Dark Age Ahead

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To

SID ADILMAN AND

MARTHA SHUTTLEWORTH,

MERRY LEADING-EDGE EXPLORERS

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Dark Age Ahead

CHAPTER ONE

The Hazard

This is both a gloomy and a hopeful book.

The subject itself is gloomy. A Dark Age is a culture's dead end. We in North America and Western Europe, enjoying the many benefits of the culture conventionally known as the West, customarily think of a Dark Age as happening once, long ago, following the collapse of the Western Roman Empire. But in North America we live in a graveyard of lost aboriginal cultures, many of which were decisively finished off by mass amnesia in which even the memory of what was lost was also lost. Throughout the world Dark Ages have scrawled finis to successions of cultures receding far into the past. Whatever happened to the culture whose people produced the splendid Lascaux cave paintings some seventeen thousand years ago, in what is now southwestern France? Or the culture of the builders of ambitious stone and wood henges in Western Europe before the Celts arrived with their Iron Age technology and intricately knotted art?

Mass amnesia, striking as it is and seemingly weird, is the least mysterious of Dark Age phenomena. We all understand the harsh principle *Use it or lose it.* A failing or conquered culture can spiral down into a long decline, as has happened in most empires after their relatively short heydays of astonishing success. But in extreme cases, failing or conquered cultures can be genuinely lost, never to emerge again as living ways of being. The salient mystery of Dark Ages sets the stage for mass amnesia. People living in vigorous cultures typically treasure those cultures and resist any threat to them. How and why can a people so totally discard a formerly vital culture that it becomes literally lost?

This is a question that has practical importance for us here in North America, and possibly in Western Europe as well. Dark Ages are instructive, precisely because they are extreme examples of cultural collapse and thus more clear-cut and vivid than gradual decay. The purpose of this book is to help our culture avoid sliding into a dead end, by understanding how such a tragedy comes about, and thereby what can be done to ward it off and thus retain and further develop our living, functioning culture, which contains so much of value, so hard won by our forebears. We need this awareness because, as I plan to explain, we show signs of rushing headlong into a Dark Age.

Surely, the threat of losing all we have achieved, everything that makes us the vigorous society we are, cannot apply to us! How could it possibly happen to us? We have books, magnificent storehouses of knowledge about our culture; we have pictures, both still and moving, and oceans of other cultural information that every day wash through the Internet, the daily press, scholarly journals, the careful catalogs of museum

exhibitions, the reports compiled by government bureaucracies on every subject from judicial decisions to regulations for earthquake-resistant buildings, and, of course, time capsules.

Dark Ages, surely, are pre-printing and pre–World Wide Web phenomena. Even the Roman classical world was skimpily documented in comparison with our times. With all our information, how could our culture be lost? Or even almost lost? Don't we have it as well preserved as last season's peach crop, ready to nourish our descendants if need be?

Writing, printing, and the Internet give a false sense of security about the permanence of culture. Most of the million details of a complex, living culture are transmitted neither in writing nor pictorially. Instead, cultures live through word of mouth and example. That is why we have cooking classes and cooking demonstrations, as well as cookbooks. That is why we have apprenticeships, internships, student tours, and on-the-job training as well as manuals and textbooks. Every culture takes pains to educate its young so that they, in their turn, can practice and transmit it completely. Educators and mentors, whether they are parents, elders, or schoolmasters, use books and videos if they have them, but they also speak, and when they are most effective, as teachers, parents, or mentors, they also serve as examples.

As recipients of culture, as well as its producers, people attend to countless nuances that are assimilated only through experience. Men, women, and children in Holland conduct themselves differently from men, women, and children in England, even though both share the culture of the West, and very differently from their counterparts in Turkey, Saudi Arabia, or Singapore. Travel writers, novelists, visual artists, and photographers draw attention to subtle, everyday differences in conduct

rooted in experience, including the experience of differing cultural histories, but their glosses are unavoidably sketchy, compared with the experience of living a culture, soaking it up by example and word of mouth.

Another thing: a living culture is forever changing, without losing itself as a framework and context of change. The reconstruction of a culture is not the same as its restoration. In the fifteenth century, scholars and antiquarians set about reconstructing the lost classical culture of Greece and Rome from that culture's writing and artifacts. Their work was useful and remains so to this day; Western Europeans relearned their cultural derivations from it. But Europeans also plunged, beginning in the fifteenth century, into the post-Renaissance crises of the Enlightenment. Profoundly disturbing new knowledge entered a fundamentalist and feudal framework so unprepared to receive it that some scientists were excommunicated and their findings rejected by an establishment that had managed to accept reconstructed classicism—and used it to refute newer knowledge. Copernicus's stunning proofs forced educated people to realize that the earth is not the center of the universe, as reconstructed classical culture would have it. This and other discoveries, especially in the basic sciences of chemistry and physics, pitted the creative culture of the Enlightenment against the reconstructed culture of the Renaissance, which soon stood, ironically, as a barrier to cultural development of the West—a barrier formed by canned and preserved knowledge of kinds which we erroneously may imagine can save us from future decline or forgetfulness.

Dark Ages are horrible ordeals, incomparably worse than the temporary amnesia sometimes experienced by stunned survivors of earthquakes, battles, or bombing firestorms who abandon customary routines while they search for other survivors, grieve, and grapple with their own urgent needs, and who may forget the horrors they have witnessed, or try to. But later on, life for survivors continues for the most part as before, after having been suspended for the emergency.

During a Dark Age, the mass amnesia of survivors becomes permanent and profound. The previous way of life slides into an abyss of forgetfulness, almost as decisively as if it had not existed. Henri Pirenne, a great twentieth-century Belgian economic and social historian, says that the famous Dark Age which followed the collapse of the Western Roman Empire reached its nadir some six centuries later, about 1000 C.E. Here, sketched by two French historians, is the predicament of French peasantry in that year:

> The peasants . . . are half starved. The effects of chronic malnourishment are conspicuous in the skeletons exhumed. . . . The chafing of the teeth . . . indicates a grass-eating people, rickets, and an overwhelming preponderance of people who died young. . . . Even for the minority that survived infancy, the average life span did not exceed the age of forty. . . . Periodically the lack of food grows worse. For a year or two there will be a great famine; the chroniclers described the graphic and horrible episodes of this catastrophe, complacently and rather excessively conjuring up people who eat dirt and sell human skin. . . . There is little or no metal; iron is reserved for weapons.

So much had been forgotten in the forgetful centuries: the Romans' use of legumes in crop rotation to restore the soil;

how to mine and smelt iron and make and transport picks for miners, and hammers and anvils for smiths; how to harvest honey from hollow-tile hives doubling as garden fences. In districts where even slaves had been well clothed, most people wore filthy rags.

Some three centuries after the Roman collapse, bubonic plague, hitherto unknown in Europe, crept in from North Africa, where it was endemic, and exploded into the first of many European bubonic plague epidemics. The Four Horsemen of the Apocalypse, conventionally depicted as Famine, War, Pestilence, and Death, had already been joined by a fifth demonic horseman, Forgetfulness.

A Dark Age is not merely a collection of subtractions. It is not a blank; much is added to fill the vacuum. But the additions break from the past and themselves reinforce a loss of the past. In Europe, languages that derived from formerly widely understood Latin diverged and became mutually incomprehensible. Everyday customs, rituals, and decorations diverged as old ones were lost; ethnic awarenesses came to the fore, often antagonistically; the embryos of nation-states were forming.

Citizenship gave way to serfdom; old Roman cities and towns were largely deserted and their underpopulated remnants sank into poverty and squalor; their former amenities, such as public baths and theatrical performances, became not even a memory. Gladiatorial battles and hungry wild animals unleashed upon prisoners were forgotten, too, but here and there, in backwaters, the memory of combat between a man on foot and a bull was retained because it was practiced. Diets changed, with gruel displacing bread, and salt fish and wild fowl almost displacing domesticated meat. Rules of inheritance and property holding changed. The composition of households changed drastically with conversion of Rome's traditional family-sized farms to feudal estates. Methods of warfare and ostensible reasons for warfare changed as the state and its laws gave way to exactions and oppressions by warlords.

Writers disappeared, along with readers and literacy, as schooling became rare. Religion changed as Christianity, formerly an obscure cult among hundreds of obscure cults, won enough adherents to become dominant and to be accepted as the state religion by Constantine, emperor of the still intact Eastern Roman Empire, and then, also as the state religion, in territorial remnants of the vanished Western Empire. The very definitions of virtue and the meaning of life changed. In Western Christendom, sexuality became highly suspect.

In sum, during the time of mass amnesia, not only was most classical culture forgotten, and what remained coarsened; but also, Western Europe underwent the most radical and thoroughgoing revolution in its recorded history—a political, economic, social, and ideological revolution that was unexamined and even largely unnoticed, as such, while it was under way. In the last desperate years before Western Rome's collapse, local governments had been expunged by imperial decree and were replaced by a centralized military despotism, not a workable organ for governmental judgments and reflections.

Similar phenomena are to be found in the obscure Dark Ages that bring defeated aboriginal cultures to a close. Many subtractions combine to erase a previous way of life, and everything changes as a richer past converts to a meager present and an alien future. During the conquest of North America by Europeans, an estimated twenty million aboriginals

succumbed to imported diseases, warfare, and displacement from lands on which they and their hundreds of different cultures depended.

Their first response to the jolts of European invasion was to try to adapt familiar ways of life to the strange new circumstances. Some groups that had been accustomed to trading with one another, for example, forged seemingly workable trade links with the invaders. But after more conquerors crowded in, remnants of aboriginal survivors were herded into isolated reservations. Adaptations of the old cultures became impossible and thus no longer relevant; so, piece by piece, the old cultures were shed. Some pieces were relinquished voluntarily in emulation of the conquerors, or surrendered for the sake of the invaders' alcohol, guns, and flour; most slipped away from disuse and forgetfulness.

As in Europe after Rome's collapse, everything changed for aboriginal survivors during the forgetful years: education of children; religions and rituals; the composition of households and societies; food; clothing; habitations; recreations; laws and recognized systems of ownership and land use; concepts of justice, dignity, shame, esteem. Languages changed, with many becoming extinct; crafts, skills—everything was gone. In sum, the lives of aboriginals had been revolutionized, mostly by outside forces but also, to a very minor extent, from within.

In the late twentieth century, as some survivors gradually became conscious of how much had been lost, they began behaving much like the scholarly pioneers of the fifteenth-century Italian Renaissance who searched for relics of classical Greek and Roman culture. Cree and Cherokee, Navajo and Haida groped for fragments of lost information by searching out old records and artifacts dispersed in their conquerors'

museums and private collections. Jeered at by an uncomprehending white public of cultural winners, they began impolitely demanding the return of ancestral articles of clothing and decoration, of musical instruments, of masks, even of the bones of their dead, in attempts to retrieve what their peoples and cultures had been like before their lives were transformed by mass amnesia and unsought revolution.

When the abyss of lost memory by a people becomes too deep and too old, attempts to plumb it are futile. The Ainu, Caucasian aborigines of Japan, have a known modern history similar in some ways to that of North American aboriginals. Centuries before the European invasion of North America, the Ainu lost their foraging territories to invading ancestors of the modern Japanese. Surviving remnants of Ainu were settled in isolated reservations, most on Hokkaido, Japan's northernmost island, where they still live. The Ainu remain a mysterious people, to themselves as well as to others. Physical characteristics proclaim their European ancestry; they may be related to Norse peoples. But where in Europe they came from can only be conjectured. They retain no information about their locations or cultures there, nor by what route they reached Japan, nor why they traveled there. (See note, p. 179.)

Cultures that triumphed in unequal contests between conquering invaders and their victims have been meticulously analyzed by a brilliant twenty-first-century historian and scientist, Jared Diamond, who has explained his analyses in a splendidly accessible book, *Guns, Germs, and Steel*. He writes that he began his exploration with a question put to him by a youth in New Guinea, asking why Europeans and Americans were successful and rich. The advantages that Diamond

explored and the patterns he traces illuminate all instances of cultural wipeout.

Diamond argues persuasively that the difference between conquering and victim cultures is not owing to genetic discrepancies in intelligence or other inborn personal abilities among peoples, as racists persist in believing. He holds that, apart from variations in resistance to various diseases, the fates of cultures are not genetically influenced, let alone determined. But, he writes, successful invaders and conquerors have historically possessed certain crucial advantages conferred on them long ago by the luck of what he calls biogeography. The cultural ancestors of winners, he says, got head starts as outstandingly productive farmers and herders, producing ample and varied foods that could support large and dense populations.

Large and dense populations—in a word, cities—were able to support individuals and institutions engaged in activities other than direct food production. For example, such societies could support specialists in tool manufacturing, pottery making, boatbuilding, and barter, could organize and enforce legal codes, and could create priesthoods for celebrating and spreading religions, specialists for keeping accounts, and armed forces for defense and aggression.

Diamond's identifications of basic causes of discrepancies in power among cultures boil down to good or bad geographical luck. His resulting causes boil down to size and density of populations and consequent differences in technological and organizational specialization. All these factors can be quantified.

This analysis worked so well for explaining the historical outcomes of conflicts that ranged over all the continents, and

also on islands extending from the Arctic to the South Pacific, that Diamond hoped he had created the foundation for a genuine science of human history—a true, hard science, based on facts as solid and measurable as those underlying physics or chemistry, and as reliable for predicting future outcomes of conflict. It seemed to him that only a couple of loose ends needed tying.

One such was how cultures lost their memories. This was not hard for Diamond to explain as a consequence of *Use it or lose it*. He took as a vivid example the Tasmanians, who were nearly exterminated by invading Europeans in the nineteenth century. They were the most technologically primitive people to be recorded in modern history. They had no way of making fire, no boomerangs or spear throwers, no specialized stone tools, no canoes, no sewing needles, no ways of catching fish. Yet their parent culture, on the Australian mainland, had all these technologies. Presumably the Tasmanians did too, some ten thousand years previously, when they populated their island by traveling from the mainland over a prehistoric land bridge. Diamond remarks that a culture can lose a given technology for many reasons. Perhaps a certain raw material is in short supply; perhaps all the skilled artisans in a generation meet with tragedy. Whenever the Tasmanians lost an element of their culture, the loss would have been temporary had they still been in communication with the mainland, but because they were not, each loss became permanent.

The second loose end, however, threatened to unravel Diamond's whole fabric, as he recognized. According to his analyses, China and Mesopotamia, both of which had early and long leads over European cultures, should have securely maintained those leads, but did not. While neither experienced

the extreme of a Dark Age, both succumbed to long declines, insidiously growing poverty, and backwardness relative to Europe. They inform us, as do the unedifying terminations of all great empires in the past, that strong and successful cultures can fail. The difference between these failures and those of conquered aboriginal cultures is that the death or the stagnated moribundity of formerly unassailable and vigorous cultures is caused not by assault from outside but by assault from within, that is, by internal rot in the form of fatal cultural turnings, not recognized as wrong turnings while they occur or soon enough afterward to be correctable. Time during which corrections can be made runs out because of mass forgetfulness.

Mesopotamia, the so-called Fertile Crescent of the Tigris and Euphrates rivers—traditionally thought to be the site of the biblical Garden of Eden—in historical times has centered on the fabled city of Baghdad. For some nine thousand years, starting in about 8500 B.C.E., almost every major innovation adopted in ancient Europe had originated in or very near the Fertile Crescent: grain cultivation; writing; brickmaking, masonry engineering, and construction; the wheel; weaving; pottery making; irrigation. Just as Diamond's attempted science of human history would predict, the Fertile Crescent was the seat of the ancient world's earliest empires: Sumer, Babylon, Assyria.

Yet with all its seemingly unbeatable advantages, something went so wrong in the Fertile Crescent that, as Diamond says, it is now absurd to couple "Fertile Crescent" with "world leader in food production. Today's ephemeral wealth[,] . . . based on the single non-renewable resource of oil, conceals the region's long-standing fundamental poverty and difficulty feeding itself."

Diamond asked himself how so gifted a region could lose its early, long lead over Europe. By 115 C.E., Mesopotamia had been conquered by Rome and became a Roman province. This was no temporary setback. Over the course of the next eighteen centuries, the region was passed around from invader to invader, eventually falling into the hands of the British Empire and Western oil corporations; a new chapter, of conflicts over oil, is not yet finished.

Diamond says the lead was lost through environmental ignorance. In ancient times, much of the Fertile Crescent and eastern Mediterranean was covered with forests. But to obtain more farmland and more timber, and to satisfy the plaster industry's relentless demands for wood fuel, the forests were cut faster than they could regenerate. Denuded valleys silted up, and intensified irrigation led to salt accumulations in the soil. Overgrazing by goats, allowing new growth no start in life, sealed the destruction. The damage had become irreversible, Diamond says, by 400 B.C.E. What escaped earlier has been done in recently: "The last forests . . . in modern Jordan . . . were felled by Ottoman Turks during railroad construction just before World War I." Most of the last wetlands, the great reed marshes of southern Iraq, with their complex ecology of plants, mammals, insects, birds, and human beings, too—the "Marsh Arabs" who had occupied these lands for some five thousand years—fell to a drainage scheme undertaken for political reasons by Saddam Hussein in the 1990s, creating another barren, salt-encrusted desert.

Northern and Western Europe pulled abreast of Mesopotamia, then surpassed it, says Diamond, "not because [Europeans] have been wiser but because they had the good luck to live in a more robust environment with higher rainfall, in

which vegetation grows quickly." Also, they herded cows and sheep, not goats.

The Fertile Crescent, along with the rest of the Middle East, reasserted its creative lead—not in food production but in science—during the triumphs of the Islamic empires. Islam was the most successful political, military, religious, and cultural entity of its time, asserting dominance from the eighth to the fifteenth centuries, westward through North Africa and Spain, eastward to South Asia. So far ahead of Europe was the scientific knowledge of Islam that most scientific and literary works from the classical period which Renaissance scholars finally obtained had been translated from Greek and Latin into Arabic; Islamic scholars later retranslated these texts into Latin for scholars in European Christendom. During this period, our ancestral European culture also obtained from Islam the nimble signs that we still call Arabic numerals, and that are indispensable to our mathematics and all the achievements of measuring and reasoning that mathematics has made possible. Arabic numerals originated in the Fertile Crescent and India; the source of their most original and portentous addition, the zero, was the Fertile Crescent. The first known European mathematical use of the zero was in a Spanish manuscript dated 976 C.E. and believed to be derived from a Latin translation of a Baghdad work.

Although Diamond does not go into the second cultural deadening of the Fertile Crescent that brought to an end the second burst of world-altering scientific creativity there, another scholar, Karen Armstrong, has identified the point of no return as 1492, the year Ferdinand and Isabella drove the Muslims from Spain—their last important European foothold—in determination to expunge from their realm Muslims, Jews,

Christian heretics, and other infidels. From then until the start of the nineteenth century, Mesopotamia deliberately attempted to shield itself from influences coming from the outside world.

Cultural xenophobia is a frequent sequel to a society's decline from cultural vigor. Someone has aptly called self-imposed isolation a fortress mentality. Armstrong describes it as a shift from faith in *logos,* reason, with its future-oriented spirit, "always . . . seeking to know more and to extend . . . areas of competence and control of the environment," to *mythos,* meaning conservatism that looks backward to fundamentalist beliefs for guidance and a worldview.

A fortress or fundamentalist mentality not only shuts itself off from dynamic influences originating outside but also, as a side effect, ceases influencing the outside world. Fortunately for our own culture, before Mesopotamia succeeded in entirely sealing itself off, some of its talented and open-minded scientists fled to northern Italy, where they joined Galileo, Vesalius, and other precursors of the Enlightenment, who had their own hard battles to fight against spiritual and intellectual fundamentalism. Mesopotamian scientists helped make the University of Padua a preeminent world center of reason when our own ancestral culture needed rescue from the stultifying ideas that all valuable thought had already been thought and that disturbing new ideas—for example, that the earth is eons older than *mythos* admits—are unnecessary or dangerous.

China had much the same original advantages as the Fertile Crescent, plus greater rainfall, and retained its early lead longer. The large and dense population of medieval China enabled it to become the world leader in technology. Among its many innovations were cast iron, the compass, gunpowder,

paper, printing with movable type, windmills, navigation equipment of all kinds, paper money, porcelain, and unparalleled silk spinning, weaving, and dyeing. China ruled the seas in the early fifteenth century. It sent vast numbers of cargo ships, called treasure fleets, across the Indian Ocean to the east coast of Africa, decades before Columbus crossed the Atlantic. The treasure fleets consisted of hundreds of ships, each as much as four hundred feet long. A fleet was manned by as many as twenty-eight thousand sailors. Centuries before the British Royal Navy learned to combat scurvy with rations of lime juice on long sea voyages, the Chinese had solved that problem by supplying ships with ordinary dried beans, which were moistened as needed to make bean sprouts, a rich source of vitamin C.

Diamond asked himself why Chinese ships didn't colonize Europe before Vasco da Gama's three little Portuguese ships launched Europe's colonization of East Asia. "Why didn't Chinese ships . . . colonize America's west coast? Why did China lose its technological lead to formerly so backward Europe?"

In this case, the turning point was almost whimsical, like the plot of a musical or an operetta. In the early fifteenth century, a political power struggle was waged between two factions in the Chinese imperial bureaucracy. The losing faction had championed treasure fleets and taken an interest in their leadership and well-being. The winning faction asserted its success by abruptly calling a halt to voyages, forbidding further ocean voyaging, and dismantling shipyards.

In the complex Chinese culture, the loss of the great shipyards must have reverberated through the economy, affecting many other activities; so did the loss of the far-flung import and export trade. In 1433, with a capricious policy emerging from a tempest in a teapot, China's long stagnation began. A

deeper cause than the court intrigue, Diamond points out, was that China was so tightly unified politically that "one decision stopped fleets over the whole of China." He contrasts this with Columbus's potential opportunities for sponsorship. After Columbus was turned down by the Duke of Anjou, and then in succession by the King of Portugal, the Duke of Medina-Sedona, and the Count of Meda-Celi, he finally hit the jackpot with Isabella and Ferdinand of Spain. Europe's political fragmentation and its therefore decentralized decision making afforded crucial opportunities to Columbus and other explorers that were denied to mariners of the richer and more advanced Chinese. Unity, like many good things, is good only in moderation. The same can be said of disunity. In 1477, when a Chinese attempt was made to revive intercontinental ocean trading, the vice president of the War Ministry not only forbade it but destroyed all the documents regarding previous trading voyages. He called them "deceitful exaggerations of bizarre things, far removed from the testimony of people's eyes and ears," and said the ships had brought home nothing but "betel, bamboo staves, grape wine, pomegranates, ostrich eggs and such like odd things." Loss of charts and records from the archives ended medieval China's interest in the outside world, as well as the period of exploration.

China's wrong turning, capricious though it was, carried the double blow of surrender of its technological lead and simultaneous retreat into a fortress mentality. In China's case, the *mythos* for which *logos* was surrendered was Confucianism, an intellectual and social bequest from a sage of the long-distant past which was believed to contain all necessary precepts for the conduct of human beings in their relationships with one another and with their environment.

Diamond's analysis of winners and losers, elegantly precise

and predictable wherever the forces at work were geography, climate, plants, animals, microorganisms, and demography, turned mushy and unreliable as soon as human decisions entered the equation. Yet, as he himself was the first to admit, a science of human history that omits the behavior of human beings is an absurdity. His brilliant analysis, as is, explains most outcomes of unequal contests between cultural winners and losers. But I think he limited its explanatory power unnecessarily by the way he posed his initial question: *What are the advantages that enable cultural conquerors to win conflicts with losers?*

Suppose we turn the question upside down and ask: *What dooms losers?* The answer to the new question, cast in the form of a principle, runs something like this: *Losers are confronted with such radical jolts in circumstances that their institutions cannot adapt adequately, become irrelevant, and are dropped.* This principle leaves scope for changes and jolts that arise within a culture, as well as changes and jolts imposed from outside.

A common example of a change imposed from the outside is the seizure by a conqueror of a hunting society's territory. As a consequence, both the practice and lore of successful hunting is lost from those cultures. The oldest resident of Fort Yukon, a man of about seventy in a predominantly American Indian community within the Arctic Circle, explained in 1994, "Our young fellows get me to tell them about the old hunting life. They think it would be so wonderful and exciting to follow it again instead of the dull jobs the school tries to prepare them for. But they don't realize how hard and chancy hunting was. They don't know enough to survive in the bush."

An example of a jolt from within is the overfishing of cod that has idled fishermen in Newfoundland villages. Some

fishermen adapt by overfishing other groundfish and crabs, some by taking jobs in factories (almost always short-lived enterprises lured in and subsidized by the province); many, if they are young, emigrate to cities elsewhere in Canada; and others temporize and live on hopes that wealth from offshore oil drilling will trickle down to them in time. How to fish for cod is not forgotten yet, but it will be if the fish stocks don't recover soon, which they show no sign of doing after a decade-long moratorium.

Jolts from inside and outside are not basically different. What is lost from Diamond's erstwhile science of human history when we factor in human decisions is the aim he had of creating a genuinely hard science. Bringing in human decisions, as he did and as we must, changes the science itself, from a hard science to a soft one.

Some people think optimistically that if things get bad enough, they will get better because of the reaction of beneficent pendulums. When a culture is working wholesomely, beneficent pendulum swings—effective feedback—do occur. Corrective stabilization is one of the great services of democracy, with its feedback to rulers from the protesting and voting public. Stabilization is also one of the great services of some commercial innovations which, in concert with markets, shift production and consumption away from resources plagued by the high costs of diminishing returns, to substitutes or to other locales of production.

But powerful persons and groups that find it in their interest to prevent adaptive corrections have many ways of thwarting self-organizing stabilizers—through deliberately contrived subsidies and monopolies, for example. Or circumstances may

have allowed cultural destruction to drift to a point where the jolts of correction appear more menacing than downward drift. Gibbon's *Decline and Fall of the Roman Empire* is stuffed with instances of drift that became monstrous and ultimately proved impossible to correct. For instance, as shortfalls in the Roman treasury—which had their own economic causes—made it impossible to pay Rome's legions adequately and on time, elite guard units took into their own hands the power of choosing emperors in hopes of ensuring their own well-being. This made a shambles of orderly government successions and policies, including budgets for supporting the legions—a shambles that with time grew worse, not better. In the half century from 235 C.E. to 284 C.E., Rome had twenty-six army-acclaimed emperors, who, with only one exception, succumbed to public assassinations or private murders. Rome's other major institutions, such as the Senate and the empire's diplomatic structures, were implicated in this bizarre sequence, either through their own corruption or by pernicious drifts of their own.

The human causes of Rome's collapse have been studied minutely, and one thing that can be learned is that everything is connected with everything else, not only in its consequences but also in its causes. We may be sure that the story of the desertification of the Fertile Crescent, cited by Diamond, was not simple. At the least, corrective adaptation that would have threatened the plaster industry (which was so voraciously consuming forests for fuel) and would have handicapped goatherding and its dependent industries must have appeared, at the time, to be less feasible than continuing to ruin the land itself.

In the case of China's self-imposed stagnation as a by-

product of political squabbling, we must bring in the usual complicating fact that everything was connected to everything else, and add the reality I mentioned earlier: that even in a literate and archive-keeping society, which medieval China was, time for corrective action is finite: culture resides mainly in people's heads and in the examples people set, and is subject therefore to natural mortality. Thousands of details of shipbuilding, equipping, navigating, and trading practices obviously went into the complicated creation, finance, and operation of treasure fleets. As the people who had competently maintained this organizational wonder died off, so must have cultural competence to follow in their footsteps.

People get used to losses (fortunately, or life would be unbearable) and take absences for granted. So it must have been, eventually, with Chinese ocean voyages. In North America, a couple of decades ago, it was common to hear residents remark, as they locked up for a short departure from home, that they never used to need to lock their doors. Nowadays, the remark is seldom heard. People who once didn't need to lock their doors have gradually died off, and so even the memory of what has been lost is now almost lost. As for reconstituting that particular security, what with everything connecting to everything else—the illegal drug trade, police corruption, racism, poverty, and inadequate education—theft and robbery are so intractably complex as to defy solution. The only reason I know that unlocked-door security is actually possible (although my mother used to frequently comment about formerly not having to lock the door) is that I have experienced unlocked security, with amazement, during a visit to Tokyo, Kyoto, and Osaka in 1972.

The collapse of one sustaining cultural institution enfeebles

others, making it more likely that others will give way. With each collapse, still further ruin becomes more likely, until finally the whole enfeebled, intractable contraption crashes. Beneficent corrections of deterioration are not guaranteed.

A culture is unsalvageable if stabilizing forces themselves become ruined and irrelevant. This is what I fear for our own culture, and why I have written this cautionary book in hopeful expectation that time remains for corrective actions. Each correction benefits others, making connections within the culture beneficial instead of malignant.

In the five chapters that follow, I single out five pillars of our culture that we depend on to stand firm, and discuss what seem to me ominous signs of their decay. They are in process of becoming irrelevant, and so are dangerously close to the brink of lost memory and cultural uselessness. These five jeopardized pillars are

- community and family (the two are so tightly connected they cannot be considered separately)
- higher education
- the effective practice of science and science-based technology (again, so tightly connected they cannot be considered separately)
- taxes and governmental powers directly in touch with needs and possibilities
- self-policing by the learned professions.

It may seem surprising that I do not single out such failings as racism, profligate environmental destruction, crime, voters' distrust of politicians and thus low turnouts for elections,

and the enlarging gulf between rich and poor along with attrition of the middle class. Why not those five, rather than the five I have selected to concentrate upon? Surely the second five indicate serious cultural dysfunction. Perhaps my judgment is wrong, but I think these second five are symptoms of breakdown in the five I have chosen to discuss. Furthermore, many North Americans are already aware of them as dangerous flaws and are trying to focus on intelligent corrections.

The weaknesses I single out in the five pillars are less recognized, I think. These pillars are crucial to the culture and are insidiously decaying. Other institutions may be as deserving of alarmed attention. Hindsight may well expose my blind spots. Indeed, it surely will if we continue drifting, heedless of our culture's well-being. I can only apologize for being less omniscient than I should be as I take up a responsibility—which I hope readers will also assume—for trying to do the small bit I can to give stabilizing corrections a push. A culture is a vast and obdurate entity, difficult to divert from a mistaken course upon which it has set. Following my discussion of the decay of the five cultural pillars, I attempt practical suggestions for reversing some intractable deteriorations.

My last chapter returns to patterns of Dark Ages and less extreme deteriorations, and puts them into larger context than our own vexations. It also suggests why our predicament—the shift to postagrarianism—is so jolting that if our culture and our contemporaries' pull through more or less intact, we will all deserve posterity's gratitude.

Although the chapters that follow are structured as a collection of warnings, this book should not be mistaken for prophecy. Life is full of surprises—some of them good, with