"No other book integrates the study of human history with principles of biological and cultural evolution on such an ambitious scale."
David Sloan Wilson, author of *Darwin's Cathedral*

On Deep History and the Brain

Daniel Lord Smail

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PREFACE

In the 1970s, John R. W. Smail, a professor of Southeast Asian history at the University of Wisconsin, began teaching "The Natural History of Man," an undergraduate course that ranged freely across the millennia, paying little attention to the boundaries of modern disciplines. Looking back on it, I can see that he was influenced by evolutionary approaches to the understanding of society that were just starting to filter back into the social sciences in the 1960s. At the time, however, it seemed like a rather odd course for a professor of Southeast Asian history to be teaching. Be that as it may, I developed my own life-long fascination for natural history, evolution, and the theory of natural selection while listening to my father try out his ideas on us, a pattern that my own children will no doubt recognize. Several decades later, as my father was collapsing under the iron grip of Alzheimer's, I decided to try my own version of a deep history of humankind as a kind of intellectual memorial. The result, in the fall of 2000, was "A Natural History," a course I was to teach on two more occasions at Fordham University. This book has grown out of that course. More accurately, it first took form as a short introduction

to the deep history itself, a book based on my lecture notes that I still hope to write someday. In the writing of that introduction, however, it became a chapter, then two chapters, growing ever longer, ever more complex, and even those initial forays left a great deal unsaid. Like an iceberg calving off the face of a glacier, the introduction eventually detached itself and now floats on its own as the philosophical prolegomenon to the writing of a deep history. People have reminded me how frustrating it can be to read about how and why we should contemplate a deep history without seeing the history itself, and it is hard to disagree with them. The epilogue is a small gesture toward satisfying this need. But I felt that the alternative—gluing the prolegomenon back onto the history itself—would produce one of those six-hundred-page tomes that sit, unread and reproachful, on our bookshelves. The sort of book that makes a thud when you drop it onto the table. The weight of its pages implies a claim to authority that I cannot possibly hope to make. This book is meant to be an essay, though one written with a false confidence that masks the provisional nature of the argument.

One embarks on interdisciplinary projects like this with more than the usual trepidation. The result, in my case, was a deeply felt need to test out ideas on friends, colleagues, sometimes even new acquaintances just a few minutes removed from being perfect strangers. Everyone—well, almost everyone—was kind and patient and sometimes even warmly enthusiastic. Some raised quizzical eyebrows, others noted the obvious flaws, still others zeroed in remorselessly on the less obvious, indeed the intractable flaws. All of these responses—the warm and the cold, the welcome and the painful—gave me ideas about how to choose my emphases and where to invest my energies. Members of the fac-

ulty seminar in the history department at Fordham University read or heard some of the earliest versions of these arguments, and I thank my former colleagues, among them Rick Geddes, Richard Gyug, Ann Johnson, Maryanne Kowaleski, Mike Latham, David Myers, Silvana Patriarca, Tip Ragan, Asif Siddiqi, Kirsten Swinth, Susan Wabuda, and Rosemary Wakeman, for their thoughts and comments. Doris Goldstein read an early draft of some of the arguments in the first two chapters and was generous in sharing her then-unpublished work. Lynn Hunt read an early version of the entire set of ideas; her remarks, as I found with my first book, have the extraordinary capacity to crystallize one's thinking in productive ways. Beyond that, Lynn just knew what I was talking about, and that made such a difference. Gabrielle Spiegel will probably feel chagrined to hear that she often peers invisibly over my shoulder as I write. Her comments on a draft of chapter 3 exposed some serious conceptual flaws. I would like to say I have solved them, but, even if I cannot, the final version of the chapter is certainly better for the experience. Dan Mroczek provided suggestions on chapters 4 and 5, Bruce Holsinger helped me wrestle with some difficult ideas in chapter 4, and David Roger Pilbeam gave the manuscript the much-needed vetting of a paleontologist. Morgan Sonderegger, my research assistant, contributed some crucial research to chapter 5, providing reports so lucid that my paraphrases were scarcely any improvement, and, in one crucial spot, it seemed best to let his report speak for itself. Tip Ragan has been a good and close friend for many years. He has been bound up with this project all along, for though our friendship runs to many dimensions, he was there when I first began thinking about natural history.

I presented chapters 1, 2, and 5 in various forms to audiences

at Colorado College, the University of California at Los Angeles, and Princeton University, and thank Tip Ragan, Lynn Hunt, and Gyan Prakash for organizing these seminars and talks. At UCLA, Patrick Geary gave fruitful criticism and advice, and I am especially grateful for Teofilo Ruiz's hospitality, friendship, and enthusiasm. David Sloan Wilson, who read the first draft of the manuscript for the University of California Press, also gave me a chance to test out chapters 4 and 5 as a guest of the Evolutionary Studies program at Binghamton University. I thank David and his wife, Anne B. Clark, for their hospitality during my stay. After a wonderfully productive seminar, lecture, and Q&A session with dozens of students, we returned to their house to talk biology far into the night. David, as I recall, bailed out shortly after midnight, just when Anne and I got onto the subject of crows.

Kevin Padian, believing, I think, that conversations do things that reports cannot, leavened his own sharp reading of the manuscript with an invitation to dinner in Berkeley. I have done what I can to respond, though I am sure he would have liked to see more. My thanks to Kevin and Nancy Padian, Matt Wedel, Alan Shabel, and Lucia Jacobs for what proved to be a memorable evening. Readers like these are a treasure. I also want to thank Bonnie Wheeler and Jeremy Adams for an invitation to address the members of a seminar at Southern Methodist University and respond to their reading of chapters 4 and 5. I learned a lot from all who attended and delighted in their warmth and hospitality.

I ran ideas for the book past John Ackerman, David Armitage, Susan Ashley, Paul Mathews, Mike McCormick, Dennis McEnnerney, David Nirenberg, Teofilo Ruiz, Rob Schneider, and many others whose names are absent not because the author

is ungrateful but because he is forgetful. David Christian read an early draft of the manuscript for the University of California Press and provided a helpful critique that set me thinking about important issues of presentation. Niels Hooper, my editor at the University of California Press, has been tirelessly interested in and enthusiastic about this project, and I am happy to acknowledge the careful production help provided by Suzanne Knott and Julia Zafferano.

Portions of the introduction and chapters 1 and 2 appeared in an article entitled "In the Grip of Sacred History," published in the *American Historical Review* 110 (2005): 1337–61, and I gratefully acknowledge permission to reuse this material. The anonymous reviewers of the manuscript gave me lots to think about. Michael Grossberg, the editor at the time, also deserves my thanks and gratitude, as does Jane Lyle, who shepherded the manuscript through production and helped with the illustration program.

For several years I collaborated with a team of teachers at Chatham High School (New York) who, under the leadership of Mike Wallace, have been engaged in a Big History project. Although they always made me feel that I was bringing something to them, in fact it was quite the other way around. It is one thing to conceive of grand schemes; it is quite another to be reminded that these schemes have to be translated into meaningful lesson plans if they are to make any difference. I have been inspired by their enthusiasm and the enthusiasm of their students. And, speaking of which, among my most important debts are to my own students, the undergraduates who took "A Natural History" at Fordham University between 2000 and 2004. These include Jordan Ballard, Ben Bowman, Laura Criscitelli, Maria

Dembrowsky, Edward Djordevic, Lori Gorcyca, Rosemary Ramsey, and many others. They objected, absorbed, and reflected with seriousness and purpose and told me, directly and indirectly, what worked and what did not work. Like others, I often teach the things that I research. With this book, I have learned how rewarding it can be to research the things that you teach.

My children, Ben, Irene, and Gregory, bring pride and pleasure in equal measure. They were probably not aware that I was doing research whenever I grilled them on the operations of gossip or status hierarchies in high schools or grade schools. Soon, I am sure, I shall be learning even more from them. My wife, Kathleen, has kept all of us together across an eventful couple of years, and she has been my source of stability, a social and moral compass, and a check on my sometimes intemperate enthusiasms. My mother, Laura L. Smail, edited the manuscript and helped correct the proofs. I hope she will see this book as the sort of thing my father might have done himself if Alzheimer's had not robbed him of the chance.

INTRODUCTION

Toward Reunion in History

I have written this book for people who are interested in origins and believe that history should begin at the beginning. For centuries, in Europe, that beginning lay in the not-too-distant past, with the creation of man in the Garden of Eden. This was the story told by sacred history, and it was the platform on which history's chronology was erected. Then, with the sudden and widespread acceptance of geological time in the 1860s, western Europe's chronological certainties came crashing down. Stephen Jay Gould has called the discovery of deep time a cosmological revolution of Galilean proportions.[1] Over the course of several decades in the mid-nineteenth century, the great historical sciences—geology, biology, paleoanthropology—were made or remade as the bottom dropped out of time, exposing a nearly endless vista. Yet in those early decades, the discipline of history recoiled from that vista, fashioning instead a view of history that begins with the rise of civilization. This view dominated curricula throughout the twentieth century. There were calls for a history that dealt seriously with the time before civilization, but, with some noteworthy exceptions, they never came to much.

Only recently have historians begun to address seriously the possibility of tearing down the veil of prehistory.

Nosce te ipsum. If humanity is the proper subject of history, as Linnaeus might well have counseled, then it stands to reason that the Paleolithic era, that long stretch of the Stone Age before the turn to agriculture, is part of our history. Despite enormous strides in the field of paleoanthropology over the past several decades, however, the deep past of humanity still plays a marginal role in the grand historical narrative as measured by the history curricula offered in secondary schools and colleges in the United States and the textbooks used to teach them. Most textbooks used in Western Civilization courses include relatively little on the Neolithic era, the period between the shift to agriculture roughly 10,000 years ago and the invention of bronze tools around 5,500 years ago. The Paleolithic era, the Old Stone Age, merits even less. Some books in world history extend human history back to the outset of the agricultural revolutions, breaching the date of 4000 B.C. that used to figure prominently in many Western Civ textbooks. Yet even world history surveys currently do not deal significantly with the Paleolithic.[2] Historians, for all intents and purposes, still regard deep history as prehistory, the time before history. As Mott Greene has noted, *prehistory* is a term that modern historians have been reluctant to let drop. "To abandon prehistory," he says, "would be to postulate continuity between the biological descent of hominids and the 'ascent of civilization' of the abstract 'mankind' of humanistic historical writing. Prehistory is a buffer zone."[3]

A deep history of humankind is any history that straddles this buffer zone, bundling the Paleolithic and the Neolithic together with the Postlithic—that is, with everything that has happened

since the emergence of metal technology, writing, and cities some 5,500 years ago. The result is a seamless narrative that acknowledges the full chronology of the human past. Although the themes of a deep history can coalesce around any number of narrative threads, the one I propose in this book centers on biology, brain, and behavior. In the course that I teach, I include elements of other threads—climate and ecology, disease, webs and exchanges, human morphology, sex and gender—to round out the story. Teaching this history has been a transformative experience, both for me and for a number of my students. But with each iteration of the course, their questions have made me think hard about key issues. Is all the science so necessary? Is the deep history going to make any difference to how we understand more recent history? How can you glue the Paleolithic onto the Postlithic if there are no surviving institutions around which a narrative can gel? Above all: is it really history, or is it just anthropology written in a historical key?

Struggling with all these queries, I have come to realize that the resistance to deep history does not necessarily come from my students. It comes from me. It is rooted in paradigms, in discourse, in the nameless things that one of my advisers liked to call "ghost theories," old ideas that continue to structure our thinking without our being fully aware of their controlling presence. This book is designed to explore the ideas and attitudes, common to professional historians though not necessarily shared by the general public, that quietly undermine our willingness to contemplate humanity's deep history as history, not just biology or anthropology. It is a work of frank advocacy, at once a defense of the necessity of deep history as well as an outline for the writing of it.

Of all the obstacles to a deep history, the most serious may well

prove to be simple inertia. For several thousand years, historians writing in the Judeo-Christian tradition were accustomed to framing history according to the short chronology of sacred, or Mosaic, history, the chronology that frames the story recounted in Genesis. The time revolution brought an end to the short chronology as a matter of historical fact. Yet the historical narrative that emerged in U.S. history curricula and textbooks between the late nineteenth century and the 1940s did not actually abandon the six thousand years of sacred history. Instead, the sacred was deftly translated into a secular key: the Garden of Eden became the irrigated fields of Mesopotamia, and the creation of man was reconfigured as the rise of civilization. Prehistory came to be an essential part of the story of Western Civ, but the era was cantilevered outside the narrative buttresses that sustain the edifice of Western Civilization. Its purpose was to illustrate what we are no longer. In this way the short chronology persisted under the guise of a secular human history.

Yet not all resistance was due to inertia. Over the past century and more, as the ghost theories have precipitated out of the aqueous solution of historiography, several pointed arguments justifying the exclusion of humanity's deep past from the chronological framework of history have found their way into textbooks and works of general history. The authors of these works noted the absence of written documents. They proposed the idea that history concerns nations, not rootless bands. They developed the myth of Paleolithic stasis, the idea of a timeless dystopia whose unchangingness was only broken, deus ex machina, by some ill-defined catalytic event that created movement and history. That was the point of rupture, the moment in time, in or around the fourth millennium B.C., when biology finally gave way to culture.

In these and other ways, works of general history explained why there could be no narrative continuity between prehistory and history.

The intellectual obstacles that once prevented the absorption of deep time have, for the most part, dissolved. New research in the genetic and archeological archives has transformed a once-undifferentiated past of several hundred thousand years into a past punctuated by extraordinary events and adventures. Few, today, can maintain a belief in a changeless Paleolithic. The middle to late Paleolithic has now been dated with considerable precision, making available the chronological scaffolding unavailable to historians writing in the first half of the twentieth century. Archeologists have uncovered late Paleolithic towns and villages with populations numbering up to a thousand people, suggesting that complex political forms do not require agriculture's organizing power. Analyses of arrowheads and amber have shown the existence of long-distance trading networks. A new appreciation for oral composition and social memory has shown just how little the technology of writing has actually added to our ability to recall and duplicate the lessons of the past, rendering suspect the claim that writing has a catalyzing effect on culture.

Of all the arguments made by historians for neglecting the Paleolithic, the most unforgiving has been the question of evidence. The Paleolithic is an undocumented world, at least insofar as *document* has now come to mean something that is written and not, following its Latin root, "that which teaches."[4] This would seem to mark an impervious rupture between the ways in which we can know the recent past and the deep past. But the logic no longer holds up well to scrutiny. Few historians today would deny historicity to the Incans, to Great Zimbabwe, or to

the illiterate slaves and peasants of societies past and present merely because they failed to generate writings through which we could touch their thoughts and psyches. A people or a nation would not cease to be historical if the ravages of time, war, colonialism, or prejudice reduced their archives to dust and ash. The ancient world is unimaginable without archeological evidence; the Middle Ages very nearly so; and the effort to reconstitute the lives of the peoples without writing has been one of the signal achievements of the twentieth century. So what does it matter that the evidence for the deep past comes not from written documents but from the other things that teach—from artifacts, fossils, vegetable remains, phonemes, and various forms of modern DNA? Like written documents, all these traces encode information about the past. Like written documents, they resist an easy reading and must be interpreted with care. The cone of available evidence, like the flower of a trumpet vine, flares out after the invention of writing. But the history itself, from the long, narrow tube to the flaring bell, is seamless. This is the logic that makes the deep past legible.

The goal of the first three chapters of this book is to lay bare some of the historiographical, epistemological, and theoretical obstacles that have hitherto obscured the legibility of deep history. Bringing these arguments into the open, we can appreciate how we no longer need to be bound by their logic. Yet not all problems are so easily overcome. As I have discovered through trial and error, one of the major hurdles to writing a deep history is the lack of demonstrable continuities between the Paleolithic past and the Postlithic present. Presenting the stream of history in introductory historical narratives, lectures, and textbooks, historians like to deal with origins and legacies, what Ernst Breisach

calls "the marks of the past."[5] These take the form of institutions that endure or atavisms that are swept away in the course of revolutions. They lie at the heart of the stories we like to tell. But what possible legacies were transmitted to us from the Paleolithic? Where is our connection to that world? Deploring the very same chronological break that I deplore, and aware of the need to structure historical narratives around legacies, William McNeill once proposed making a usable past intelligible through a study of disease. It was a workable solution, used to great effect both by McNeill himself and, two decades later, by Jared Diamond.[6] McNeill has also used dance and other devices for binding the long historical narrative into a seamless whole. More spiritually based solutions have also been tried, and still other options present themselves to the enterprising historian. Yet none of these addresses what I take to be the most obvious device for making the deep past intelligible, and that is the brain.

The possibility of using the brain as a device for building a continuous narrative had already been perceived in 1912 by James Harvey Robinson when he proposed a history that pays attention to human psychology and simian mental modes. As he put it, "we are now tolerably well assured that could the human mind be followed back, it would be found to merge into the animal mind, and that consequently the recently developing study of animal or comparative psychology is likely to cast a great deal of light upon certain modes of thought."[7] As we learned during the 1990s, the decade of the brain, many features of the brain and brain-body chemistry are deeply rooted in our evolutionary history and were put there by natural selection. Among historians, this conviction has been reflected in the form of the biological or cognitive turn.[8] As the fourth and fifth chapters of this book will

show, a grand historical narrative that links the Paleolithic to the Postlithic can coalesce, in part, around the continuous interplay between human culture, on the one hand, and the human brain, behavior, and biology, on the other. I take this to be what Clifford Geertz once described as the "reciprocally creative relationship" between biology and culture.[9] This is not the whole story. A narrative is built of many threads. But to pursue the biological legacies of the deep past into the present is one of the most vivid ways I know of to make that past relevant. The goal of chapter 4 is to show how features of culture can be wired in human physiology, a key to appreciating human sameness as well as cultural difference. Chapter 5 explores some of the historical hypotheses that can be generated from the knowledge that the neurochemicals associated with feelings, moods, and emotions are highly susceptible to cultural input.

It should never be necessary to explain what a book is not. All the same, any book that deals with history and the brain is capable of being misunderstood, so it is better to leave no ambiguity about the point being made in the following sentence. This book is not a proposal to bring evolutionary psychology into the realm of history. For reasons discussed at length in chapter 4, evolutionary psychology, at least as the field is currently defined, is not especially helpful to the historical enterprise. I am a firm believer that historians need to work with psychology and neurobiology. Historians have always made psychological assumptions about their subjects, and our assumptions are now decades out of date. But evolutionary psychology, with its inexorable presentism, is not, I think, the way to go. This book charts an alternative path.

What do we gain from a deep history centered on the neurophysiological legacy of our deep past? Well, one benefit is a new

kind of interdisciplinarity that joins the humanities and social sciences with the physical and life sciences. This is, I hope, something we would all like to aim for. This kind of interdisciplinarity, in turn, provides an opportunity for escaping the sterile presentism that grips the historical community. In many departments of history in North America, the ancient world has already fallen off the crumbling cliff face that represents the edge of historical time. Medieval European history teeters precariously on the brink, and early modernists tread anxiously as the cracks appear beneath their feet. Time, in the hands of historians, has been a marvelously elastic concept. Made nervous by the chronological stretching that took place in the nineteenth century, historians relaxed their tension on the elastic band that marked out the time of history—and the working chronology of history contracted alarmingly, to the point where historians now contemplate far *less* time than they were accustomed to doing when the discipline was held in the grip of sacred history. To embrace the Paleolithic is to stretch the band far beyond the 6,000 years that used to represent the limits of the elastic. The refurbished chronology will make space not only for our deep history but also for our middle history, the era that came to be called "premodern" as the elastic contracted over the twentieth century.

Finally, a particular goal of this book is to advocate a history that begins where it should begin, in Africa. This is our Eden. The ancestors of non-African peoples did not leave the continent until relatively recently—about 50,000 years ago, according to the archeological evidence; 60,000 to 85,000 years ago, according to some recent estimates proposed by population geneticists. This, the most recent of several "Out of Africa" diasporas, was humanity's enduring colonial enterprise. If one of the hidden

legacies of Europe's Judeo-Christian tradition is the short chronology that still frames our understanding of time, a second legacy of sacred history is the fact that history curricula still begin in the Near East. We do not intentionally mean to validate the story of the Garden of Eden in this way. Sacred history has long since been translated into secular terms. But even if the exclusion of Africa from the story of human history is the result of inertia rather than deliberate racism, I believe we are morally compelled to examine the hidden legacies that continue to prevent us from teaching a history that begins in Africa.[10] As we move from the sacred to the human, from a historical time framed by the Mosaic chronology to a time that is defined by brain and biology, we learn to think of Africa as our homeland.

Contemplating the subject of prehistory, archeologist Glyn Daniel once wrote: "Why do historians in a general way pay so little attention to this fourth division of the study of the human past; while recognizing ancient history do they not give more recognition to prehistory? . . . Historians are taking a long time to integrate prehistory into their general view of man."[11] That was in 1962. There is a real danger in this lingering myopia. The reading public is fully aware of, and largely sympathetic to, the neuroscientific and genetic revolutions of the 1990s. Historians risk alienating this audience if they continue to ignore that part of our history which consists of the deep past. In a different vein, the terrain of the historian is being contested by physiologists, ethologists, ecologists, anthropologists, and authors from a variety of other disciplines. One is free to object to the idea of apply-

ing biology too freely to history and to raise the specter of a time, not too long ago, when some historians considered it vital to explore the emergence and spread of the "master race." But this particular objection does not justify a reflexive anti-scientism. In an age when biblical literalism is on the rise, when presidents doubt the truth of evolution, when the teaching of evolutionary biology in the United States is being dumbed down and school boards talk seriously about creation science and intelligent design, it is all the more important for historians to support their colleagues in the biological sciences. We can do so by building a human history that shakes free from the grip of the sacred. We can acknowledge that humanity's natural history persisted after the rise of civilization. The archeologists, anthropologists, molecular biologists, and neuroscientists who study the deep past are also historians, regardless of the archives they consult. This book is designed to show how we might bring about reunion within all these realms of history.

ONE

The Grip of Sacred History

Like any author engaged in the task of building a plot, the historian must grapple with the question of where to begin the story. For historians of the particular, the problem of origins is not especially acute. We choose some reasonably datable event and have that mark the beginning of our particular histories. General historians face a slightly different problem. General history, as defined by Herbert Butterfield, is a rational account of man on earth that explains "how mankind had come from primitive conditions to its existing state."[1] I use the term to embrace the universal histories of the ancient world and medieval Europe, the general world histories of the nineteenth and twentieth centuries, and the histories found in modern history textbooks, syllabuses, and lectures. Whatever their differences, all purport to begin at the beginning. But if one's object is humanity, all humanity, where, exactly, is the beginning?

For several thousand years, historians writing in the Judeo-Christian tradition were untroubled by this question of origins. Sacred history located the origins of man in the Garden of Eden, and that is where the general histories of late antiquity and me-

dieval Europe began the story. In the eighteenth century, proposals for shortening the chronology proper to general history began to circulate, as the new fad for catastrophism brought historical attention to bear on the Universal Deluge. Since human societies were rebuilt from scratch after the Deluge—so the thinking went—it was the Deluge that marked mankind's true beginning. And in the philosophy of the Neapolitan historian Giambattista Vico (1668–1744), the Deluge made all prior history unknowable anyway, since it destroyed all the documents from which we could write such a history. As an event that set the civilizational clock back to zero, the Deluge marked an epistemological break between humanity's origin, which we cannot know, and the present stream of history, which we can.

Although the flood itself has long since receded in historical consciousness, the sense of rupture, a legacy of sacred history, remains. On the heels of the time revolution of the 1860s, historians gradually came to accept the long chronology as a geological fact. But we have not yet found a persuasive way to plot history along the long chronology, preferring instead to locate the origins of history at some point in the past few thousand years. In Western Civ textbooks, which offer a convenient distillation of widely held ideas, that point of origin has been similar to what it had been under sacred history, though the creation of man was duly transformed into a secular event, the birth of civilization. Elsewhere, as I shall argue in this chapter, history's plotline was even more dramatically compressed by the growing sense that early medieval Europe had been so thoroughly barbarized that it could stand in for the Paleolithic past. If one's goal is to describe the progress of human civilization, why fret about the epistemological veil that screens us from the speechless past? Far better to

start with a knowable point of origin in the barbarian invasions of the fourth and fifth centuries. This view of medieval Europe, already in circulation by the late nineteenth century, became entrenched in the first generation of textbooks published in the United States in the early decades of the twentieth. The rise of medieval studies in North America from the 1920s onward owes a good deal to this reconfiguration of history's chronology. Although medieval history has long since forgotten its debt to the long chronology, echoes of the latter still linger in the textbooks devoted to medieval Europe.

As a device for plotting history, there is nothing wrong with the idea of rupture. We routinely begin our particular histories with plagues, wars, revolutions, and sudden transformations of all sorts. But no one claims that history *begins* in 1348 or 1789. The event we choose serves as a fulcrum, the pivot point of a teeter-totter. We might prefer to write our histories from a position astride the upswinging arm. But no one can afford to overlook the balance of the chronology on the other side. Yet this is exactly how historians, until recently, have mapped history. "History begins in the Near East," the distinguished authors of the *Columbia History of the World* told us in 1972.[2] Another textbook tells us that "history begins in Sumer,"[3] and a textbook widely used in the 1960s was actually entitled "History Begins at Sumer."[4] What were history students supposed to conclude from this? That our African ancestors lived without history? That early humans were biological entities without any meaningful culture? Can we really blame our students and our fellow citizens if they confuse the Garden of Eden with the irrigated fields of Mesopotamia?

One of the projects of the Enlightenment was to expose the products of human contrivance and replace them with timeless

truths embedded in a natural reality. Thus, units of measurement should not be dependent on the whims of particular regions but should conform instead to universal or natural truths, an idea that eventually resulted in the meter, the gram, and the liter. This chapter engages, unabashedly, in an Enlightenment project. It seeks to expose the grip of the short chronology as a human contrivance that will dissolve in the gaze of natural reason. I am aware that a history diagrammed along the full time of human history is just another contrivance, since all questions about where to begin—with the species; with the genus; with the earth itself—are equally vexed. But my purpose is served if we can acknowledge that the short chronology is indeed a contrivance, that history need not be so limited in its span, and that something we can and should call "history" begins a long time ago in Africa.

Like many before and since his time, the Greek poet Hesiod (ca. 700 B.C.) was captivated by the muse of origins. To satisfy his curiosity, he invented a Golden Age of Mankind: our origin, the place where it all began. To postulate a Golden Age was to cast a jaundiced eye toward all that came after, and, in the historical trajectory that followed from Hesiod's thought, decay emerged as the dominant metaphor. Ancient and medieval historians writing in the Judeo-Christian tradition were equally captivated by the idea of a Golden Age, though theirs went by the name of Eden. Over a period of a thousand years, after the Roman Empire absorbed Christianity, historians writing in Latin and Greek became accustomed to beginning their histories in Eden. To au-

thors like Eusebius, Gregory of Tours, and Otto of Freising, Genesis provided a necessary point of origin, an anchor by means of which they rooted their histories in time and space. The roots, admittedly, were thin and insubstantial, as authors hastened past Genesis to get to contemporary affairs. Perhaps sensing this lack of enthusiasm, the modern historians who study these texts are equally prone to skip past the preambles and go straight to the histories. But the tendency to anchor universal history in Eden was nonetheless a compelling part of medieval historiography. And though universal histories became less fashionable in early modern Europe, the impulse to begin at the beginning never wholly waned. Sir Walter Ralegh's *History of the World in Five Books,* first published in the early seventeenth century, began in Eden and worked its way down to the Roman period. Bossuet's famed *Universal History* (1681) also began the story with Genesis.[5]

The practice of writing mainstream, professional histories rooted in Eden would persist well into the nineteenth century. But even in Ralegh's day, historians and commentators like Jean Bodin (1529–96) were trying to bring a progressive element into the writing of history, a trajectory at odds with the dominant metaphor of decay. Influenced by the natural histories of the ancient world that had identified the aboriginal state of humankind as primitive, Bodin denied the existence of Hesiod's Golden Age and made much of the lawlessness and violence of the early phases of society.[6] These ideas were shared by other sixteenth-century anthropologists who proposed the idea of a progression from pastoral to agricultural society.[7] The conjectural schemes subsequently developed by philosophers, economists, and ethnographers in the seventeenth and eighteenth centuries were also influenced by the growing number of reports concerning the sav-

age peoples of the Caribbean, North America, Tierra del Fuego, and elsewhere. In an influential argument, the seventeenth-century German jurist Samuel Pufendorf compared savage with civilized man to show how the establishment of private property marked the boundary between primitive and modern society. By the eighteenth century, there was a common understanding that humans had progressed through several economic stages—savagery, pastoralism, agriculture, and commerce were the usual suspects—and that each stage was associated with a particular set of political, social, legal, and intellectual institutions.

But how could the progressive fashion be squared with the chronological facts and descending trajectory of sacred history? The two were like the X formed by the up and down escalators in a department store. Peter Bowler has remarked that the idea that man acquired civilization in gradual stages required more time than was allowed by biblical chronology.[8] Yet in fact the authors of conjectural or philosophical histories did not necessarily offend a biblical time frame. Conjectural history, the great fashion of the eighteenth century, was a style of writing history in the philosophical mode. Freed from the obligation to work with evidence, the conjectural historians associated with the French and Scottish Enlightenments allowed themselves to extrapolate past conditions on the basis of present-day trajectories. Chronological signposts were not essential to the project. Condorcet, for example, dodged the issue of chronology by refusing to assign any dates to the stages he proposed. Others, notably the French physiocrat Baron de Turgot, were quite willing to squeeze the stages of progress into the short span of time made available by Holy Writ.[9] Adam Ferguson similarly framed the history of mankind in the limited time period allowed by sacred chronology.[10] Few

saw an essential contradiction with sacred history, since no one knew how long it took societies to evolve.

The chronological conundrums were easy to square. Sacred and conjectural histories, however, were profoundly incompatible in another way, for they disagreed on history's direction. Is it from Eden downward, as proposed by Judeo-Christianity? Or from the primitive upward, the trajectory favored by conjectural historians? Yet there was a potential solution to this problem, if only one could jump off the down escalator and join the up at the point where the two cross. Embedded in the famous historical scheme promulgated by Turgot in *A Philosophical Review of the Successive Advances of the Human Mind* (1750) was a kind of biblical catastrophism, the idea that an event or events described in sacred history had wiped the slate clean and reset the clock of civilization to zero:

> Holy Writ, after having enlightened us about the creation of the universe, the origin of man, and the birth of the first arts, before long puts before us a picture of the human race concentrated again in a single family as the result of a universal flood. Scarcely had it begun to make good its losses when the miraculous confusion of tongues forced men to separate from one another. The urgent need to procure subsistence for themselves in barren deserts, which provided nothing but wild beasts, obliged them to move apart from one another in all directions and hastened their diffusion through the whole world. Soon the original traditions were forgotten; and the nations, separated as they were by vast distances and still more by the diversity of languages, strangers to one another, were almost all plunged into the same barbarism in which we still see the Americans.[11]

This, the crucial compromise, allowed conjectural history and economic stage theory to be reconciled with sacred history. Sa-

cred history provided historians with at least three catastrophes—the expulsion from the Garden of Eden, the Universal Deluge, and the destruction of the Tower of Babel—that could be said to have returned humankind to a primitive condition. The ascent of man, as predicted by theories of progress, could begin from any of the three points.

Of these, the Deluge loomed largest in the historical imagination. An event of monstrous significance, the Deluge has seldom failed to grip the European imagination.[12] It was a prominent feature in the geological treatises of the seventeenth and eighteenth centuries and figures significantly in other writings. But the implications of the Deluge were not lost on historians and economists. In his *On the Origin of Laws, Arts, and Sciences* (1758), Antoine-Yves Goguet argued that the Deluge caused humans to forget the use of iron and other metals and return to the use of tools based on stone.[13] Ferguson, writing about how the human race had again been reduced to a few people, alluded at least indirectly to the Deluge.[14] And it was not just conjectural historians who played with the idea. Bossuet's great *Universal History* suggested how mankind was reduced to nearly nothing after the Deluge and then, by degrees, emerged from ignorance, transforming woods and forests into fields, pastures, hamlets, and towns, and learning how to domesticate animals and use metals.[15] This use of the Deluge as a resetting event in both sacred history and geology would persist into the nineteenth century.[16]

Conjectural historians, it is true, were not much interested in origins. Sacred historians like Ralegh and Bossuet, in turn, wrote much about the Deluge but were correspondingly less interested in outlining the stages of postdiluvian progress. It was Vico who,

in his *New Science* (1725), most persuasively reconciled the Deluge with the theory of human progress.[17] Vico was not widely known in his own day, but *New Science* was rediscovered in the early decades of the nineteenth century, and his reputation was resurrected to a point where he and Leopold von Ranke (1795–1886) have often been called the fathers of modern history. Vico's emphasis on the Deluge was the key element of a philosophy designed to orient history around the proper interpretation of myths and legends, thereby avoiding idle speculation and armchair philosophizing. A consequence of this approach was to exclude sacred history from the terrain of the secular historian, on the theory that no documents apart from the sacred writings carried by Noah had survived the flood.[18]

Vico was clearly attracted to the idea of progress. But whereas Bodin was not interested in the Deluge, preferring instead to describe ante- and postdiluvian societies as identical in their primitiveness, Vico molded the Deluge into a powerful punctuating event.[19] The singular importance of the Deluge in Vico's history is reflected in the chronological table printed in *New Science,* which begins in the year 1656 A.M. (*anno mundi*), the year of the Deluge. In a telling phrase, Vico actually describes his work as "a new natural history of the universal flood."[20] By the light of this natural history, the Deluge was seen as a catastrophic event that forced humans into the most primitive of conditions, far more abject than anything experienced in the preceding 1,656 years of sacred history. His enthusiasm reflected in his redundancy, Vico writes in many places of a period of brutish wandering during which the three tribes of men were scattered throughout the world's forest and copulated promiscuously with mothers and daughters, unmindful of kinship. Much that Vico wrote was

compatible—and designed to be compatible—with the anthropology of his day.

Far more than Turgot's, Vico's concept of historical chronology was thoroughly permeated by a philosophy of catastrophism. The dominant paradigm in eighteenth-century geology, catastrophism was not antithetical to conjectural history. Conjectural historians, concerned with process, did not trouble themselves with origins. To make their schemes work, all they needed was a set of primitive or presocial conditions. They could make their peace with the idea that a catastrophe like the Deluge had reset the clock to zero. In this view, history did not have to begin with human origins, where general historians like Eusebius or Ralegh had chosen to begin. Instead, the catastrophic paradigm authorized a history that began in the middle, on the heels of a catastrophe. The philosophy promoted so vividly by Vico, in other words, authorized the compression of historical time. This compression would persist long after the Deluge had vanished from the historical imagination.

The compression of historical time made little practical difference as long as historical time itself was of short duration. Until the discovery and acceptance of deep time in the middle of the nineteenth century, human history, as imagined in the Judeo-Christian tradition, was coterminous with the history of the earth itself.[21] Speculations on the age of the world greatly engaged ancient and medieval philosophers. Historians writing in the Judeo-Christian tradition could hardly resist the temptation to assign a date, and they assiduously combed the book of Gene-

sis for clues. Genesis, alas, speaks of generations, not dates, and historians were forced to count generations in the manner of previous Greek, Syrian, and Jewish scholars. In the fourth century, Eusebius, bishop of Caesarea, had Adam created 5,198 years before the birth of Christ, and this was the figure used by Jerome, Paulus Orosius, and many other Christian historians. In the seventeenth century, the busy recalculations of a number of scholars resulted in estimations for the earth's age ranging from 3,700 to 7,000 years of age, though the date favored by James Ussher, 4004 B.C., soon emerged as the consensus.[22] A chronology beginning at this date was then added to the margins of English editions of the Old Testament so that readers could, at a glance, locate themselves in time. Bossuet's *Universal History* likewise provided chronologies in the margins that served to date events both by counting up, from Creation, and by counting down, to the birth of Jesus.

The chronological scaffolding generated by this computational industry was an important intellectual step because it provided a ready means for making instant comparisons between the chronologies of different civilizations. The idea was central to the work of some ancient historians and had significant influence on early modern historians.[23] In the sixteenth century, Bodin and Joseph Scaliger massaged the existing schemes into a grand system of universal time. The concordances promoted by this work suggested problems with conventional Judeo-Christian dating, for growing contact with Chinese, Indian, and Aztec civilizations exposed Europeans to timescales that were not counted in the mere thousands of years. As Paolo Rossi observes, Scaliger pointed out that Chinese cosmology went back more than 880,000 years, and in 1658 the Jesuit Father Martini found that Chinese annals, suitably transposed onto a Christian dating