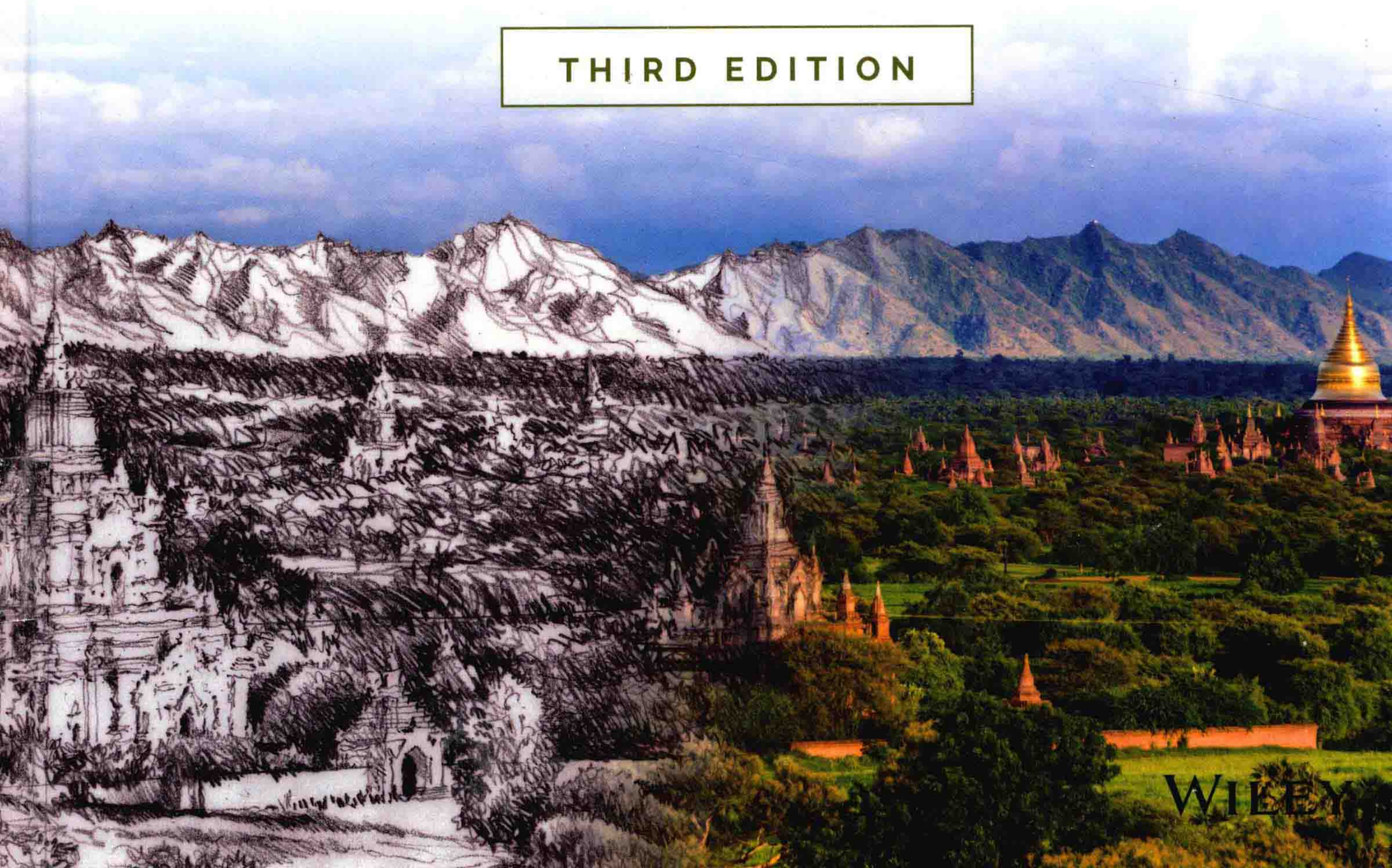
FRANCIS D.K. CHING

MARK JARZOMBEK · VIKRAMADITYA PRAKASH

A GLOBAL HISTORY OF ARCHITECTURE

THIRD EDITION



A Global History of Architecture

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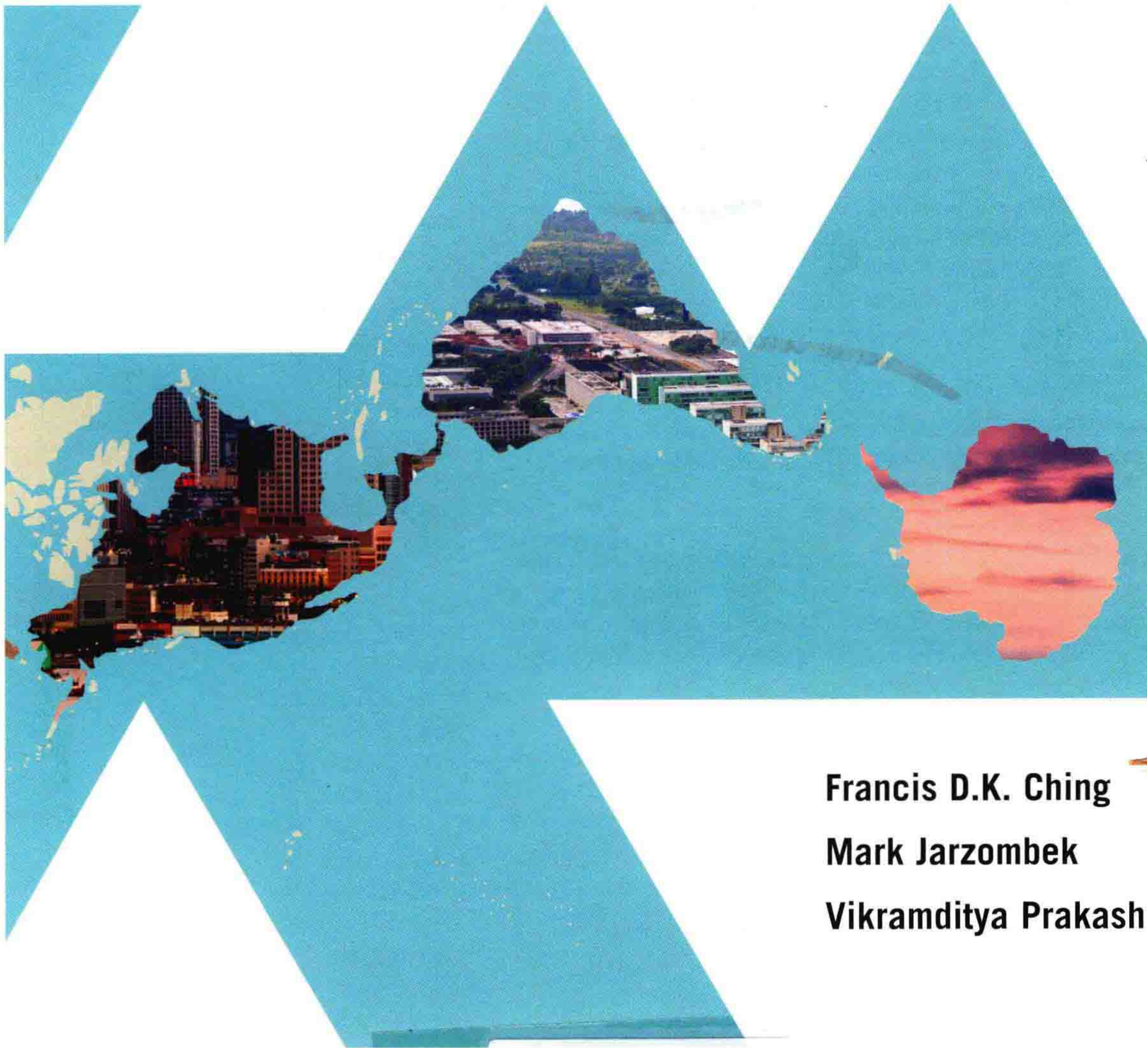

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Preface

What is a global history of architecture? There is, of course, no single answer, just as there is no single way to define words like *global*, *history*, and *architecture*. Nonetheless, these words are not completely open-ended, and they serve here as the vectors that have helped us construct the narratives of this volume. With this book, we hope to provoke discussion about these terms and at the same time furnish a framework students can use to begin discussion in the classroom.

This book transcends the necessary restrictions of the classroom, where in a semester or even two, the teacher has to limit what is taught based on any number of factors. The reader should understand that there is always something over the horizon. Whereas any such book must inevitably be selective about what it can include, we have attempted to represent a wide swath of the globe, in all its diversity. At the same time,however, the book does not aspire to be an encyclopedia of everything that has been built; nor does it assume a universal principle that governs everything architectural. The buildings included are for us more than just monuments of achievement; we see them as set pieces allowing us to better appreciate the complex intertwining of social, political, religious, and economic contexts in which they are positioned. As much as possible, we emphasize urban contexts as well as materials and surfaces. We have also tried to emphasize quality as much as quantity. From that point of view, the word *global* in the title is not so much a geographic construct as an eruditional horizon. In that sense, this book is not about the sum of all local histories. Its mission is bound to the discipline of architecture, which requires us to see connections, tensions, and associations that transcend so-called local perspectives. In that respect, ours is only one of many possible narratives.

Synchrony has served as a powerful frame for our discussion. For instance, as much as Seoul's Gyeongbok Palace is today heralded in Korea as an example of traditional Korean architecture, we note that it also belongs to a Eurasian building campaign that stretched from Japan (the Katsura Imperial Villa), through China (Beijing and the Ming Tombs), to Persia (Isfahan), India (the Taj Mahal), Turkey (the Suleymaniye Complex), Italy (St. Peter's Basilica and the Villa Rotonda), France (Chambord), and Russia (Cathedral of the Assumption). In some cases, one can assume that information flowed from place to place, but such movement is not itself a requirement for the architecture to qualify as "global." It is enough for us to know, first, that these structures are contemporaneous and that each has a specific history. If there are additional connections that come as a result of trade, war, or other forms of contact, these are for us subsidiary to contemporaneity.

This is not to say that our story is exclusively the story of individual buildings and sites, only that there is a give and take between explaining how a building works and how it is positioned in the world of its influences and connections. We have, therefore, tried to be faithful to the specificities of each individual building while acknowledging that every architectural project is always embedded in a larger world—and even a worldview—that affects it directly and indirectly.

Our post-19th-century penchant for seeing history through the lens of the nation-state often makes it difficult to apprehend such global pictures. Furthermore, in the face of today's increasingly hegemonic global economy, the tendency by historians, and often architects, to nationalize, localize, regionalize, and even micro-regionalize history—perhaps as meaningful acts of resistance—can blind us to the historical synchronicity and interconnectivity of global realities that existed long before our present moment of globalization. What would the Turks be today if they had stayed in East Asia? The movement of people, ideas, food, and wealth has bound us to each other since the beginning of history. And so without denying the reality of nation-states and their claims to unique histories and identities, we have resisted the temptation to streamline our narratives to fit nationalistic parameters. Indian architecture, for instance, may have some consistent traits from its beginnings to the present day, but there is less certainty about what those traits might be than one may think. The flow of Indian Buddhism to China, the opening of trade to Southeast Asia, the settling of Mongolians in the north, the arrival of Islam from the east, and the colonization by the English are just some of the more obvious links that bind India, for better or worse, to global events. It is these links, and the resultant architecture, more than the presumed "Indianness" of Indian architecture, that interests us. Furthermore, India has historically been divided into numerous kingdoms that, like Europe, could easily have evolved (and in some cases did evolve) into their own nations. The 10th-century Chola dynasty of peninsular India, for example, was not only an empire but possessed a unique worldview of its own. In writing its history, we have attempted to preserve its distinct identity while marking the ways in which it maps its own global imagination.

Broadly speaking, our goal is to help students of architecture develop an understanding of the manner in which architectural production is always triangulated by the exigencies of time and location. More specifically, we have narrated these interdependencies to underscore what we consider to be the inevitable modernity of each period. We often think of the distant past as moving slowly from age to age, dynasty to

dynasty, or king to king, and only of our recent history as moving at a faster pace. In such a teleological view, the present is the apex of civilization, and history becomes a narrative of progress that is measured against the values of the present. By contrast, we have tried to present every historical period in terms of its own challenges, and the history of architecture as the history of successive and often dramatic changes spurred on by new materials, new technologies, changing political situations, and changing aesthetic and religious ideals. These changes, spelled out differently in different times, have always challenged the norm in a way that we, in our age, would call modernity.

The Sumerian urbanization of the Euphrates River delta made the earlier village-centered economy of the Zagros Mountains obsolete. The introduction of iron in the 9th century BCE spelled the demise of the Egyptians and allowed societies such as the Dorians, the Etruscans, and the Nubians, who were once relatively marginal in the global perspective, to suddenly dominate the cultural and architectural landscape. The Mongolian invasion of the 13th century may have destroyed much, but in its wake came unprecedented developments. The Bantu expansion into southern Africa and the Polynesian expansion into the Pacific were just as dramatic in their own time as the admittedly more effective and rapid colonialization of the planet by the Europeans. By concentrating on the modernity of each historical example, we have used the global perspective to highlight the drama of historical change, rather than viewing the history of architecture as driven by traditions and essences.

Turning now to the term *architecture*, few would have any difficulty in differentiating it from the other arts, such as painting or sculpture. But what architecture itself constitutes is always the subject of great debate, particularly among architects, architectural historians, and critics. Some have argued that architecture arises out of an urge to protect oneself from the elements, others that it is an expression of symbolic desires, or that it is at its best only when it is embedded in local traditions. In this book, without foreclosing the discussion, we hope that the reader begins to see architecture as a type of cultural production. In that sense, this book is a companion to *Architecture of First Societies* (Wiley, 2013), which looks in depth at the history of pre-agricultural worlds and the transition to agriculture.

Here, we have emphasized issues of patronage, use, meaning, and symbolism where appropriate, and have attempted to paint a broad historical picture of time and context while, at the same time, making sure we have covered the salient formal features of a structure. Of course, words like *culture* and *civilization* are, like the word *architecture*, open to contestation and will have different meanings in different contexts. Yet, despite such ambiguities, we believe that civilization is unthinkable without those buildings that are given special status, whether for religion, governance, industry, or living. Just like the processes of agricultural domestication, architecture emerged in our prehistory and will remain an integral part of human expression to the very end.

Because we have dealt primarily with buildings of quality, we do not have the space to paint a picture of the historical development of vernacular and domestic spaces. This is not because we do not recognize their importance, but because we wanted to remain consistent to a line of reasoning that allows us to see architectural history as connected to the history of ideas, technologies, theories, religions, and politics. Each chapter introduces the set of terms that shape the architectural production and meaning of that age. Changes in some places are perhaps more dramatic than in others, but in all cases we try to explain the causes. The ancient Egyptian pharaohs, for instance, during a period of time commissioned pyramids; but then they stopped and instead built huge temples. The reader needs to come to understand the political reasoning that necessitated this change. Not only did Buddhism morph as it filtered its way into East and Southeast Asia; so, too, did Buddhist architecture. The rock-cut temples of Ellora did not appear out of a vacuum, but the technology of rock-cutting had never been attempted at that scale and would die out by the 13th century. In that sense we ask readers to compare architecture not only across space, but also across time.

Organization of the Book

Rather than preparing chapters on individual countries or regions, such as India, Japan, or France, we have organized the book by "time-cuts." Eighteen chronological slices of time, beginning with 3500 BCE and ending with 1950 CE, comprise the armature of the book. Each time-cut marks not the beginning of a time period, but roughly the middle of the period with which each chapter is concerned. The 800 CE time-cut, for instance, covers the period from 700 to 900 CE. Yet we have not been strict about the scope of a particular time-cut. Whenever necessary for coherence, we have not hesitated to include material from before and after its prescribed limits. Each time-cut should, therefore, be seen more as a marker amid the complexity of the flowing river of history, rather than a strict chronological measuring rod.

We have begun each time-cut with an introductory essay addressing the historical forces graphing that period of time, followed by a map and a timeline locating all of the major buildings we discuss. Discussions of individual buildings and groups of buildings are in a series of small subsections marked by relevant subcontinental location—East Asia, Southeast Asia, South Asia, West Asia, Europe, Africa, North America, Central America, or South America.

Rather than arrange all the time-cuts in the same order, we have arranged each according to its own internal logic. Despite the difficulties this may pose, we have chosen this strategy to remind readers that the globe does not really begin in the East or the West but can indeed start and end anywhere. We have arranged the sequence of the subsections as needed to maintain continuity in the narrative of a particular chapter. Often this continuity is provided simply by geographical adjacency; in other cases, we have linked subsections to make a point about historiographical issues such as the influence and movement of ideas, or contrasts between kingdoms.

The individual subsections, which may be a single page or as long as four or five pages, are conceived as mini case studies, coherent in themselves. These can be assigned as independent readings. Besides ensuring that the relevant facts and descriptions of each significant project we address are

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adequately covered, we have emphasized the cultural and global investments of its creator. For instance, a discussion of the Italian High Renaissance consists of pages on the Piazza del Campidoglio, il Gesù, the Villa Farnese, Il Redentore, Palladian villas, and the Uffizi. The number of case studies accompanying each civilizational discussion is not uniform. Sometimes there are six; at other times, just one or two. The differences are largely a measure of our judgment of the importance of the material and the availability of literature on a topic. Indeed, there exists a great disparity in the availability of information. While we know much about the early civilizations of Mesopotamia; we know startlingly little about pre-Columbian civilizations. An archaeologist we spoke with estimated that only 15 percent of pre-Columbian sites have been excavated. And there are also many inaccessible archaeological sites in war-torn countries around the world, and even sites that cannot be excavated because of lack of funding or awareness. A fully fleshed-out picture of architecture's history is, therefore, still a dream that we can only aspire to.

The book's drawings are intended to be integral to the narrative. They not only illustrate the text, but also help tell a story of their own. Not everything in the text is illustrated by drawings, just as the drawings can be used to communicate things that are not referenced in the text. We have tried to make a virtue out of this fact by sharing the physical and epistemological space on each page as evenly as we could between text and image. The drawings also speak to the diminishing art of drawing in an age of photography and computer-enhanced plans. Though faculty may not want to organize their syllabi by the time-cuts, they may find it useful to cut and paste selectively chosen subsections together to suit their historical narrative. Such selections could be made geographically or by other means. Once again, the fact that the individual subsections are conceived as case studies allows them to be read coherently, even out of sequence.

A book like this faces almost insurmountable problems in trying to establish a single standard for names, terms, and spellings, particularly those of non-Western origin. A particular mosque, for instance, might have different English, Arabic, Persian, and Hindu names. Which does one use? Should one say Nijo-jo or Nijo Castle (the suffix *–jo* in Japanese means castle)? Should one call a pagoda a *ta*, as it is called in Chinese, or should we persist with its conventional English name? Generally speaking, we have tried to use the names that are most common in current scholarship in English. It would be foolish to dispense with the Greek word for those Egyptian buildings that we call pyramids, named after the Greek bread called *pyramidos*, but, on the other hand, we would like to suggest that Angkor Wat be called by its real name, Vrah Vishnulok, to cite one counterexample. Once we have made a choice regarding the spelling of a particular proper noun, we have tried to remain consistent in our use of it. However, at several places, we have intentionally used non-English terms, even when there is a common English usage. This we have done whenever we have felt that the English is misleading (the English *pagoda*, for instance, has nothing to do with the *ta*) or when discussion of local linguistic practice is in some way illuminating. Our aspiration is to initiate movement toward a more diverse and appropriate vocabulary for the world's architecture. Language, like architecture, is a living thing with indistinct boundaries and, as such, reflects architecture's status as a multifaceted cultural signifier.

In conclusion, we would like to acknowledge that in preparing and writing this book, a process that we have enjoyed at every turn, we were continually reminded of our ignorance on many matters. Conversations with colleagues were particularly valuable, as were trips to some of the sites we cover. But in the end, a work like this can only be the beginning of a long process of refinement. So we ask all readers who wish to do so to contact us, to point out inaccuracies, to tell us about things that should be included in subsequent editions, or to open a conversation about history, the world, and our place within it.

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3500 BCE

1.1 **!Kung hut**

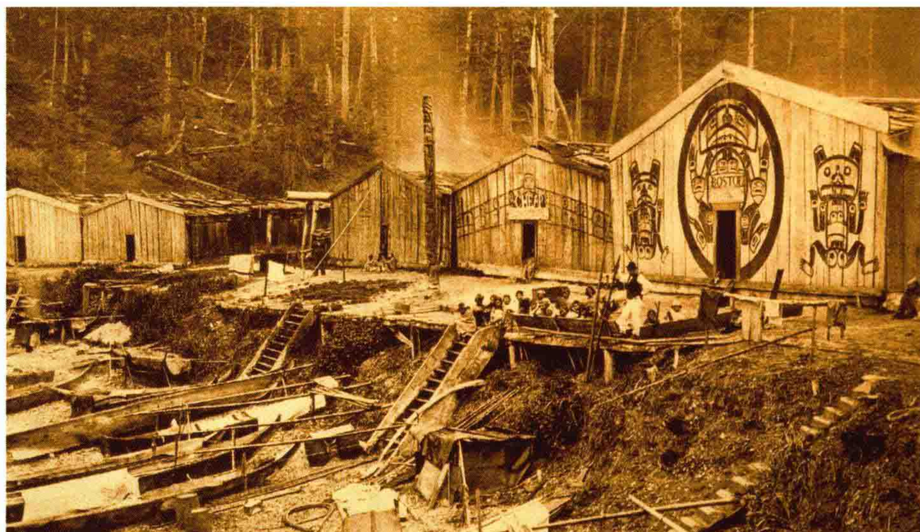
INTRODUCTION

For a million years, humans lived off hunting, food gathering, and fishing. From the perspective of our advanced world today we tend to look back at this and wonder how we could even have survived given all the difficulties. We once labeled these people savages or barbarians, and then we called them primitives. More recently we call them hunter-gatherers, as if all they do is obsess about food acquisition. But the !Kung, who have lived in the Kalahari Desert in Botswana for hundreds of thousands of years, spend only about 40 percent of their time hunting and gathering. The rest of the time, they do what most of us might do: they socialize, dance, cook, and rest.

In the Kalahari, mongongo trees, which produce tasty and nutritious nuts by the thousands, proliferate in mile-long groves. Tubers can be dug from the ground, and animal herds migrate through the territory, easy prey for a canny hunter and his poison-tipped arrows. The !Kung live in camps that are rebuilt every year near seasonal water holes. Women make the huts around a common campfire, usually under the shade of a large tree. The huts are not really to live in, since people tend to live mainly outdoors, but serve as storage areas for tools and as shade on a hot day. The modern world has little respect for its venerable ancestors. Because of forced relocations, mining on their territory, and fences cutting across their land, the !Kung people's survival into the next decades is much in doubt. It is not the natural world that endangers them, but our civilized world.

As populations expanded, groups would bud off to form new communities in the next valley or further along the shores. In this way, the first groups of people left Africa some 1.5 million years ago with a second group, our human ancestors, following around 60,000 BCE to slowly yet persistently colonize the globe, reaching the southern tip of South America around 13,000 BCE. First Society people, however, were not nomads as is so mistakenly assumed. Instead they tended to live within prescribed and familiar territories, moving seasonally between winter camps near rivers and upland summer camps for hunting and fishing. The ancient people of Australia, for example, moved in predictable cycles: in some parts of the year they lived in relative isolation, and in other parts they would get together for large annual ceremonial and social events.

During the Ice Age (ca. 25,000 BCE–ca. 15,000 BCE), humans faced a global phenomenon the likes of which we have never seen since. The extreme cold, which sent massive, mile-deep ice sheets far to the south of the polar regions, impacted Europe in particular. But the people there did not leave. This was not because they were trapped. It was because those areas had become a hunter's paradise, with bears, lions, and, above all, huge herds of horses, reindeer, and mammoth moving across the grassy landscape. The Gravettian Culture was the first to master the cold. They developed leather-making and the needle to create fur-lined clothing, boots, and jackets. In great festivals, they congregated near caves where artists had painted brilliant images of animals on the walls and ceilings. What form of magic these places produced is still unknown, but the quality of the art staggers the imagination even today. The animals were painted not as carcasses but as living creatures moving and breathing, and were made by artists who had practiced their skills over a lifetime. As the weather warmed, the hunters moved to the east, crossed Siberia, and around 13,000 BCE crossed Alaska to enter the open plains of North America. Called the Clovis People, they hunted mammoth and then, when the mammoth were all hunted out, they switched to bison. Their sacred landscapes include Seminole Canyon in Texas, with its ancient rock art depicting shamans and sacred animal spirits.



1.2 Haida settlement, Canada

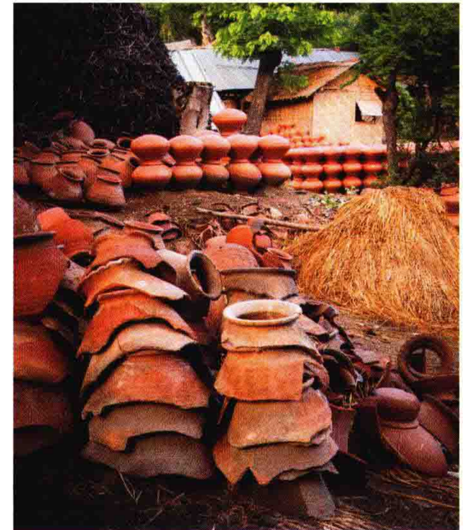
The warming of the weather raised the levels of the oceans, separating Japan from China, and England from mainland Europe. It created vast rivers, swamps, and forests teeming with animals and plants, drawing humans to the river shores. It was, one might say, an age of affluence. At Lepenski Vir along the Danube River, a settlement of triangular huts emerged. The people there caught sturgeon, a fish that averaged some 3 meters long. Why go hunting when catching one fish would feed an entire community? The nearby forests provided a wide assortment of berries, mushrooms, and nuts to complement the diet. Nor was this village a solitary community. Similar villages lined the shores, and their inhabitants traveled by boat to connect with each other for ceremonial events.

Half a world away, another affluent society emerged along the northwest coast of Canada. It was a favorable site for many reasons. It was in a pocket of relatively mild weather, the result of cross-Pacific winds; it was also sited along the migration path of whales, and salmon came in the thousands to swim upstream to spawn. Huge cedar trees, sacred to the Haida, provided material for houses and boats. The tree was not just "wood." Its red color and sweet smell were indicators of its connection to the world of the spirits. Linear settlements sprang up along the shore, composed of large, clan-based community houses facing the water. Each house was a sacred diagram designed in relation to the cosmos, which for the Haida was divided into three shamanistic zones: the sky world, the earth, and the oceanic underworld. The building's frame system consisted of massive roof beams, often more than half a meter in diameter and spanning the width of the house, which ranged from 7.5 to 15 meters. These beams were supported by posts carved to represent important family ancestors or supernatural beings associated with the family's history. Walls were clad with split-cedar planks tied horizontally between paired upright poles.

It was not just rivers and shores that attracted human habitation to make the first settled communities, but also the emerging great rain forests. The Bambuti in Congo still today pay homage to a forest spirit, Jengi, whose power is thought to emanate through the world. Jengi is seen as a parental figure and guardian. Society is organized around individual households consisting of a husband, a wife, and their children, forming settlements that can number up to about fifty residents. The women build the huts that, in the shape of upside-down baskets, are made out of a frame of saplings and clad with leaves. Other rain forest cultures developed in Brazil, Central America, and Southeast Asia.

Beginning around 10,000 BCE in some places, the great First Society traditions that had sustained human life for so long began to change. Instead of hunting animals, humans began to herd them, and instead of gathering and tending plants, they began to domesticate a few chosen plants and grow them in organized fields. These changes altered

1.3 **Village scene**



1.4 **Pottery making**

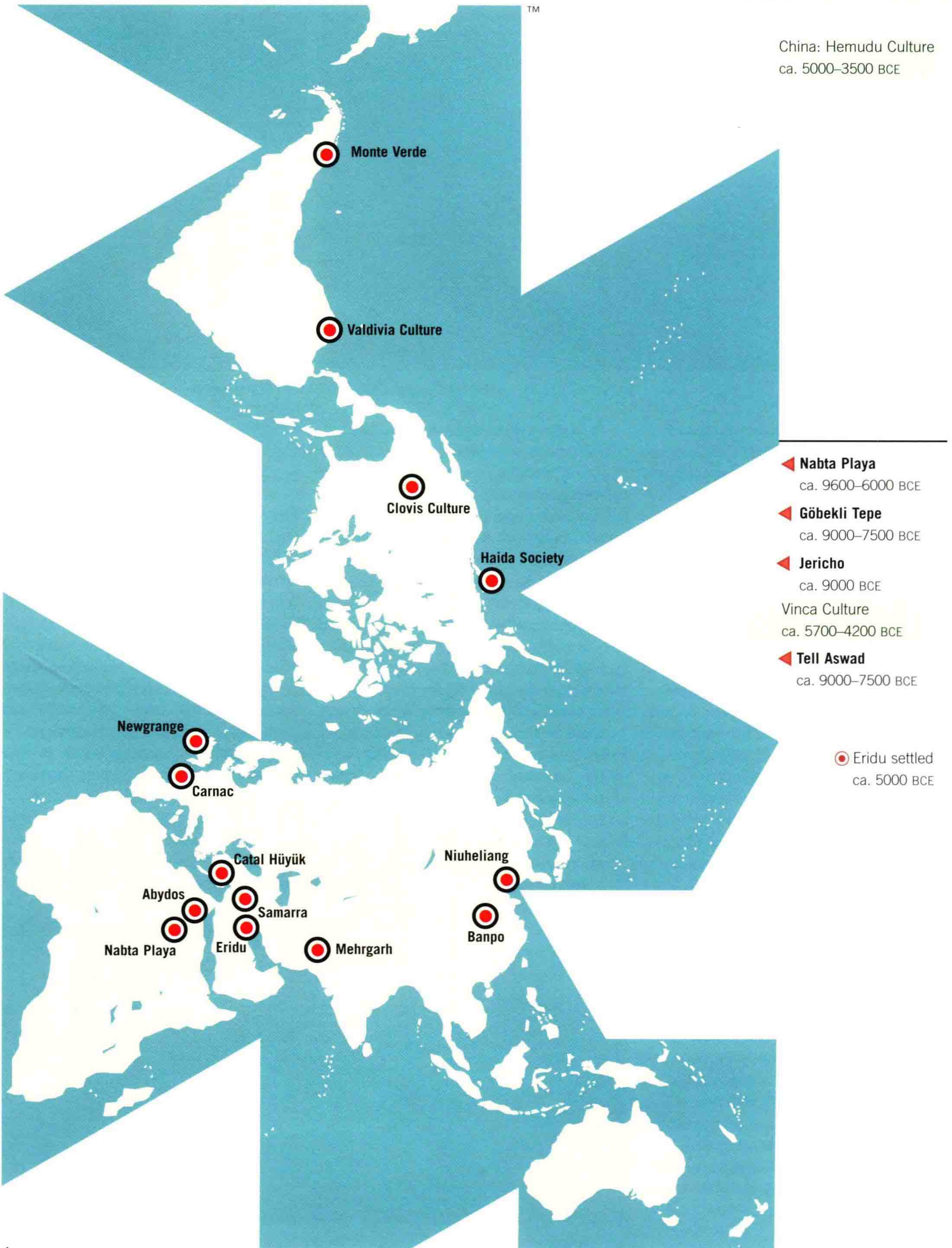
the imaginaries of the spirit world. Cattle in particular were seen as living gods, requiring daily attendance and a culture of respect. They were not killed for food but were sacrificed to mark special events in the life of the community. Among the Dinka in the Sudan, a man knows his cattle by special names, sings songs to them, and sleeps next to them for long periods of time. Cattle are sacrificed only on special occasions, such as at weddings or funerals. Although only a few cattle-centric societies remain today, the impact of this worldview can be felt even in modern religions.

Just as important was the shift from gathering plants to farming. Rice in southern China and eastern India, millet in Africa and northern China, wheat and barley in the Levant, and corn in Guatemala—all rose from being just one of thousands of plants that humans tended to the precious focus of effort and devotion. The combined transformation of our relationship to animals and plants produced a new way of life: agropastoralism. While today we call this period the birth of agriculture, we have to remember that crops like rice and barley were not raised as food. They were gods. We have so secularized food production today that we forget that the birth of what we call agriculture coincided with profound transformations that deified certain foods and thus, it might be said, guaranteed the proper and complex work ethic needed for their production. The impact on women was particularly profound; harvesting, grinding, storing, and cooking were all largely women's work, as was pottery making, basket weaving, and, of course, the raising of children.

The emergence of pastoral and agropastoral cultures produced village societies organized around chiefs with more or less power depending on circumstances. Villages were well calibrated to meet the needs of the animals, to deal with the calendar of planting and harvesting, and to produce the necessary equipment for life, such as the bowls and containers that stored grain and water and that allowed fermentation and cooking to take place. These activities were all governed by ritual practices and unwritten rules of behavior that shaped the destiny of all. But village society could not spread just anywhere. It needed the right combination of good soil for farms, grasslands for cattle, forests for firewood, and upland areas for hunting—and, of course, water and salt.

The Mesopotamian highlands were perfect for such agropastoral societies, and beginning around 9000 BCE compact villages began to spread along the slopes above the great rivers in the plains. A similar expansion took place along the Sahel in Africa, where sorghum was the main plant, as well as in the foothills of the Baluchistan Mountains (barley), in northern China (millet), and along the Yangtze River (rice). By 5000 BCE these places had also established themselves as profoundly different from the First Society worlds that neighbored them, even if they maintained some aspects of the older traditions. Whereas the agropastoral tradition in Mesopotamia, the Indus Valley, China, and Egypt remained confined by their ecological niches, a remarkable transformation took place in Europe, where between 9000 and 4000 BCE, agropastoral cultures moved slowly along rivers and shores to reach even northern Ireland. There the newcomers thrived and built one of the greatest structures of the time, Newgrange, a vast artificial mound with a sacred chamber in its interior that was designed to mark the first rays of the winter solstice.

1.5 **Herding**


TM
China: Hemudu Culture
ca. 5000–3500 BCE
Monte Verde
Valdivia Culture
Clovis Culture
Haida Society
Nabta Playa
ca. 9600–6000 BCE
Göbekli Tepe
ca. 9000–7500 BCE
Jericho
ca. 9000 BCE
Vinca Culture
ca. 5700–4200 BCE
Tell Aswad
ca. 9000–7500 BCE
Eridu settled
ca. 5000 BCE
Newgrange
Carnac
Catal Hüyük
Niuheliang
Abydos
Samarra
Banpo
Nabta Playa
Eridu
Mehrgarh

China: Yangshao Culture
5000–3000 BCE

Hongshan Culture
4700–2900 BCE

Longshan Culture
3000–2000 BCE

Banpo
ca. 4500 BCE

Niuheliang Ritual Center
ca. 3500–3000 BCE

Yaoshan Ritual Altar
ca. 3300–2000 BCE

Indus Valley: Early Harappan Period
ca. 5000–2600 BCE

Mehrgarh
ca. 6500–2800 BCE

Harappa
ca. 3000–1900 BCE

Dholavira
ca. 2650–2100 BCE

4500 BCE — **3500 BCE** — **2500 BCE**

Late Neolithic Period
ca. 5000–2000 BCE

Early Bronze Age
ca. 3000–2000 BCE

Bronze casting begins in the Near East.
ca. 3600 BCE

Catal Hüyük
flourishes ca. 7400–5500 BCE

Mesopotamia: Ubaid (Eridu) Culture
ca. 5300–4300 BCE

Uruk Period
ca. 4000–3100 BCE

Tell es-Sawwan
6000–3500 BCE

White Temple
Begun ca. 4000 BCE

Temple at Uruk
ca. 3400 BCE

Temple at Eridu
4500–3800 BCE

Invention of the wheel
ca. 3600 BCE

Earliest readable documents in Mesopotamia
ca. 3200 BCE

Egypt: Pre-Dynastic Period
ca. 4500–3100 BCE

Early Dynastic Period
ca. 3100–2649 BCE

Tombs of Hor Aba
ca. 3100 BCE

Royal Tombs at Umm el-Qaab
3100–2890 BCE

Tombs of Hor Aba
ca. 3100 BCE

Earliest tumulus tombs in Portugal
ca. 5000 BCE

Europe: Passage Tombs and Dolmens of Megaliths
ca. 3500–2500 BCE

Newgrange
ca. 4000 BCE

Passage grave: Île Longue
ca. 4100 BCE

Carnac Stones
ca. 3500 BCE

Cursus tradition in England
ca. 3500 BCE

Stonehenge
Begun ca. 3000 BCE

Saracen Ring added at Stonehenge
2500 BCE

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