virtual globes such as Google Earth.

The word *geography* derives from Greek words (*geo* + *graphia*) meaning *to write about or describe the Earth*. As previously noted, however, geography is much more than a description of the Earth or a factual listing of countries, their capitals, and resources.

Where Geographers CLICK

Visit the Jobs and Careers section of the Association of American Geographers (AAG) website for career preparation tips, job listings, and other resources.

Geography consists of two main branches: physical geography and human geography (**Figure 1.1** on the next page). Physical geography focuses on *environmental dynamics* (e.g., water quality, soil erosion, forest management) whereas **human geography** focuses on *social dynamics* (e.g., economic development, language diffusion, ethnic identity). Some physical and human geographers focus on *environment–society dynamics* and work on topics that span both branches of the discipline (e.g., vulnerability to environmental hazards, impacts of fossil fuel consumption, social consequences of global climate change). The unity of geography as a discipline stems from a shared philosophy that recognizes the urgency of better understanding the spatial aspects of human and environmental processes and using geographic knowledge to generate solutions to the social and environmental challenges in our world.

human geography
A branch of geography centered on the study of people, places, spatial variation in human activities, and the relationship between people and the environment.

Human geography, like the discipline of geography more broadly, is both a science and an art. The science of human geography stresses the importance of acquiring adequate knowledge about specific processes, events, or interactions in order to explain why they occur or produce the particular outcomes that they do. For example, a human geographer studying migration seeks to explain the causes and consequences that propelled people to move from one place to another.

In contrast, the art of human geography emphasizes a different way of knowing that focuses less on explanation and more on understanding and meaning. The human geographer studying migration also learns about the experiences of the families that migrated and the ways they dealt with challenges in order to better understand the perceptions, feelings, and meanings of the move to the people who made the journey. Thus, the artistic and scientific aspects of human geography are complementary.

Nature and Culture

What do the words *nature* and *culture* mean to you? At first they seem straightforward, but the longer you think about them the more you realize that they both have a variety of different meanings. For example, nature can refer to the intrinsic qualities of a person, or to the outdoors, and culture can refer to taste in the fine arts or to customary beliefs and practices. Because of this definitional looseness, geographer Noel Castree (2001, p. 5) calls *nature* "a promiscuous concept." The same can be said about *culture*. Nevertheless, these concepts are so fundamental to the practice of geography that we should examine them briefly here.

Very broadly speaking, **nature** is the physical environment; it is external to people and does not include them. People, because of their capacity for intellectual and moral development, are the bearers of culture, and it is culture that distinguishes people from nature. When understood in this way, these concepts yield a dualistic framework that sets nature and culture in opposition to one another.

This **nature–culture dualism** has had a significant impact on ways of thinking about social difference. During the 18th century, some European scholars used this distinction between nature and culture to argue that it was the human capacity for culture that made people *superior* to nature. This line of reasoning was subsequently extended and used to rank societies. So, for example, non-Westerners were seen as being closer to nature than so-called civilized and cultured Westerners, and therefore inferior. Although the origins of these ideas are difficult to unravel, they matter because the way we see human societies in relation to nature and to one another affects not just how we use the environment but also how we interact with others.

Today, many geographers and other social scientists reject the nature–culture dualism because of the way it separates nature from culture. These scholars stress instead that people—in spite of their capacity for culture—are very much a part of nature. This perspective is central to **cultural ecology**, an important subfield within human geography that studies the relationship between people and the natural environment.

When conceptualizing the relationship between people and nature, cultural ecologists and other geographers recognize several different approaches. We discuss four of these next: environmental determinism, possibilism, humans as modifiers of the Earth, and the Earth as a dynamic, integrated system.

Environmental determinism

The position that natural factors control the development of human physiological and mental qualities is called **environmental determinism**. We can trace the intellectual roots of environmental determinism in Western thought to the ancient Greeks, who speculated that human diversity resulted from both climatic and locational factors. For example, plateau environments seemed to produce people who were docile.

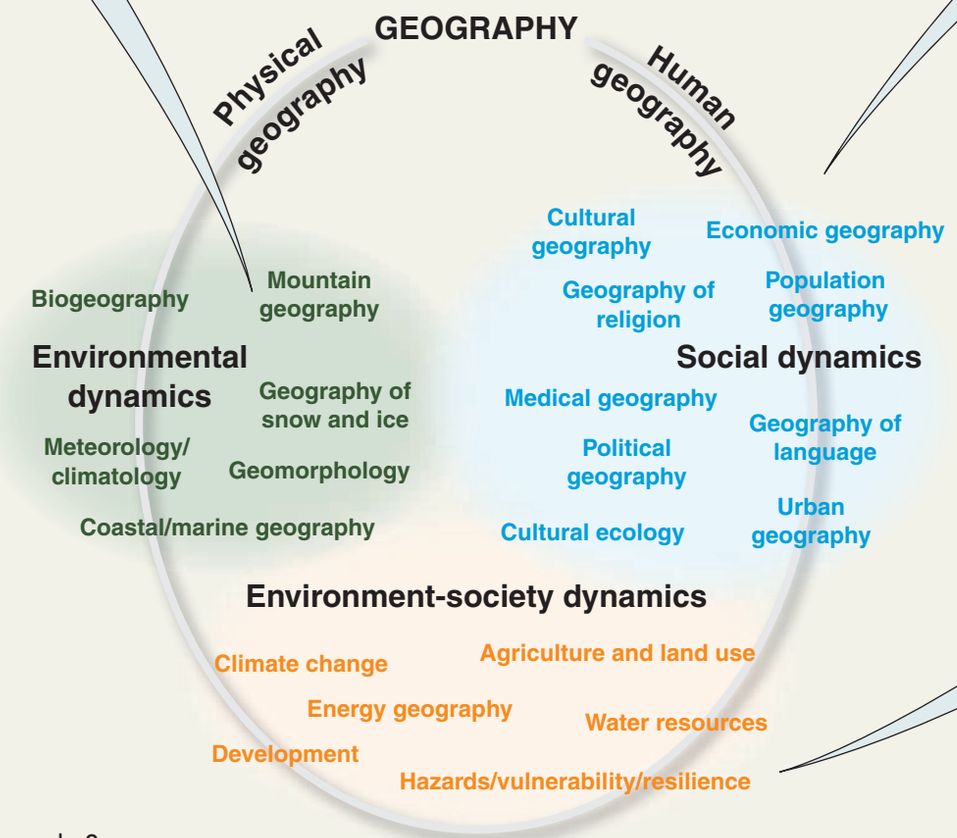
Geography InSight

The scope of geography • Figure 1.1

The two main branches of the discipline have given rise to three broad areas of emphasis. On the diagram, colored terms identify major subfields.

Stephen J. Stadler

a. Mount Vesuvius rises behind Naples
Mountain geography includes the study of alpine soils, landscapes, and environments.



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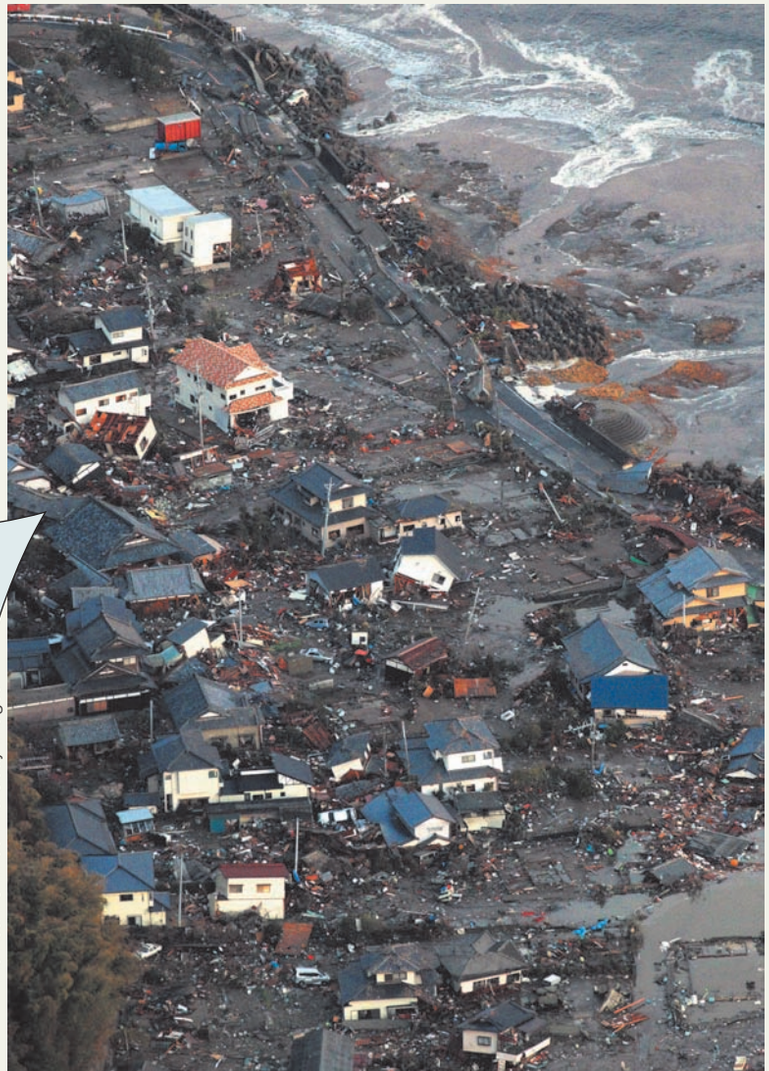
b. Tourists in the Dominican Republic Economic geography studies tourism trends, patterns of trade, as well as business location data.



The Asahi Shimbun via Getty Images

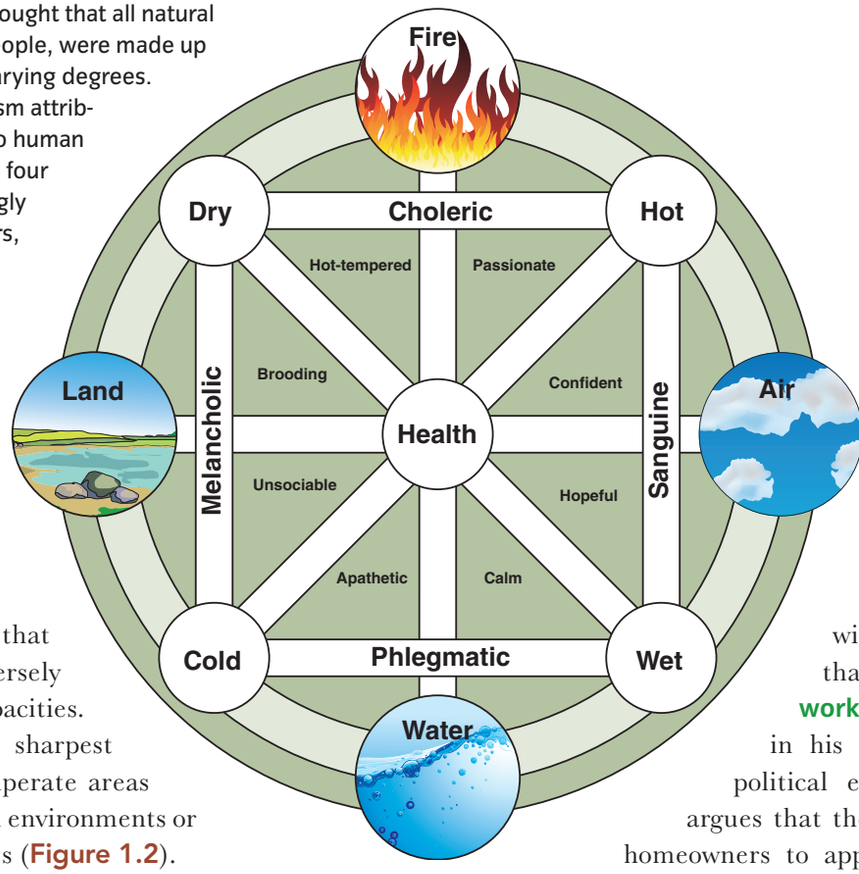
c. Devastation in Japan from the Fukushima-Daiichi nuclear accident This accident—the result of an earthquake, tsunami, and planning oversights—reveals the interconnectedness of people and the environment.

Ask Yourself

1. On the diagram, why are the borders between the different areas of emphasis shown as indistinct?
2. Using the photo in **a**, explain how the study of mountain geography could lead to a study in environment–society dynamics.

The four elements and environmental determinism • Figure 1.2

Some ancient scholars thought that all natural phenomena, including people, were made up of the four elements in varying degrees. Environmental determinism attributed cultural difference to human traits that reflected these four elements and were strongly shaped by physical factors, including climate.



Similarly, they thought that climatic extremes adversely affected mental capacities. The people with the sharpest minds came from temperate areas rather than hot, humid environments or extremely cold climates (**Figure 1.2**).

Environmental determinism prevailed among American geographers during the early 20th century and then fell quickly into disfavor. Three major criticisms of environmental determinism prompted this change in perspective. First, geographers found overly simplistic the linear, cause–effect relationship that forms the basis of environmental determinism. People, they argued, are more than automatons that simply respond to stimuli, such as the prevailing winds or temperatures in a specific place. Nonenvironmental factors, such as systems of government and law, also help explain human diversity. A second criticism of environmental determinism is that similar natural settings do not produce the same cultural practices or human behavior. Third, environmental determinism tends to contribute to ethnocentric interpretations of sociocultural differences. It is therefore not much of a surprise that some ancient Greek scholars attributed the flourishing of the Greek civilization to the temperate climate of the Mediterranean.

In recent years a radical reinterpretation of environmental determinism has emerged within **political ecology** that involves **actor–network theory**. For example, in his book *Lawn People,* the political ecologist Paul Robbins argues that the decision of American homeowners to apply pesticides or other chemicals to their lawns is the product of multiple interacting factors. These factors include the supply of and demand for lawn chemicals, the importance of property values, community pressure to maintain a well-kept lawn, lawn aesthetics (e.g., ideas about how a lawn should look), and the lawn itself (**Figure 1.3**).

political ecology
An offshoot of cultural ecology that studies how economic forces and competition for power influence human behavior, especially decisions and attitudes involving the environment.

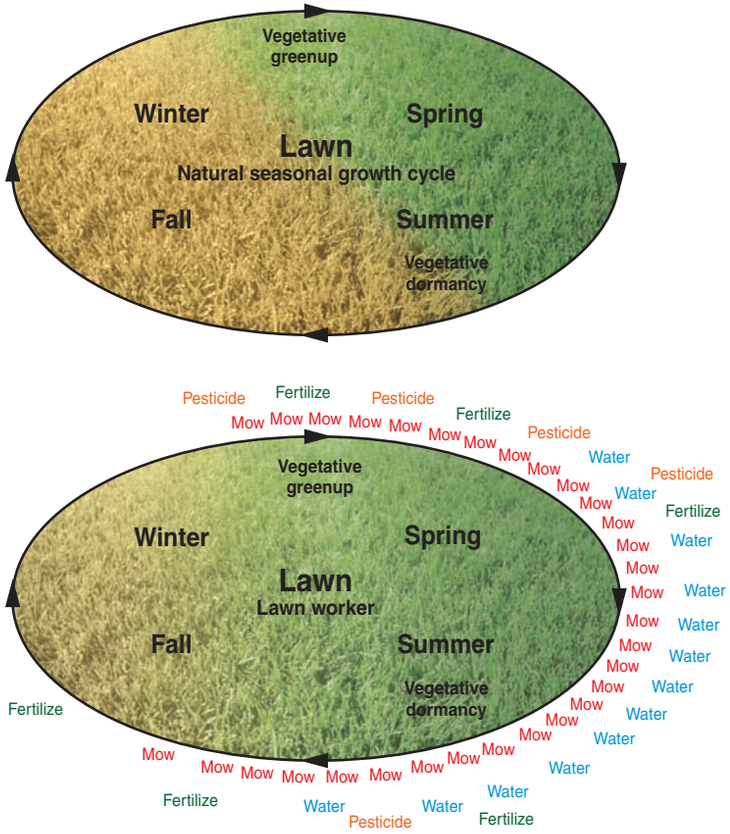
actor–network theory
A body of thought that emphasizes that humans and nonhumans are linked together in a dynamic set of relations that, in turn, influence human behavior.

Actor–network theory challenges the idea that people have free will. Rather, nonhuman entities gain agency (the ability to exert influence) by virtue of the networks of relations in which they are embedded. As Robbins observes, "the nonhuman world does have an active, ongoing, and crucial role in directing the conditions of the economy and the character of human culture" (2007, p. 137). Unlike environmental determinism, actor–network theory gives agency to natural factors as well as anything human-made (e.g., lawns, machines, or laws) but not in a simplistic cause–effect relationship.

Possibilism Reactions against environmental determinism in the early 20th century gave rise to **possibilism**—the view that people use

Actor–network theory • Figure 1.3

Actor–network theory acknowledges that our surroundings influence us. The lawn, the availability of fertilizers, and aesthetics influence human behavior by prompting a homeowner to mow, fertilize, and maintain it. (*Source:* Adapted from Robbins, 2007.)



their creativity to decide how to respond to the conditions or constraints of a particular natural environment. The word *constraints* is important here because it indicates that the environment is seen as limiting the choices or opportunities that people have. Possibilists, then, do not completely reject the idea of environmental influence; however, they are reluctant to view the environment as the sole or even the strongest force shaping a society. Thus, a possibilist sees technological diversification as one mechanism for expanding the range of choices a society has.

Humans as modifiers of the Earth A different approach to the relationship between people and the environment was advanced by geographer Carl Sauer (1889–1975), beginning in the 1920s. Sauer rejected environmental determinism and emphasized instead human agency, the ability of people to modify their surroundings. He observed that, over time, human activities transform natural landscapes into **cultural landscapes**. Significantly, Sauer's work helped raise awareness of the human role in landscape change. Visually, evidence of humans as modifiers of the Earth is all around us, from our cities to our cultivated agricultural fields (**Figure 1.4**).

An important extension of the humans as modifiers of the Earth approach involves seeing nature as a *social construction*—an invented concept derived from shared perceptions and understandings. This perspective acknowledges that people shape the natural environment through their practices *and* their ideas about what nature is or should be. A good example of this involves the idea of wilderness in the United States. The environmental historian, William Cronon, has shown that in the 18th century wilderness was equated with wasteland, but by the 19th century wilderness was strongly associated with natural beauty.

Earth as a dynamic, integrated system In this approach, geographers see people as intricately connected with the natural world. Two key principles sum up this approach: (1) the Earth functions as a system made up of diverse components that interact in complex ways; and

Mattias Klum/NG Image Collection

An extreme cultural landscape? • Figure 1.4

If your country lacks snow-covered mountains, why not manufacture them? This mountain-themed resort facility is in the United Arab Emirates and features year-round skiing even though outside temperatures rarely dip below 70° Fahrenheit.