

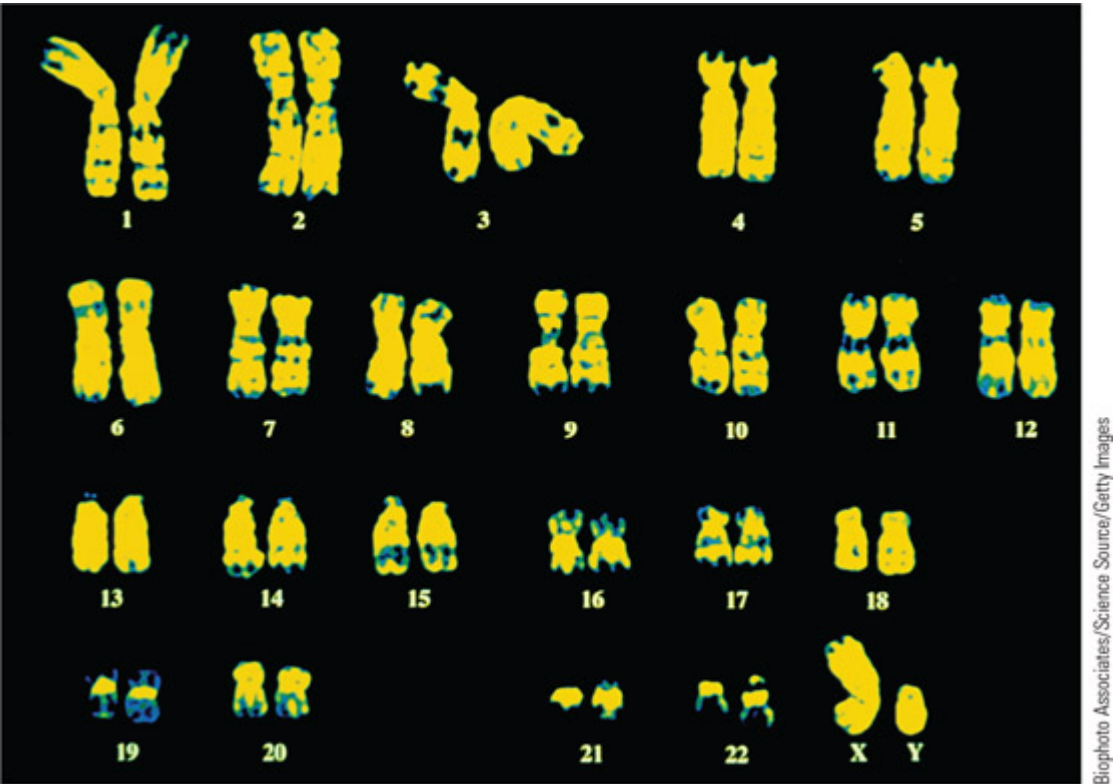
# Chapter Introduction

*Civilization is a movement and not a condition, a voyage and not a harbor.*

—Arnold J. Toynbee

## The Human Genome.

The process by which scientists have traced the gradual appearance of human like creatures occurred over millions of years, but “modern” humans have existed only for about 100,000 years. Central to what makes humans different from related species is the human genome. Only the human genome contains twenty-three chromosomes, shown here.



Biophoto Associates/Science Source/Getty Images

### Chronology

c. 3.5. million–10,000 B.C.E.      Paleolithic Era

<b>c. 150,000–100,000 B.C.E.</b>	Early <i>Homo sapiens</i> ( <i>Homo ergaster</i> ) appears
<b>c. 80,000 B.C.E.</b>	Humans develop the first true languages
<b>c. 80,000–15,000 B.C.E.</b>	Humans migrate out of Africa and populate the major continents
<b>c. 10,000 B.C.E.</b>	Neolithic Age commences
<b>c. 7000 B.C.E.</b>	Bronze Age begins
<b>c. 3500 B.C.E.</b>	First agrarian civilizations in Mesopotamia, Egypt
<b>c. 1500 B.C.E.</b>	Iron Age begins

History, in the strictest sense, means a methodical study of evidence of the human past, in whatever form it exists—as written records or the spoken word, for example. But most people do not use “history” in the strict sense. They define the word *history* more simply, as whatever has happened in the past to human beings, which of course is a much bigger proposition. Humans, however defined, have inhabited the earth for a long time. Before the invention of writing, an extremely long period of time elapsed during which humans gradually mastered the various abilities of mind and body that together enabled their survival as a species on Earth. This period of human existence lasted for several million years. During this time, humans slowly and sporadically evolved from beings who were only slightly different from their genetic cousins among the great apes to creatures who have proven marvelously resourceful and adaptable. Tens of thousands of years before the beginning of recorded history, they populated the entire Earth (except Antarctica), developed religions, made tools, created art forms, mastered agriculture, and demonstrated many other talents and achievements.

The development of human creatures, called [Homo sapiens \(\(HOH-moh SAY-pee-yehns\) \*Thinking man\*; modern human beings.\)](#) (“thinking man” or “skillful man”), from their earliest origins has become one of the most controversial of modern sciences. Every year, it seems, new evidence comes to light that purports to extend the age of the genus *Homo* farther back in time and with a more tangled ancestry. Whereas until recently it was assumed that *Homo* evolved through a process called [natural selection \(The Darwinian doctrine in biology that change in species derives from mechanistic changes induced by the environment.\)](#) along a clear-cut and single-stemmed line, it is now generally accepted that humans’ family tree is more like a bush with many branches, of which almost all have died ([Table 1.1](#)).

Table 1.1

## Evolution of the Genus *Homo*

*Homo habilis* 3.5–4 million years ago

(toolmakers)

*Homo erectus* 1.5–1.8 million years

ago

(bipedal walkers)

*Homo ergaster* 150,000–100,000 years

ago

*Homo sapiens* 100,000–30,000 years

ago

(modern humans)

An early humanlike creature, or [hominid \(\(HAH-mih-nihd\) A humanlike creature.\)](#), was walking about in East Africa perhaps as early as 4.0 million years ago, by latest reckoning. For the purposes of contemporary science, the fundamental differences between humans and apes are certain deviations in the bone structures of the foot, the hip, and the hand; the size of the brain; and the use of language. Because language necessarily could leave no traces until the invention of writing, physical anthropology depends primarily on skeletal remains to establish the age and source of animal life, including humans. Bone fragments recovered at different sites in East Africa since the 1970s indicate that upright-walking (bipedal) animals possessing the essential anatomical attributes of modern humans already existed millions of years ago. A recent discovery shows bipedalism in a foot bone dating to more than 4.5 million years ago. This would put the creature it belonged to near the epoch when current anthropology places the genetic division between the genus *Homo* and its closest relations, the great apes.

It is almost universally believed that the earliest form of *Homo sapiens* originated in Africa. Called [Homo ergaster \(The earliest Homo sapiens, dating to around 150,000 B.C.E.\)](#) (HOH-moh er-GAS-ter), these earliest humans probably appeared in that continent's eastern regions about 150,000 years ago, and by 100,000 years ago they had evolved into modern *Homo sapiens*. From there, humans and their descendants developed the first languages and expanded into southwest Asia, Europe, and East Asia by perhaps 75,000 years ago B.C.E. The most recent Ice Age froze sufficient water in the Pacific Basin to enable crossing over land into North America by about 17,000 years ago. The rapid ensuing migration southward carried *Homo sapiens* into South America by no later than 13,000 B.C.E. The last great human passage, to the Pacific islands, happened between about 1200 B.C.E. and 1250 C.E. [Map 1.1](#) shows the spread of *Homo sapiens* across the globe.

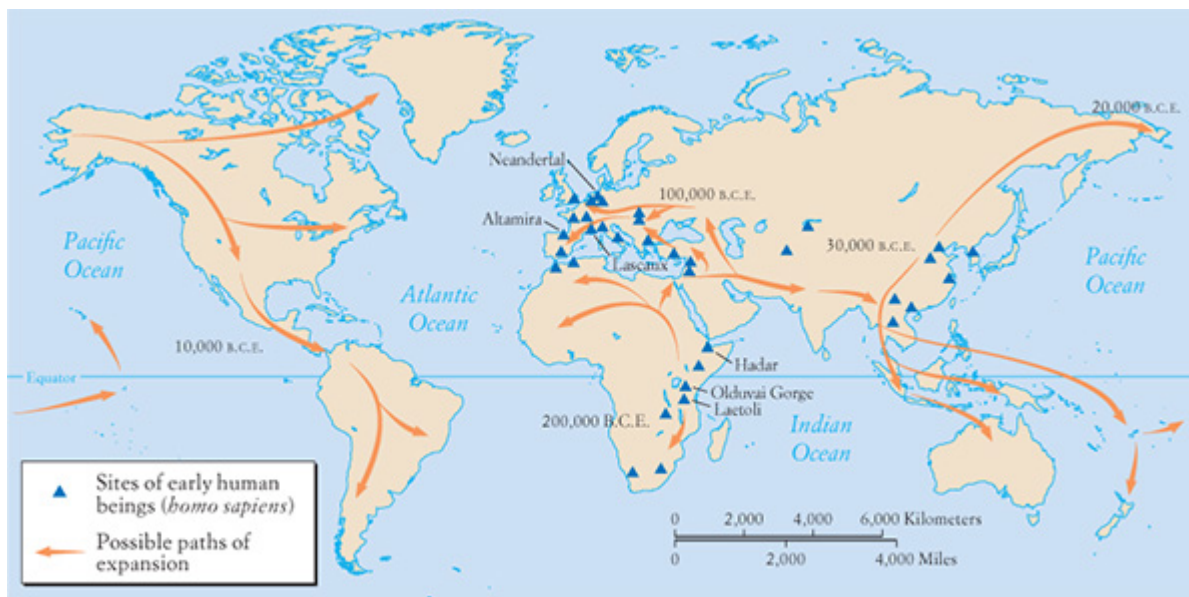
## Map 1.1

### The Spread of *Homo sapiens*

Anthropologists disagree on the details but agree that human beings entirely similar to us probably existed in every continent but Antarctica by 10,000 B.C.E. Their origin seems to have been in East Africa. From there they expanded into Southwest Asia, Australia, and Europe, and into East Asia by perhaps 75,000 B.C.E. The most recent Ice Age froze sufficient water in the Pacific Basin to enable crossing over land into North America by about 17,000 B.C.E. The rapid ensuing migration southward carried *Homo sapiens* into South America by no later than 10,000 B.C.E.

### Thinking About This Map

What factors, especially environmental, can you imagine that would have induced early hominids and humans to leave Africa and migrate across the entire world? Do you think this was done suddenly or gradually?



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