

Chapter 1

Culture Gone Bad

Culture has turned sour. Originally a constructive force, it has now become disruptive to contemporary society. A seldom-recognized factor in the troubled relation between culture and society is automated information technology, the most influential technological development of our time. Automation's role is ambivalent. In some ways it is used to increase culture's disruptive influence, but the main line of my argument will be that in more subtle but important ways it acts to lessen it. The primary objectives of this book are to explain how and why culture has gone bad and to explore what automated information technology has to do with it.

CULTURE

One of the most poetic descriptions of culture, used by Ruth Benedict in her famous book *Patterns of Culture*, comes from a Digger Indian of California: "In the beginning God gave to every people a cup, a cup of clay, and from this cup they drank their life. . . . Our cup is broken now. It has passed away" (Benedict 1934:21–22). The metaphor of culture as a cup from which people drink their lives captures the pervasiveness of culture in all things human. Culture consists of language and the systems of meanings and symbols—beliefs regarding the natural and supernatural world, moral imperatives, customs of all sorts—that have furnished the

rich variety of human designs for living. Strictly speaking, culture may not be an exclusively human possession, for dolphins and whales have audible systems of communication, chimpanzees and pet dogs learn patterns of acting that could be called customs, and many other aspects of animal behavior are claimed to qualify in one way or another as cultural. But it is still fair to say that culture has set us apart from other species, because none of them comes anywhere close to the complexity and variety of human cultures.

Indeed, more than setting humans apart from other species, one can even say that culture has made our species what it is. That is, prior to becoming *Homo sapiens*, our hominid ancestors possessed certain trappings of culture, such as the ability to use fire and to make tools. Therefore, culture was one of the environmental conditions to which certain aspects of our biological makeup—certainly our brains, and perhaps our hands and other characteristics—adapted in the latter stages of human evolution. We are, that is to say, biologically formed to have culture (Washburn 1959; Muller 1959:2–3; Geertz 1973a, 1973b; D’Andrade 2002). Not any particular culture, because its particulars are learned and not transmitted genetically, but without culture of some sort we would not be fully human.

If anthropologists and others have manifested any concern about the overall status of culture, then it is the danger of certain cultures being emasculated or taken away.¹ This is an outcome of rapid social change, as in the circumstances of conquest and colonialism. The loss of land and means of livelihood due to large-scale settlement by foreigners has been especially lethal to indigenous cultures. The plight of Native Americans and Australian aborigines, who have been displaced by populations with a radically different technology and way of life, is poignantly articulated by the Digger Indian quoted above and is all too familiar to everyone.

While I have no wish to dispute or minimize such tragic injustices, this book builds on the different premise that if there is a general problem with culture in the contemporary world, then it is not that there is too little of it but, quite to the contrary, too much. In the pages that follow I will argue that culture is now working at cross-purposes with society. Culture and society are different things, and they have followed different courses of evolution. A society is a human group, an organized plurality of interacting individuals, while culture, as I have said, refers to beliefs, meanings, symbols, and customs that are shared by members of human groups. In the early phases of human existence, society and culture worked

well together, when culture was an important force for maintaining and integrating society. In the course of evolution, society has changed dramatically from small, simple, face-to-face bands to large, internally diverse nation states. Culture, for its part, has changed in response to the growth of society, but in such a way that it now plays a divisive role in today's large, complex societies.

The other primary objective of this book is to contend that recent technological developments in the automation of information are highly pertinent to this situation. They are pertinent to it, however, in an ambivalent manner. The greater part of my discussion aims to demonstrate how they act to alleviate the discord between culture and society. Yet it will also be necessary to recognize how, in other ways, they exacerbate the discord. But before getting into that, we need to look more closely at the relation between society and culture and their divergent evolutionary paths.

SOCIAL AND CULTURAL EVOLUTION

Culture emerged as an adaptive strategy in the conditions of prehuman and early human social life. These consisted of small, more or less nomadic groups that gained their livelihood from wild plants and animals and engaged in friendly or hostile interactions with other, similar groups. They developed ideas that defined their relation to the natural and supernatural world, articulated norms regarding proper and improper behavior, and entertained themselves with games, jokes, and stories. Common language, beliefs, values, and expectations enabled members of such groups to live and work together effectively and to distinguish themselves from other groups, with other cultures. Archaeologists trace the growing importance and complexity of shared understandings and learned behavior in residue left in pigment and stone and bone. The earliest tools testify to the realization that the environment could be exploited more effectively by modifying certain natural products. Later refinements of that idea are visible in more advanced tools tailored to specialized activities such as piercing, cutting, and scraping. Early art in the form of paintings and sculptures of animal and human figures reveals the development of aesthetic senses of form, proportion, and color. Venus figures of heavy-breasted, pregnant women may express ideas about human fertility, while sculptures and paintings of animals and hunting scenes may depict beliefs

regarding the relation between hunters and their quarry. Mortuary customs such as burial, placing bodies in certain postures, coloring the bones, and depositing various objects with them all reveal that human groups were beginning to conceptualize death as an existential issue and were developing ideas about its relation to life and an afterlife. Although it left no material remains, the development of language was an essential aspect of the early growth of culture.

Ethnographic accounts of hunting-and-gathering peoples from Australia, Africa, and the Americas have greatly enriched our understanding of small-scale societies. Book after book describes the marvelous variety of their social and political organizations, their religious and magical beliefs, their knowledge of plants, animals, and the natural world, their ideas about illness and healing, and their folklore and mythology. Although human beings have never been robotic slaves to custom, incapable of independent thought, culture does stress common beliefs and conventions. These enabled people of simple societies to communicate with each other through language and other systems of symbols and to coordinate their economic, social, political, ideological, and recreational activities to conduct the necessary tasks of daily life, maximize their chances for survival, and hold a set of understandings and values to give life meaning, purpose, and beauty.

Sharing the same language, understandings, and values does more than just enable individuals to communicate and interact easily with each other. In small, relatively simple, societies culture is the basis of social solidarity, the glue that holds society together. People identify themselves as Arunta or Cheyenne or Mbuti because a common culture—language, beliefs, values, customs—ties them to each other and simultaneously distinguishes them from other groups with other cultures. In his classic *The Division of Labor in Society*, Emile Durkheim (1933) called this form of social cohesion “mechanical solidarity.”

It is important to recognize that culture works best to provide mechanical solidarity when it is closed: when its tenets are clear, unequivocal, and fixed, and when its adherents accept them as unquestionably true, support them ardently, and reject alternatives out of hand. Dissent, or even lukewarm acquiescence, weakens the consensus. Thus Durkheim argued that mechanical solidarity demands strict conformity with the common sentiments, beliefs, values, and customs. Any breach or flaunting of them constitutes a serious threat to social stability. Hence, the law that upholds them tends to be repressive, even vengeful. Harsh punish-

ments preserve social cohesiveness by reinforcing the centrality and rightness of the common culture (Durkheim 1933:80–88, 102–103).

Closed culture is most successful when the scale is small and relatively isolated. A consensus of beliefs and expectations is easiest to maintain when held by restricted numbers of people who are in regular contact with each other. Conflicts that might emerge from encounters between different cultures pose a relatively low risk when people do not have much to do with outsiders.

But small, self-sufficient, and isolated societies are now rare. The vast majority of human beings today belong to large, complex societies that have tens or hundreds of millions of members and encompass diverse sub-cultures. The initial cause of the shift was the Neolithic or Agricultural Revolution, which refers to the time about 10,000 years ago when people first domesticated plants. This dramatically increased the capacity to produce food. People abandoned nomadic wandering for sedentary residences, the population increased, and towns and cities came into being. Increases in the variety and prevalence of material possessions and in population density led certain people to specialize as craftsmen, traders, soldiers, priests, and administrators. Thus the division of labor, which with hunting-and-gathering technology is largely limited to sex and age, became much more elaborate.

Several nineteenth-century scholars noted that the basis of social solidarity changed as societies became larger and more diverse. Instead of the cultural similarity that constitutes mechanical solidarity, societies with a complex division of labor are held together by their *differences*: the cobbler depends on the baker for bread, who depends on the carpenter for shelter, who depends on the blacksmith for tools, who depends on the cobbler for shoes. With this kind of economic interdependence, it did not matter so much that people thought and believed the same things and looked at the world in a distinctive way. Therefore, common culture became less important, and individual variability increased. On the analogy with the different, interdependent physiological functions of the organs of the body, Durkheim (1933) named this kind of social cohesiveness “organic solidarity” (p. 131).

Durkheim insisted, however, that organic solidarity entails more than just economic interdependence. It ushers in changes in law, religion, and morality, and it liberates the individual. This contrasts sharply with mechanical solidarity, which “is strong only if the individual is not. . . . [I]t receives from . . . universal, uniform practice an authority

which bestows something superhuman upon it, and which puts it beyond the pale of discussion. The co-operative society [with organic solidarity], on the contrary, develops in the measure that individual personality becomes stronger” (p. 228). Under organic solidarity, for example, law becomes concerned more with restoring the aggrieved individual to the state that obtained before an offense than to uphold the tenets of common culture (p. 111). Religious belief, all-pervasive under mechanical solidarity, goes into retreat (p. 169). This is “linked to the fundamental conditions of the development of societies, and it shows that there is a decreasing number of collective beliefs and sentiments which are both collective enough and strong enough to take on a religious character. That is to say, the average intensity of the common conscience progressively becomes enfeebled” (p. 170).

Even something as apparently inconsequential as the declining use of proverbs reveals the same trend. Noting that “a proverb is a condensed statement of a collective idea or sentiment relative to a determined category of objects,” Durkheim (1933) writes that “the decrease in the number of proverbs, adages, dicta, etc. as societies develop, is another proof that the collective representations move towards indetermination” (p. 170). In other words, just as differences between human individuals become more pronounced, so do differences between conceptualizations of situations and events. This makes it more difficult to classify them in a few preestablished categories. Therefore, the use of proverbs and adages, which serve to lump situations and events in precisely such categories, becomes less apt.

As these passages make clear, Durkheim (1933) understood the development of the more complex division of labor and the associated transition from mechanical to organic solidarity in terms of evolution to a more advanced state of both the individual and society (see also pp. 129–31, 152). Although more stress is placed on unity of thought in mechanical solidarity, it does not follow that society becomes less cohesive with the ascent of organic solidarity. In fact, for Durkheim (1933), organic solidarity is the stronger glue. “Social progress . . . does not consist in a continual dissolution. On the contrary, the more we advance, the more profoundly do societies reveal the sentiment of self and of unity . . . even where it is most resistant, mechanical solidarity does not link men with the same force as the division of labor” (p. 173, see also p. 151). Nor did Durkheim (1933) think that the cultural sentiments and understandings that underpin mechanical solidarity are in danger of vanishing all

together. "This is not to say . . . that the common conscience is threatened with total disappearance. Only, it more and more comes to consist of very general and very indeterminate ways of thinking and feeling, which leave an open place for a growing multitude of individual differences" (p. 172). Culture, that is, becomes more open because people become more open-minded. Culture's tenets lose their absolute and imperative qualities. Individuals develop freedom of thought to the point that they can regard the principles of their culture dispassionately, even critically, and can consider the merits of alternatives to them.

OPEN AND CLOSED CULTURE

Durkheim recognized that the division of labor did not, alas, invariably produce greater social cohesion and the advances toward equality of opportunity, individual expression, and the other trappings of open culture that ideally characterize organic solidarity. These beneficial outcomes occur when differences are recognized as complementary, enhancing each other. But two other kinds of difference may also result from the division of labor, both of them deleterious. One is contradiction (Durkheim 1933:55–56). Here different constituencies are set against each other in a zero-sum game where any gain of one is thought to come at the expense of another. The vast inequities of wealth and power in an industrial system, for example, give rise to frustrations and antagonisms as the rich exploit the poor (pp. 354–56). Another example of contradiction is a caste system that allocates positions of privilege or inferiority according to birth, thus denying equal opportunity on the basis of the natural distribution of talents (pp. 380–81). The second kind of deleterious difference, which I call compartmental, occurs when the division of labor generates distinct elements that function in isolation from each other. In this event, the mutual benefits of coordination are not realized. Durkheim's (1933) main example is the blinkered development of the various scientific disciplines, each oblivious to what is happening in the others and ignorant of the progress that would result from bringing their different perspectives to bear on common problems (pp. 356–57).

According to Durkheim, the more culture is closed, the more it limits the latitude and expression of individual judgment. That is released to develop when culture opens to the point that people are not imprisoned by its tenets but can regard them dispassionately and rationally

consider alternatives. But they can consider alternatives only when they know that there *are* alternatives, and that occurs primarily in the conditions of regular contact between different societies and within large, culturally heterogeneous societies. Even then, however, individual judgment flourishes only when cultural differences are deemed complementary, with the potential to mesh effectively. Large societies with a complex division of labor but with contradictory or compartmental differences among their constituent cultures retain the same cultural closure and correspondingly restricted individuality characteristic of small, homogeneous societies with mechanical solidarity. Compulsive adherence to one set of ideas and values while condemning all alternatives as dangerous or evil is the stuff, as we shall see in the next chapter, of culture wars and other cultural conflicts. And to compartmentalize differences is to encourage people to cocoon themselves complacently in the received views of their own culture, avoiding the challenge or threat that comes with taking other views seriously.

Durkheim (1933) held that the natural result of the division of labor is what we have called open culture: the perception of differences as complementary and all the benefits that flow from the attendant organic solidarity. What we have called contradictory and compartmental differences, with their detrimental consequences, are in his eyes exceptional and abnormal results of the division of labor (pp. 353–54, 372). He distinguished three abnormal or pathological forms, two of which are of interest here. One of these, the anomic division of labor, occurs when different parts of the system do not interact smoothly together, either because proper communications between them are somehow obstructed or have not had sufficient time to become established (pp. 368–69). The meaninglessness of work for assembly-line workers comes about because there has not been enough time to adjust to the new conditions of industrialization. Nor has there been adequate time for the different branches of science to accommodate each other, the problem being especially acute in the social sciences because they are the youngest ones. But Durkheim (1933) was confident that with time these imperfections would work themselves out (pp. 370–71).

He refers to another abnormal form as the forced division of labor (pp. 374–88). This occurs, as it does all too frequently, when rewards and opportunities are allocated on the basis of heredity or cronyism instead of according to the natural distribution of talents. This occurs when power is distributed unevenly in society and those with it use it to exploit and

hold down those without it. The forced division of labor spawns many of the evils that complex societies are heir to: poverty, injustice, resentment, and, in the effort to undo them, revolution. Durkheim (1933) fully acknowledges that these evils (his word, p. 387) persist, but he insists that their days are numbered. Justice and equality are systemically braided into organic solidarity, and the progress of the division of labor necessitates their realization. “No matter how important the progress already realized in this direction, it gives, in all likelihood, only a small idea of what will be realized in the future” (p. 381).

Durkheim’s view that the anomic and forced forms of the division of labor are pathological, in the sense that they are harmful, may well be accepted today, but I do not think that they would be viewed as abnormal. In 1893, when *The Division of Labor* was originally published, Durkheim was clearly a believer in progress. Along with most of his contemporaries, he was convinced that society is advancing to a higher state of freedom, equality, individuality, and justice. Too, one gets the impression that he became somewhat carried away with the perfectly interdependent organs in a biological organism (specifically, a mammal) as a metaphor for human society with organic solidarity. Today we are more prone to believe that power and domination are constantly endemic to human affairs, and we are less likely to think of society as being or becoming so well integrated (as, indeed, our increasing understanding of the immune system and disorders such as HIV make biological organisms appear less seamlessly organized).

While Durkheim would see what we have called complementary difference as natural and explain complementary and compartmental differences in terms of his abnormal forms, my opinion is that the development of large societies with a complex division of labor is more likely to generate contradictory and compartmental differences than complementary ones. Part of the reason for this is that I, along with most of my contemporaries, do not share Durkheim’s general faith in progress. The other part has to do with culture. Unlike Durkheim, I think culture itself—what he calls the collective consciousness, and what he sees as the basis of mechanical solidarity—is a contributing factor to contradictory and compartmental difference. Cultural difference is an important reason communication between parts of complex societies becomes occluded and powerful constituencies are all too ready to exercise domination and exclusion (and weak constituencies to resent and rebel). This is what I call the trouble with culture.

The source of the trouble lurks along the intertwined evolutionary paths of society and culture. Closed culture is an entirely workable adaptation to societies that are simple, small, and relatively isolated. A primary function of culture in such circumstances is to provide the mechanical solidarity that holds such societies together, and this works best when culture is inward looking. That is, it acts primarily to order the relations among people within the society. As society evolved to become large and internally complex, it increasingly incorporated a number of different cultures defined along any of a variety of lines, such as ethnicity, class, wealth, religion, gender, sexual preference, and so on. In response to that, culture evolved to become outward looking. At least as much as regulating relations among its adherents, culture now serves as a mark of identity that people from different constituencies use to define themselves in terms of the distinctive characteristics that set them apart from each other. This is benignly visible in innumerable street fairs and community festivals and more ominously so in ethnic and religious clashes around the world.

As it turns outward, culture may open or it may remain closed. The proximity and regular encounter of cultural differences in complex, heterogeneous societies might loosen the grip of culture on its adherents, encouraging them to recognize and appreciate ways of thinking and behaving different from their own. In that case, the loosening of cultural imperatives and expansion of individual thought and freedom signal an opening of culture to the harmonious coexistence of complementary differences that Durkheim associated with organic solidarity. But more commonly, as some societies, or groups within or between societies, corner power and dominate others, culture maintains or even increases its closed quality as it becomes enlisted as a political weapon in the struggle between groups bent on maintaining or overthrowing various forms of hegemony (Turner 1993:423–24). Narrow-mindedness and intolerance or indifference toward other values and understandings are rampant as hostile attitudes and behavior fly between societies in regular contact, as well as between culturally different constituencies within the same society. This is the trouble with culture. It has become a divisive factor in the contemporary conditions of globalization and large, internally diverse societies.

Examples are everywhere. Specialized constituencies develop their own interests and points of view. Bureaucrats have different needs and see things differently than the intelligensia, who differ in these ways from the military, who differ again from farmers or industrial workers. They

develop different cultures. Moreover, empires and nation-states formed societies that encompass several different ethnic and cultural groups. They too see things differently. If the differences are such that people feel threatened by them, then they come into more or less open conflict and are therefore the type of difference we have called contradictory. If they are perceived as irrelevant, or if cultural differences are used as a tool for excluding people from certain groups or positions in society, then they coexist in isolation from each other and are compartmental. Both of these outcomes demonstrate that culture, originally well adapted to the small, homogeneous communities that characterized the early conditions of human life, has become maladapted to the heterogeneous societies in which most human beings live today.

In viewing cultural difference within contemporary societies as maladapted, I seem to be bucking a current in contemporary thought that celebrates cultural diversity. Too often, however, that stream is shallow. When my family visited Disneyland some years ago, we piled into small boats and were ferried through a series of artificial landscapes ranging from Alpine pastures to Asian rice paddies to central African villages. Animated dolls peopled each location, of a color and in costumes ethnically appropriate to it, all smiling and swaying and singing "It's a small world, after all." The experience was annoying, partly because I could not get the tune out of my head and partly because it trivialized cultural differences. Of course we enjoy the cultural diversity of costume and cuisine, folklore, and music and dance in restaurants and concert halls and at street fairs and community festivals. But culture more fundamentally concerns convictions about the texture of reality, the shape of the divine, the nature of truth, and the morality of behavior. In the environment of closed culture, when differences of these sorts butt up against each other, what they evoke ranges from shouting matches between talking heads on television to street demonstrations to terrorist attacks and war. As societies interact more frequently and become internally more diverse, such dangerous and divisive confrontations increase. That, again, is the trouble with culture. What is needed is not more polka bands and street dances (although I certainly do not recommend less of them, because they are a lot of fun and probably do make some modest contribution toward solving the problem) but to cool down and open up cultural principles to the point where they lose their absolute, imperative trappings and can be weighed, considered, and appreciated by open-minded individuals as representatives of a multitude of designs for human living.

To summarize, the evolutionary paths of culture and society have diverged to the point where culture has become an obstacle to the productive communication and interaction that it originally enabled. For it again to become a positive aspect of social life, people must free themselves from being so exclusively and irrevocably saturated with their own cultural premises that they are existentially threatened by alternatives. This does not mean, as Durkheim pointed out, that culture would disappear altogether. That is virtually unthinkable, because then the languages and shared concepts that are necessary for communication and interaction would be lacking. What it does mean is that culture must open to the point that people can gain critical understanding of and control over their cultural principles and concepts rather than being held in thrall to them. This is much deeper than a Disneyland celebration of cultural diversity. It requires building bridges between the most basic of cultural premises and juxtaposing cultural differences in a rational way that encourages the formation of new ideas and strategies. This can occur only in the circumstances of open culture that make it possible to see those differences as complementary rather than contradictory or compartmental.

AUTOMATION: A PREVIEW

The automation of information or the “computer revolution” has important consequences for the evolution of culture that cut in both directions. On the one hand, it enables certain cultures to become even more closed as mass communication and computer-mediated communication promote “narrowcasting.” People now can immerse themselves in television channels and Internet communities that reinforce their preconceived ways of thinking and never mention alternatives except to denigrate them.

The primary emphasis of this book, however, is on the other side: the less recognized, more subtle, but pervasive ways that automated techniques for storing, accessing, and using information foster evolution toward a more open culture. Briefly, to prefigure the argument that will fill many of the following pages, in the nonautomated context, events and ideas are categorized according to fixed classification schemes ordained by culture. This reinforces received ways of thinking and is therefore conducive to contradictory and compartmental differences. In contrast, automated information management techniques such as keyword searching are fluid and contingent, expressly tailored to specific circumstances such as the particu-

lar terms of a search query. This often juxtaposes bits of information in novel ways, challenging the user to develop creative interpretations.

Automation opens culture by loosening its certainties. Thought is less constrained by prefabricated categories, and judgments become more flexible. Cultural differences appear less as contradictory and threatening and more as complementary and with interesting possibilities for common ground. This change of mind-set stimulates evolution toward a more open culture, with the potential to calm the culture wars and bring culture into a more harmonious, productive relation with today's large-scale, heterogeneous societies.

AN OVERVIEW

The next chapter takes a more thorough look at the trouble with culture, including how automated information technology may exacerbate it, bolstered by examples of how culture has disrupted contemporary and historical societies by fostering contradictory and compartmental differences within and between them. But forces are also abroad that work to open culture, thus encouraging the recognition of complementary differences and assisting the spread of organic solidarity. Chapter 3 addresses three such forces. Two of them—cultural relativism and postmodernism—have been relatively ineffective. The third, which shows considerably more promise, is the automation of information. The remainder of the book explores those little recognized social consequences of automation that counteract culture's divisiveness and promote organic solidarity.

Human intelligence and artificial intelligence organize and access information differently. Human intelligence stresses classifying, while artificial intelligence relies more on indexing. This apparently drab distinction spawns enough important consequences that several chapters will be required to plumb it adequately. Chapter 4 discusses the central importance of classifying to culture, and chapter 5 fleshes out that discussion with a case study of the role and far-reaching implications of classifying in the common law. Chapter 6 introduces the concept of indexing and explains its affinity for automation. Chapters 7 and 8 explore the various consequences of indexing for opening culture and promoting organic solidarity, with the help of several case studies drawn from recent developments in the law as well as education, scholarly research, and business and manufacturing practices.

Chapter 9 explores a different but related set of consequences of automation, arguing that among the many developments it supports is a far-reaching change in our concept of ourselves as persons, individuals, or agents. Closed culture thrives on fixed, definite, unquestioned categories, and one of the most invariable categories of all is the notion of the determinate human individual. But today the increasing participation of artificial intelligence in the conduct of many activities renders the methodological individualist strategy of explaining social action entirely in terms of human individuals as untenable. The chapter develops a “superorganic” concept of agency, consisting of variable combinations of human, mechanical, electronic, and other components that form specifically to undertake particular actions and reform in other configurations for other actions. The contingent, recombinant quality of superorganic agency undermines the unequivocal, fixed assumptions that mark closed culture and paves the way toward the flexibility characteristic of open culture.

Chapter 10 concludes the work by drawing the main points together and advancing the basic argument that automation is an antidote for the trouble with culture. It weakens cultural absolutism by encouraging independent and creative thinking. This mind-set, characteristic of open culture, is tuned to recognize cultural differences as being complementary rather than automatically condemning them as erroneous or irrelevant. This can cool the culture wars and help align the evolution of culture with that of society.

When I embarked upon this project, a friend warned, “Be careful. That’s a moving target.” A topic that is developing as rapidly as information technology carries, on the one hand, the danger that much of what one writes may be obsolete by the time it reaches print and, on the other hand, the temptation to engage in speculation. Imagining an indeterminably distant future, for example, some visionaries have predicted that just as eons ago biological organisms freed themselves from the limitations of the inorganic matter from which they emerged, so artificial intelligence may one day break free from its origins in the human mind to continue its evolution exclusively through computers, robots, and the like (Moravec 1988:1–5, Kurzweil 1999:253, Rawlins 1997:19–20, 40).

To be sure, information technology continues its development at breathtaking speed, and perhaps in a few years or decades conjectures such as these may not seem as far-fetched as they do today. But by now I hope it is clear that my way of arresting the moving target is to insist that I am

not writing about information technology *per se*. My interest is in the implications of information technology for culture and society. Therefore, I will not discuss the most avant-garde research in artificial intelligence, for it does not yet have discernable social consequences. Nor, for the same reason, will I make predictions beyond the very near future. Instead, my analysis is restricted to the applications of artificial intelligence that have become widespread over the past several years. That means talking about automated research services such as WESTLAW and LEXIS, about Internet search engines and keyword searching, and about e-mail, word processing, and other electronic procedures that have become commonplace. These have already had major impacts on the professions, on scientific and humanistic research, and on the way people gather information, communicate, and, as a result of all that, think. Attempting to understand the unintended and rarely recognized social consequences of these current realities is daunting (and rewarding) enough that I, at least, am not tempted to speculate beyond them to what may happen in the more distant future.