

# The End of the World as We Know It

I have seen yesterday. I know tomorrow.

—Inscription in Tutankhamun's tomb

“My father,” the elderly woman said quietly, “was born in slavery.”

In the 1980s, when I was teaching anthropology at the University of Louisville, I gave a lecture using archaeology to peer into the future. I tried to be optimistic and thought I had succeeded, but a student in the front row raised his hand and said dejectedly, “The way things have been is the way things always will be.” I was struggling for an answer when an elderly African American woman came to my rescue. I knew this woman because she frequently stayed after class to chat. I knew that she had been born in 1905; that she had had no chance for an education early in life; and that she had seen to her children's and grandchildren's education before deciding it was time for her own. But I clearly didn't know everything about her.

As she spoke, students turned and looked at the woman, as if seeing her for the first time. None had ever been so close to the heinous institution of slavery. She explained that her father had been born just before the Emancipation Proclamation and had married late in life. He had lived through Reconstruction, and she had lived through the Jim Crow era, KKK lynchings, Selma, and the civil rights movement. “Things do change,” she concluded.

Yet the pessimistic student dismissed her with a wave of his hand. It was rude, but it wasn't rudeness he intended to signal; it was hopelessness.

You've heard the joke that the light at the end of the tunnel is an oncoming train. That's how many people see the future—a locomotive

bearing down upon them and no place to jump off the tracks. And why not? Climate change, economic inequality, crowded cities, global pollution, terrorism, corrupt political systems, random shootings, and atrocities in the name of religion leave little room for hope. Many people today feel their lives are a never-ending episode of *The Walking Dead*, zombies lurking around every corner.

But there is reason for hope, and the economist Herbert Stein tells us why in his famous “law”: if something can’t go on forever, it won’t. As an archaeologist, I know that world prehistory proves Stein’s law. Even a quick glance at the ancient world tells us the past was quite different from the present. Fifteen thousand years ago, everyone in the world was a hunter-gatherer; today, almost no one is. Few people are even farmers; in fact, only a tiny fraction of the world’s population is directly involved in food production. Our Stone Age ancestors could not have envisioned our sophisticated technology or global economy. Yes, things do change.

But I can hear you saying, “OK, the way things are is not the way things were, but maybe the way things are is the way things will be from now on. Maybe we’ve reached the end of history.”

Maybe, but I doubt it. I doubt it because understanding why humanity changed in the past helps us understand why the future will be different from today. In fact, an understanding of prehistory leads me to conclude that we can expect everything from technology to politics to international order—even the very character of humanity—to change radically in the near future.

And now I can hear you saying, “Everything’s going to change all right. We’re all going to hell in a handbasket!”

I can’t shut the door on that possibility, but I don’t think that’s the lesson to draw from six million years of human evolution.

From the perspective of a species, evolution’s job is to ensure the continuation of that species’ genetic material. As long as you live to reproduce and rear young to reproduce, evolution doesn’t care about you. It has no greater purpose. What’s curious about the process, though, is that in achieving its purpose, evolution creates some creatures remarkably different from those it started with. Mammals are the products of single-celled organisms that fought microscopic battles in the primordial seas hundreds of millions of years ago. Those songbirds singing sweetly on your back fence came from fearsome dinosaurs (think about that next time you munch on chicken nuggets). And everyone today—from Dutch dairy farmers to Silicon Valley computer scientists—is the result of our ancestors trying to be the best hunter-gatherers they could be. In trying to be one

thing, organisms reach a tipping point and become something completely different. This is what evolutionary theorists label *emergent phenomena*.

In this book I argue that humans have passed through four such tipping points over the past six million years. I label them *beginnings* since they mark periods when the basic character of human existence changed and our species began a new life. In chronological order these are the beginning of technology, the beginning of culture, the beginning of agriculture, and the beginning of a political organization called the *state*. Knowing how archaeologists recognize these beginnings will lead to the conclusion that we've arrived at yet another tipping point: the fifth beginning.

Humans arrived at each of these beginnings through several processes, but a primary driver is increased competition brought about by population growth. If you know nothing else about evolution, you probably know the expression "survival of the fittest." It's often attributed to Darwin, although he didn't coin it (that was his contemporary, Herbert Spencer; Darwin did use it in later editions of *On the Origin of Species*). Evolution does indeed thrive on competition; it's the "red in tooth and claw" part of it (Darwin didn't say that either; that's from Alfred Lord Tennyson's 1850 poem *In Memoriam A.H.H.*). Competition secures the necessities of life by securing an organism's advantage over others, by being better at finding food, shelter, or mates. As we will see in subsequent chapters, our Pleistocene ancestors who wielded stone tools beat out those who didn't. Those who had gained the capacity for culture beat out those who did not. Agriculturalists eventually overran hunter-gatherers. And chiefdoms and tribes gave way to state societies, which now dominate the world.

Despite the power of competition, those who study evolution are aware that altruism and cooperation are also essential components of the evolutionary process.<sup>1</sup> They help produce alliances, and alliances—mutually beneficial, you-scratch-my-back-and-I'll-scratch-yours relationships—are often integral to competition. In the fifth beginning, the one we are now in, I expect the evolutionary process to encourage more such relationships and to bring about an economic, social, and political order based more on cooperation than on competition; in fact, the fifth beginning might mark an era in which we compete at cooperation.

In my mind, the only question is whether we make this transition, the fifth beginning, the easy way or the hard way.

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I'm sure there was a time when I wanted to be a cowboy, or a fireman, or an astronaut, but I can't recall wanting to be anything other than an

archaeologist. As a boy, I loved the outdoors, camping, and the idea of living off the land. That led me to an interest in Native Americans and in how they used to live. I read what I could, searched for caves, and collected arrowheads from the fields of a neighboring dairy farmer. Anything old fascinated me, so I tracked down colonial roads from old maps, explored the crumbled foundations of abandoned mills, and raked through historic dumps for bottles. I filled my bedroom with arrowheads, bones, and fossils. Fortunately, my parents indulged this hobby and when I was eleven or twelve years old, my mother gave me a copy of Sir Leonard Woolley's 1961 book *The Young Archaeologist*; it still sits on my university desk. You might think this an odd childhood, but actually many professional archaeologists found their passion at a young age.

*National Geographic* captivated me, especially its articles about “primitive” people in far-off places and those about Jane Goodall and her chimpanzees. The magazine led me to the work of Louis and Mary Leakey, who, at the time, were discovering the remains of early human ancestors in eastern Africa. I yearned to be there, in Olduvai Gorge, walking those barren hillsides looking for tiny scraps of bone. Although I grew up in rural New England, my heart has always been in wind-swept deserts and mountains.

In 1973, when I was sixteen, a thoughtful high school guidance counselor showed me a brochure for Educational Expeditions International (EEI); today it's known as Earthwatch. This group matches interested volunteers with field scientists such as geologists, biologists, zoologists, and archaeologists. EEI gave scholarships for high school students to spend a summer working on a research project. I applied for and received one, and was sent to work with David Hurst Thomas, an archaeologist at the American Museum of Natural History. It was my good fortune to have crossed paths with a rising star. I worked with David as he excavated a cave in central Nevada and for years afterwards until, in fact, I began my own doctoral field research. Today, he and I coauthor two college textbooks.

Over the past forty-odd years, I've participated in field projects throughout the western United States, as well as in the U.S. southeast, New York City (where I helped excavate a site on Wall Street), Maine, and Kentucky. I've worked on an Inca site on the edge of Chile's Atacama Desert. I've excavated 13,000-year-old “Paleo-Indian” campsites, nineteenth-century privies, human burials, pueblos, and caves—in deserts and humid forests, on coasts and 12,000-foot mountain peaks.

I've also done ethnographic research in Madagascar with the Mikea, a group of horticulturalist/hunter-gatherers.

Through all of this I remained interested in hunter-gatherers. I admit that my initial attraction was romantic. There was something very earthy and genuine about people who live simply, using their ingenuity and effort to harvest what nature provides and leaving only a small footprint behind. It seemed to me that hunter-gatherers were closest to how humans should live: peacefully, in small groups, with few material possessions.

Of course, like most of the things we believe as youths, this was partly an illusion. Hunter-gatherers can be violent and territorial—and materialistic: one young Mikea man asked me to bring him “an airplane, or maybe a tractor,” and another asked me for everything I had, right down to my wedding ring. Many hunter-gatherers hunted species to extinction, and others altered their landscape's vegetation by periodically burning it off. When one Mikea man left the savanna burning behind us, I asked him why he had done so. He looked at me with surprise and replied: “It'll be easier to walk through when we return.” (He was right.)

Humanity has spent 99 percent of its existence as hunter-gatherers; it was an enormously successful adaptation. Consequently, I can't study hunter-gatherers without also thinking about what early human life was like and how we came to be the species we are. And that led me to wonder why we changed, why we became agriculturalists and why we developed cities, armies, slavery, and ruling classes. If a simple technology coupled with life in small egalitarian, nomadic groups worked so well for so long, why did we give it up? Why aren't we still hunter-gatherers?

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Archaeologists devote their lives to looking backward, to seeing where humanity has been. That might seem to be an odd qualification for someone who wants to write about the future. But I hope to show you that archaeology is not just about the dead; it's also about the living. And it's not just about the past; it's also about the future.

Archaeology provides a crucial record of human history. For most of our history, it's the only record we have. Yet if you read a book on world history, you'll most likely find prehistory covered only in the first chapter or perhaps only in that chapter's first paragraphs. In textbooks, history often begins with the Egyptian, Greek, Roman, and Chinese “civilizations.” Prehistory is mere stage setting: *you got your apes, some*

*come down from the trees and walk upright, our brains get bigger, we make stone tools, paint cave art, grow wheat*—and then on to the real history, the important stuff. But by relegating prehistory to background, historians miss the big picture.

Archaeologists are amused when they hear hyperbole like “He’s the best football player in history” or “This motion picture is the biggest blockbuster of all time.” American football and motion pictures both trace their origins to the 1890s—just over a century ago. To an archaeologist, that’s less than the proverbial blink of an eye. We think in time scales of thousands, tens of thousands, or hundreds of thousands of years. I admit those timescales are difficult to imagine. And yet, if we want to understand significant beginnings in human history—not just the small tweaks that written history records but big, top-to-bottom, front-to-back, no-turning-back kinds of change—we need to look at human history using the biggest scale possible, one provided only by archaeology.

So why do archaeologists think humanity took the particular course that it did, passing through several new beginnings? Here’s a hint: it has nothing to do with progress. Instead, evolution has always tried to make us the best at one thing, but in doing so, it turned us into something quite different. My cherished hunter-gatherers, for example, became agriculturalists while trying to be the best hunter-gatherers they could be. And in trying to be the best industrial, capitalist, competitive nation-states we can be, we too should expect to become something completely different. To cut to the chase, capitalism, the globalization of culture, and the arms race are working together to guarantee a complete change in the organization of human society. It’s the end of war as a viable way to resolve disputes, the end of the nation-state and capitalism as sacred organizational and economic forms, and the beginning of global citizenship. It’s the end of the world as we know it.

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As the ball dropped on Times Square on December 31, 1999, many people expected chaos to reign as computer clocks tripped over to 2000 (never mind that they had already tripped over in Beijing and London without consequence). Some computers were not designed to change the fourth-place digit from 1 to 2, and many expected failures in everything from airline equipment to banking systems. But the hype did not live up to expectations. Planes did not fall from the sky, and the world’s financial system did not collapse.

True believers, however, were undeterred and they looked elsewhere for confirmation that the world was ending. Some found it in the traditions of the Maya, who, the story goes, predicted the world would end on December 21, 2012.

Since you are reading this book, you know that prediction didn't come true. But don't blame the Maya for being Chicken Littles, because they never actually predicted the end of the world. The Maya were preoccupied with time, and they worked with several calendars that told them when the king had to perform a lot of world-renewing ceremonials, rites that often involved his blood (sometimes drawn from his tongue with obsidian blades—it's not always good to be king).

One Maya calendar in particular bothered the modern doomsayers, the Long Count. The Long Count literally counts the number of days since the beginning of time, or what the Maya considered the beginning of time. Since the Maya were so good about putting dates on things, scholars with code-breaking skills comparable to those of Alan Turing were able to reckon the Long Count with the Gregorian calendar and calculate the Maya beginning of time and of the Long Count: August 11, 3114 B.C. The Long Count is made in five units of days: b'ak'tun (144,000 days), k'atun (7,200 days), tun (360 days), winal (20 days), and k'in (1 day). Mayanists write dates with shorthand, for example, 12.2.6.4.2, which is 12 b'ak'tun ( $12 \times 144,000 = 1,728,000$  days), 2 k'atun ( $2 \times 7,200 = 14,400$  days), and so on. Add these figures together and you have the number of days that have passed since August 11, 3114 B.C. With this information, archaeologists can date events in Maya history with remarkable precision.

The problem comes from the fact that on December 21, 2012, the Maya Long Count clicked over to 13.0.0.0.0. I guess this seemed ominous to some members of a culture that stigmatizes the number 13. But it didn't bother the Maya (13 was a special number to them, but so was 20). In fact, as far as we know, they mentioned the future date only twice, both in harmless ways. All the hype and hoopla had no basis in Maya calendrics.<sup>2</sup>

The Maya did not predict the end of the world, but many other people have done so. One wave of millennial movements in the United States arose in the early nineteenth century, when a variety of new religions sprang up claiming the second coming of Christ and the apocalypse. The Mormon faith (the Church of Jesus Christ of Latter-day Saints) arose in the 1820s, as did a number of utopian communities, such as New Harmony, Indiana (1825). The Shakers (more properly

known as the United Society of Believers in Christ's Second Appearing) formed in England in the mid-eighteenth century, but reached their greatest numbers in the United States about 1840.

These phenomena are known to anthropologists as "revitalization movements." In such movements a prophet claims that the end of the world's current order is imminent. Those prophets assert that people have lost their way, and to survive the coming apocalypse, they must return to their roots, a process that, oddly, almost always entails new beliefs. Shakers, for example, shunned sex, believing it to be the root of all evil and no longer necessary in a world about to end. The Mormon faith added a new chapter to the Bible, one that describes Jesus's appearance in the New World for a time after his resurrection.

Obviously, the world didn't end in the 1840s, but that didn't stop people from thinking Armageddon was just around the next corner. In fact, it seems every generation thinks it's living in end-days. The current round of end-of-the-world fever was anticipated by the rock band R. E. M., with their 1987 hit "The End of the World as We Know It (And I Feel Fine)." But it wasn't only rock stars who had a sense of impending doom. "The End is Near" is normally associated with cartoons of a placard-carrying ascetic. But starting in the late 1980s, a parade of respectable authors titled their works with the same sense of finality. The first was Bill McKibben's 1989 book, *The End of Nature*. The same year Francis Fukuyama published an article (in *The National Interest*) entitled "The End of History?" which appeared as a book in 1992. In fact, there are about twenty books with titles asserting the end of one thing or another.<sup>3</sup>

Using "The End of" in a title is clearly a marketing ploy aimed at the mystique that surrounded the end of the twentieth century. These books aren't religious tracts, but they are nonetheless "millennial" books that describe end-times. And while some are upbeat (who can't applaud the end of racism, poverty, war, or, especially, of politics?), many tell us that tragedies, all of our own devising, are fast approaching and that we must reform ourselves quickly to avoid them. Other authors (such as Jared Diamond in *The World until Yesterday*) avoided the end-of-the-world marketing shtick but still proclaimed that human evolution did not design us for life in large cities; diets high in fats, sugars, or carbohydrates (turns out that nothing you eat is good for you); or for cooperation on the scale we now need. Biologist E. O. Wilson has issued similar warnings for years (e.g., in *The Future of Life*, *The Social Conquest of Earth*, and *The Meaning of Human Existence*).<sup>4</sup> Take a



look in any bookstore and you'll see many nonfiction best sellers are pessimistic—and with good reason.<sup>5</sup>

Although we have made remarkable technological progress in just the past century, the daily headlines of mayhem and atrocities lead many to see the glass as half-empty. Vice President Al Gore presented a litany of interconnected problems facing humanity in *The Future*, and Henry Kissinger warned of coming chaos in *World Order*. In *The Ends of the Earth* Robert Kaplan sees little hope for much of Africa and Asia, with so many of their countries wracked by disease, failed governments, warlords, crime, and environmental destruction.<sup>6</sup> Since 1980 inequality both within and between countries has increased dramatically. In fact, Oxfam estimates that the richest 62 people in the world today control as much wealth as the poorest 3.5 billion of the world's population.<sup>7</sup> Even if that estimate is off by one or two orders of magnitude (maybe it's 620 or 6,200 people), the statistic would still be alarming.<sup>8</sup>

And that's not all. Elizabeth Kolbert (*The Sixth Extinction*), Naomi Klein (*This Changes Everything*), Gaia Vince (*Adventures in the Anthropocene*), Alan Weisman (*Countdown*), Julian Cribb (*The Coming Famine*), and Naomi Oreskes and Erik M. Conway (*The Collapse of Western Civilization: A View from the Future*) all expect population growth and climate change to bring horrendous problems. In fact, we may have already passed the Rubicon of climate change and can hope only to respond to its effects rather than prevent them.<sup>9</sup> The current human population of almost seven and a half billion is expected to reach nine to ten billion before the end of this century—in a world that some demographers estimate can maintain a first-world lifestyle for everyone with minimal environmental damage at a population of only one and a half billion.<sup>10</sup> Someone is going to lose.

Sadly, most of these authors doubt whether we have the collective will to implement the necessary solutions as quickly as they are needed. Instead, they believe our political and economic systems guarantee that nothing short of a combined environmental, demographic, economic, and political catastrophe will produce change.

Others, though, are optimistic. In the glass-is-half-full category are Robert Wright in *Non-Zero: The Logic of Human Destiny*, Matt Ridley in *The Rational Optimist*, Steven Pinker in *The Better Angels of Our Nature*, Charles Kenny in *Getting Better*, Joshua Goldstein in *Winning the War on War*, and Angus Deaton in *The Great Escape: Health, Wealth, and the Origins of Inequality*. These authors point to more promising statistics: All forms of violence are down (even as our perception of

violence is up). Food availability is up (though malnutrition and obesity are worse). Child mortality is down, and life expectancy has risen by 50 percent in the past century. Since 1980 the proportion of the world's population that lives on \$1 a day is down from 42 to 14 percent. Advances in medicine are remarkable, and life spans have increased by some thirty years in developed nations. Globalization opens more doors and opportunities than ever before. The Internet has made the exchange of ideas among a global population possible, and that creates knowledge at a rate the world has never seen. The remarkable ability of our species for cleverness leads Diane Ackerman, in *The Human Age*, to see hope for resolving environmental problems. If we've got a ways to go, and we do, at least some indicators are moving in the right direction.<sup>11</sup>

Prehistory teaches us that humans excel at solving problems, that evolution has always been remaking us. Of course, as stockbrokers say, past performance is no guarantee of future results. We could indeed be headed to hell in a handbasket. But prehistory tells me that doesn't have to be the case; the future could be ours to make.

Before we can get to the future, however, we must examine the past. And before we can do that, we need to know a little about how archaeologists think in order to show how they recognize humanity's significant beginnings, beginnings that have repeatedly marked the end of the world as we know it.