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Introduction

IN THE CITY OF ROME the physical remains of the past are everywhere—a living palimpsest where the many layers of twenty-seven hundred years of history exist side by side in strange juxtaposition. As cars whiz by the ancient Republican temples and the art deco theater in the Largo Argentina, you wait for the bus near the spot where Julius Caesar was assassinated. A few blocks away, faces of long-dead Romans stare out from the facades of modern buildings decorated with old sarcophagi, and a block of twentieth-century shops curves gently, conforming to the shape of the ancient amphitheater on whose foundations it stands. In the basement of a modern pizzeria there is a large sundial that kept time when the emperor Augustus ruled the world. I found these remnants of the past, living so gracefully and casually in the midst of everyday life, strangely comforting. They change your sense of time and your place in the world, making the ups and downs of the present seem smaller, while also making you feel a part of a much larger continuum. The city has seen every possible form of human glory, folly, and depravity—has witnessed emperors who declared themselves gods and holy men dressed in sackcloth who crawled up marble staircases on their bare knees. It has been ravaged and rebuilt numerous times and survived

with something of its soul intact. Amidst the din of tourists, street vendors, quarreling neighbors, *motorini* gunning their engines, women putting out their laundry, children playing soccer in the square, the massive, harmonious forms of the Pantheon and St. Peter's Basilica loom in the background. And as you bathe in the happy, noisy confusion of the present, the great pagan temple and the central church of Christianity remind you that the important things in life are few, diminishing the sting of the ephemeral worries that crowd our minds from day to day. There is nothing fussy or museumlike about the city: the past coexists comfortably and gives way to the needs of the present. The city's extravagant, crumbling beauty is so abundant that it lies about you everywhere in pieces: you take a wrong turn and stumble on an exquisitely carved Corinthian column lying on the pavement at the end of an alley, abandoned to the care of a family of cats. As you are walking on a summer evening through the city center, someone having a party casually opens the shutters of the upper window of a grimy sixteenth-century building in order to let some air into the room and smoke a cigarette; you look up and see a perfectly preserved Renaissance fresco on the ceiling—a scene of angels and a winged cupid floating on clouds against a sky of lapis lazuli—and hear the tinkling of glasses and the sound of laughter. Then the shutters close again. It is just another private home in Rome, like hundreds of others, one you have never seen before and will probably never see again.

While living in Rome I began to work on a story about Father Reginald Foster, senior Latinist to the pope, a man engaged in a quixotic but highly compelling attempt to keep the Latin language alive. The story first suggested the idea for this book and became its eighth chapter. Foster, who was born in 1937, came of age during the 1950s, when Latin was still very much alive: it was the language used for teaching in Catholic seminaries from Buenos Aires and Sydney to Crakow and Rome. And Foster, son and grandson of plumbers from Milwaukee, speaks Latin more fluently than most people speak their own languages, and works in what is perhaps the only office in the world where Latin is spoken. He walks through and sees a different city from the Rome the

rest of us know. For Foster the city is a vast text, interwoven around the monuments, running along the tops of doorways and the bases of monuments, statues, and burial sites, recounting tens or hundreds of thousands of stories—of slaves and emperors, of soldiers fallen in long-forgotten campaigns, of husbands and wives, of popes, cardinals, saints, and courtesans or simply men and women wealthy enough to leave their mark on the city. The correspondence or ironic juxtaposition between a monument's origin and its current status and all the layers of meaning that have accumulated between them give the city a kind of symphonic quality, whose music most people are no longer able to hear.

The status of Latin changed drastically in the mid-1960s when the Church struggled to modernize itself. Since then, Foster, despite his own superhuman efforts, has seen its use gradually fade within the Church. In a sense, the death of Latin is paradigmatic of a larger dilemma of our age. It may be entirely reasonable for a society to decide that Latin is no longer an essential part of school curriculum and that other needs—computer skills, knowledge of Spanish, Chinese, or English—should take precedence. Things change, and today English, the language of the Internet, plays the role of lingua franca that Latin served until the eighteenth century. Every major historical change involves, by necessity, enormous loss. Without adopting a Luddite, antitechnological stance, I think it is important to acknowledge that our society is in the midst of a fundamental rupture with the past, which involves loss as well as gain. The benefits of the information revolution—instant worldwide communication and universal access to infinite amounts of data—are plainly evident and have been justly celebrated. Nevertheless, we should, I think, at least acknowledge and examine what we are losing as well. The experience with Foster raised an interesting question for me: what does it mean to have a living relationship with the past? And what happens when some of those links are broken?

And yet to characterize our era as one purely of loss would be to miss some of the most exciting developments in human history. As I began to think about this project, I saw my first example of virtual reality,

a three-dimensional reconstruction of the tomb of Queen Nefertari—the favorite wife of Ramses II—in the Valley of the Queens in Luxor, Egypt. The virtual reality was the centerpiece of an exhibition held at the Palazzo Ruspoli in Rome, dedicated to the tomb, which had been discovered by an Italian explorer in 1904 and was closed to the public in the 1970s after it had fallen into a state of dangerous dilapidation. It was then carefully restored, recovering much of its faded glory, by Italian art conservators with the financial backing of the Getty Conservation Institute in California. Scientific studies had demonstrated that the greatest threat to the long-term future of the tomb was the presence of tourists, whose breath and sweat would introduce moisture and accelerate the process of salt crystallization that has been corroding its brilliantly painted surfaces. So the Getty commissioned an Italian software company to create a virtual reality simulation of the tomb that could be set up in an underground chamber in the Valley of the Queens as a substitute for the real thing. After all, the famous cave paintings at Lascaux—among the first artistic expressions of our ancestors—have been closed to the public for many years and tourists visit an artfully made copy that, in turn, has undergone so much wear and tear that it, too, has been restored. "Moving" through the shadowy chambers of a virtual reality simulation of an ancient Egyptian tomb—sponsored by a California foundation, executed by an Italian software company, displayed inside a Renaissance palace in downtown Rome decorated with trompe l'oeil paintings (the Renaissance equivalent of virtual reality)—was a strange end-of-millennium moment that seemed to contain many of the odd contradictions generated by the future of the past.

Space radar, computer models, infrared photography, carbon dating, magnetic resonance imaging, DNA and chemical analysis, and CD-ROMs offer us unprecedented opportunities to study and preserve the past. At the same time, the by-products of accelerating technological change—industrialization, population growth, and pollution—threaten to destroy in a few generations monuments and works of art that have survived thousands of years of war, revolution, famine, and pestilence.

Scholars are creating a virtual Pompeii, so that anyone anywhere can explore the Villa of the Mysteries and other wonders, but the actual Pompeii is deteriorating markedly, its gorgeous wall frescoes fading visibly or being chipped off and sold by clandestine looters. Orbiting satellites gather radar images that penetrate underneath the sands of the Sahara desert and tell us what the topography of Egypt looked like thirty thousand years ago. But the monuments of ancient Egypt, which stood remarkably preserved in dry sand for thousands of years, are crumbling because of the rising water of the country, a result of the Aswan Dam and widespread irrigation. We are faced with a dramatic paradox: soon we may have virtual realities of the tombs of the Valley of the Kings in classrooms around the world—a genuine democratic advance—but the tombs themselves, most of which looked almost new when they were discovered in the late nineteenth and early twentieth century, may no longer exist. In fact, when I traveled to Egypt to write the first chapter of this book, I found that the Egyptian government had, against the Getty's advice, reopened Nefertari's tomb to tourists. And it is not hard to understand why: it is the most expensive single attraction in Luxor costing some $34 for a ten-minute visit. Yet the government has had to close other tombs—once equally glorious—whose condition has deteriorated to a perilous state. "In another twenty years, most of the archeology of Egypt is going to be in museums," Fred Wendorf, an archeologist at Southern Methodist University who has worked in Egypt for nearly forty years, has said, perhaps overstating things a bit. "Everything else is going to be covered by water or plowed up in fields or coated with asphalt."

The vanishing of the physical record is a metaphor for the larger question of our tenuous connection to the past. As we hurtle into the information age—where it appears more urgent to master software programs than to learn ancient or foreign languages—it is legitimate to wonder what relationship we will have to the ancient world or the preindustrial civilizations of the Middle Ages and the Renaissance. Will classical studies continue to fade from the curriculum or will they be revived by brilliant new technology that makes it possible to explore the digitally reconstructed cities of antiquity? The Internet gives us the

potential of instant access to infinite amounts of information, but there is also a genuine risk of our becoming a society with little historical framework in which to set all the information we have access to. Will a wired world be better informed than any other, or will information crowd out knowledge as we struggle to sort through the flood of messages and images with which we are bombarded each day? Globalization may well raise the standard of living and introduce democratic reforms to countries around the world, but it is also bringing about an unprecedented homogenization of culture and will almost certainly accelerate the disappearance of thousands of regional dialects, languages, and distinct cultures. Paradoxically, the rootlessness of contemporary society has created a tremendous yearning for a connection with ancient or vanished civilizations. The New Age preoccupation with Atlantis, Stonehenge, ancient Egypt, and pre-Columbian Mesoamerica and the nostalgic historical emphasis of Disney theme parks are all manifestations of this deeply felt need.

The loss of historical memory is hardly unique to our age. The agricultural revolution—which replaced many small hunter-gatherer communities and nomadic pasturalists with the first cities and empires—arguably changed our lives more deeply than the information revolution will. Alexander the Great and the Macedonian Greeks conquered Egypt, and the Romans, in turn, subjugated the Greeks. The spread of Latin itself wiped out scores of local languages and cultures, from the Etruscans in Italy and the Gauls in France to the Lydians in Turkey and the Thracians in Bulgaria and northern Greece—peoples of whom we have scant traces. The triumph of Christianity saw the destruction of much of pagan civilization, the smashing of statues, and the loss of hundreds of thousands of other works of antiquity. The builders of the modern Rome we now admire happily flattened entire medieval neighborhoods to make way for their great Renaissance palaces and Baroque churches. The spread of Europeans throughout the Americas destroyed the Aztec and Incan empires and hundreds of other indigenous cultures that had developed over thousands of years. Certainly the destruction of the past has been just as great in previous ages and certainly more violent. Is our

sense of loss, then, merely the nostalgia that every generation feels for its own immediate past?

I think it can be demonstrated that the rate of change has increased markedly during the past two hundred years and has continued to speed up during our lifetimes. In a number of ways, fundamental aspects of life changed relatively little from antiquity until the nineteenth century. In the first century A.D., it took about twenty days to go by boat from the eastern end of the Roman Empire in Turkey or Lebanon to its western extreme in Spain or North Africa. In the 1830s, before the invention of the railroad and the telegraph, it took about two weeks to get news from New York to Chicago. Sailing boats traveling from Europe took about as much time to reach the United States as it took Columbus to find the New World. The telegraph, introduced in 1841, cut the time it takes for news to travel to the speed of light. The telegraph—the beginning of electronic information technology—may have been an even more revolutionary change than the Internet is for us, but it also marked the beginning of a phase of change whose rate has only continued to accelerate: it took thirty-eight years for radio to reach fifty million American homes; television reached that level in thirteen years, cable TV in ten, and the Internet in only five. Now we are ruled by Moore's Law, which states that the speed and power of a computer processing chip will double approximately every eighteen months.

Similarly, human population and the average life span changed very little from the time of Christ to the early nineteenth century. It is estimated that the population of the world at the time of the Roman Empire was about a billion, and it changed relatively little for the next sixteen hundred years. In the premodern era, population rose and fell and rose and fell, alternating periods of growth and prosperity with times of plague and famine, making human life seem an endless cycle of renewal and decline—very far from our modern sense of history as a gradual but ineluctable march of continual growth and progress. It took homo sapiens about a hundred thousand years to reach one billion and another eighteen hundred years to reach two billion. Now we are at six billion, and it took just ten years to produce the last billion.

In the Roman world, perhaps 5 percent of the population lived in cities, the other 95 percent in the countryside, tilling the earth. In the United States a majority of the workforce still made its living through agriculture until the 1870s. Now just 2 percent of the population feeds 280 million Americans and exports food to the rest of the world as well.

Many of these changes, of course, were extremely welcome. Until the beginning of the nineteenth century, most people died in childhood and a staggering number of women died giving birth; the average life span was about thirty. Modern medicine has doubled the average life expectancy and advances in agriculture have allowed us to feed a vastly greater number while freeing most of us from backbreaking labor.

These changes have also had significant cultural consequences. The massive growth in population and industrialization led to the exploration and colonization of much of the world by European peoples. The late nineteenth and early twentieth centuries saw a period of global trade not unlike today's. But the first wave of globalization—the age of the railroad, steamship, and telegraph, of the big empires of iron and steel—still left vast pockets of the world relatively undisturbed. Until quite recently, the majority of humanity still told time by the sun, organized their lives by the slow rhythms of the seasons, and lived by the traditional knowledge and beliefs of their ancestors, accumulated slowly over the course of centuries and millennia.

Today, there is hardly a corner of the globe where Coca-Cola is not sold or people do not wear Nike sneakers. A few years ago, CNN ran a program entitled "Broadcasting Live from the Great Mosque at Mecca!" (In the nineteenth century, the adventurer Richard Burton, dressed in Bedouin garb and speaking fluent Arabic, had snuck into the Great Mosque, perhaps the first European to do so.) China's Forbidden City has now opened its first Starbuck's coffee outlet. Until quite recently, there were landscapes that remained unexplored and uncataloged. And there were cultural spaces—the Great Mosque, the Forbidden City, the sex lives of American presidents, the hills of Papua New Guinea, the source of the Nile, the inner dynamics of the British royal family—that remained private and inaccessible. Those spaces have been reduced to

virtually none in the age of media that, for good and ill, break down all barriers and leave no doors unopened.

Indeed, the loss of historical memory may be directly related to our thirst for knowledge and information. "In physics, we have the Heisenberg uncertainty principle, which says that we change what we observe. Something similar happens in archeology: 'You study it, you kill it,'" says Egyptologist Mark Lehner, who is the main subject of chapter 1. His observation is particularly obvious in the case of Egypt, where our knowledge has increased exponentially since explorers began prying open pharaonic tombs and digging up temples but where doing so has also exposed the monuments to the elements. The example of archeology, however, may be emblematic of something larger. And the principle that Lehner refers to applies to a number of other areas: to our knowledge of other cultures as well as of nature itself. For example, no age other than our own has so thoroughly and respectfully documented the remote cultures that were referred to as "savage" only a few decades ago, and yet, of the six thousand different languages spoken around the world—each a distinct culture and mental universe—half are expected to die out during the next century. As Hegel wrote, the owl of Minerva—goddess of wisdom—flies at dusk.

In writing this book, I set about trying to show the double-edged nature of technological change in a series of different contexts and from a number of odd angles. The first three chapters, set in Egypt, China, and Sicily, all deal with monuments. In the China chapter, I contrast Western and Asian attitudes toward monuments, conservation, and the past, while in the Sicily chapter I write about the Western passion for collecting. One of the principal ways we now relate to the past is through the objects that collectors and museums have chosen to acquire and the commodification of artifacts is very much part of the modern sensibility.

Chapters 4 and 5, set in India and Madagascar, deal with different aspects of the environment since in our modern world we treat the environment and rare species much as we treat ancient objects—as relics of our biological past that need "preserving." Indeed, species

today are information, laid out chromosome by chromosome by DNA-sequencing computer programs. In Madagascar, I had originally wanted to do a story that explored the following paradox: on the one hand, we are gaining enormous amounts of knowledge about the natural world through technology—recovering the DNA of long-extinct species from mosquitoes fossilized in amber or reconstructing the family trees of entire species going back millions of years—but on the other hand, species are disappearing at an increasingly rapid rate because of the consequences of human development. This is one of the most exciting times in the history of science, in which we are discovering new species, yet an estimated fifteen thousand species of plants and animals are listed as highly endangered. Madagascar seemed a perfect setting for this story, since it is a naturalists' paradise, with 80 percent of its species found nowhere else in the world, but it is also an extremely poor country where the pressures of human development pose serious risks to the environment and threaten the habitats of many of the unique species found there. As I began to do reporting and research, however, the story shifted beneath me. I discovered how much more complex the issues were than I had originally supposed. In my naïveté I had never stopped to think that there could be anything wrong with trying to save a rain forest. In a country where people live a bad harvest away from starvation, nature conservation suddenly appeared much more problematic. The issues of technology and preserving species were perfectly valid, but they were embedded in a social context of incredible moral complexity.

Madagascar also forced me to see that some of our notions about nature were deeply related to issues I was dealing with in the chapters on monuments and museums. In fact, the first early museums, the cabinets of curiosity of the Renaissance, collected natural wonders—strange species and fossils turned up by travelers—together with ancient works of art. Moreover, my own idea of nature as something to be preserved was very much a product of modern Western urban culture. The movement to create national parks began in the United States in the late nineteenth century, precisely at the time when industrialization was transforming

our country. Thus the idea of pristine nature is the flip side of mechanization and in some ways the park is to nature what the museum is to the art of previous centuries, a backward glance at something that is understood as past. Indeed, it is significant that Theodore Roosevelt was both the champion of our national park system and an important benefactor of the American Museum of Natural History in New York (of which his father had been a founder).

My interest in natural history went hand in hand with an interest in ethnography and the study of "primitive" people, who have been regarded in effect as our living ancestors and whose societies have been regarded as contemporary vestiges of our own distant past. It has been one of the principal impulses of modern anthropology both to preserve as well as to document these cultures. Of course, one of the central ironies of the field is that the arrival of the anthropologist has generally been part of the process of extending Western influence. In the chapter called "The Man Who Remembers," I describe the career of Italian anthropologist Giancarlo Scoditti, who has spent most of the past twenty-six years studying and documenting the culture of a tiny island off the coast of Papua New Guinea. Some of the elders of the community, master carvers and oral poets, welcomed him, the first anthropologist ever to live on the island, because they understood the value of documenting a series of traditions and customs that they felt were destined to disappear. Now when he returns to the island, some of the younger people ask him what the meaning of a particular ceremony or song was, or the right step in a traditional dance. Thus Scoditti's written work has become the principal repository of some of the island's traditions yet, at the same time, writing—in the form of the Christian Bible and as transmitted by missionary schools and the state educational system—has discouraged and replaced these traditions. The vehicle of the first great information revolution, writing, is itself a tool both of memory and of loss.

The last third of the book deals with the technology of writing and the role of libraries in the transmission of cultural memory in the ancient world (the ancient library of Alexandria), the Renaissance (the

Vatican Library), and the contemporary world (the National Archives in Washington). Electronic technology would seem to be the philosopher's stone or the Holy Grail that the librarians of Alexandria and Rome were looking for: a means of preserving almost unlimited amounts of knowledge in a highly compact space in a form that would be invulnerable to the little insects that worm their way through even the toughest animal hide parchment in the Vatican stacks. As it turns out, electronic data is surprisingly fragile. It can be counted on to last on tapes or compact discs for about twenty years before it tends to become corrupted. Thus, if the data is not copied and recopied onto new storage media regularly, it is likely to become unreadable. Not only are the electronic signals themselves likely to become damaged or corrupted but, because software and hardware are changing so rapidly, we will probably not be able to access much of the data produced in recent decades. The first computers I owned, in the 1980s, were a small Radio Shack model that recorded data signals onto a kind of tape recorder device and then a large, heavy desktop machine with 5¼-inch floppy disks. What are the chances of anyone's being able to read these devices if someone comes upon them in an attic fifty years from now? Thus, Moore's Law—that the speed of personal computers will double every eighteen months—works both ways. The constant improvements and changes in the computer industry mean that we are producing more and more information every day but also that we are bound to lose more information now than at any time in the past.

In tackling this project, I chose to avoid arguing a particular thesis, which, I felt, would push me to write a more tendentious book—for or against technology or change. Moreover, the changes we are experiencing are so complex and profound, their final shape still so molten and unclear, that any judgments and predictions we make are almost doomed to prove simplistic or mistaken. I wanted instead to immerse myself in a small but representative number of specific situations where I felt I had a better chance of capturing the complexity, strangeness, and contradictions of transformation. The beauty of journalistic reporting is that things rarely go the way you plan; life has a way of surprising you,

derailing your most cherished assumptions and showing the inadequacies of your favorite theories. Nevertheless, I felt it was important to hazard some provisional conclusions in the final chapter about the broad implications of the changes we are experiencing, knowing full well that many of them may prove wrong.