

Chapter Ten

Marvin Harris, Meet Charles Darwin

A Critical Evaluation and Theoretical Extension of Cultural Materialism

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THE DEATH OF MARVIN HARRIS in the autumn of 2001 was a huge loss for anthropology and the social sciences in general. Harris was a theoretical genius who not only made a profound contribution to anthropology and related disciplines, but who also had a wonderfully accessible writing style that allowed him to write marvelous books for the general educated public. These books have sold several hundred thousand copies, and many are still in print and continue to sell well. (Harris wrote 17 books, both academic and popular, in all, and they appeared in over a dozen different languages [Margolis and Kottak, 2003].) Harris understood far better than most sociological and anthropological theorists the real function of theories: to explain concrete social phenomena. At least in sociology, most theorists think that their job is to develop extremely abstract conceptual and theoretical schemes that are designed to explain everything but nothing in particular. Harris developed an abstract conceptual and theoretical scheme, of course, but he applied this again and again to concrete social and cultural phenomena: sacred cows and abominable pigs, the potlatch, the origins of agriculture, Aztec cannibalism, social change in America since 1945, the collapse of Soviet Communism, and many others. Harris was an elegant model of what a social scientist should be. It is unfortunate that he was underappreciated by much of anthropology and little known in sociology—despite my best efforts to draw the attention of sociologists to his work.

I first encountered Harris's work in the early 1970s. In 1973 I was in my final year as a sociology graduate student and had just accepted my first teaching position, which I would start in a few months. In the university bookstore one day I noticed a copy of Harris's *The Rise of Anthropological Theory* (1968b). I had never heard of Harris or this book but I thumbed through it and it seemed very interesting. I was going to be teaching social theory in my new position and thought this book might prove useful as a sourcebook for lectures, and therefore bought a copy. Since I was heavily involved in finishing my dissertation, I put the book aside and forgot about it until the next fall. I then pulled it off the shelf but ended up making no use of it for lectures and still had not really read any of it. One thing that struck me about the book was the chapter entitled "Dialectical Materialism." I was surprised that an anthropologist would be writing on Marx.

Then in 1975 I read an article on Harris published in *Psychology Today* and discovered that he was a famous anthropologist and an original theorist. As a result, I bought a copy of his *Cows, Pigs, Wars, and Witches* (1974a) and read it with great interest. However, it was not until 1977 that I finally pulled *Rise of Anthropological Theory* off the shelf and read it. This was a transforming experience of grand proportions. I was immensely taken with Harris's adumbration of his own distinctive theoretical perspective, cultural materialism, and was delighted by his elegant skewering of his main theoretical adversaries (both of these achievements were carried to an even higher level in his later book, *Cultural Materialism* [Harris, 1979], as Harris's position became more thoroughly worked out and polished). I rapidly became converted to cultural materialism. My whole career was reoriented and I began to focus primarily on the study of long-term social evolution from a materialist perspective. This led to several books: *Macrosociology: An Introduction to Human Societies*, originally published in 1988 and revised several times (Sanderson, 1991, 1995a, 1999a; see also Sanderson and Alderson, 2005); *Social Transformations: A General Theory of Historical Development* (1995b, 1999b); and, most recently, *The Evolution of Human Sociality: A Darwinian Conflict Perspective* (2001a). This book contains a more detailed critical assessment of cultural materialism than is possible in this essay.

As a sociologist, I have long tried to interest the members of my own discipline in cultural materialism and to show them that a sharp distinction between sociology and anthropology is not only unnecessary but actually pernicious. I have had little success. I know of two sociologists who have been significantly influenced by cultural materialism (Christopher Chase-Dunn of the University of California at Riverside and Thomas D. Hall of DePauw University), for the most part indirectly through me, but there are probably not many others. Sociologists think that sociology and anthropology are—and, apparently, should be—hermetically sealed off from each other, and thus they seldom read any literature on preindustrial and preliterate societies. Even so-called comparative-historical sociologists seldom venture beyond the historical agrarian empires, some even failing to get beyond other industrial societies. Significantly, the only sociologists who seem to be familiar with cultural materialism and to take it seriously are those few who think comparative sociology should include the whole range of preliterate societies.

Cultural Materialism: A Critical Assessment

The reaction to cultural materialism in general and to Harris in particular has long been polarized. During my ventures to the annual meetings of the American Anthropological Association, especially during the 1980s, I was often shocked and dismayed at the hostility to both such a sensible theoretical approach and, it would seem, to Harris personally. Much of this hostility was based on misunderstanding and oversimplification of cultural materialism, but it was also rooted in the deep entrenchment of idealist and historical particularist ideas in anthropology, thus confirming one of Harris's major arguments.¹ My view has long been that cultural materialism is one of the best theoretical approaches we have in the social sciences. In *Social Transformations* (1995b, 1999b) I developed a comprehensive materialist theory of social evolution that I called *evolutionary materialism*. When I sent Harris a reprint of an article summarizing this theoretical strategy (Sanderson, 1994), he reacted much more critically than I had expected. His criticisms are stated in the following letter to me dated May 14, 1994:

Thanks for the reprints—but there are several points that need to be cleared up. First, there is the “significant flaw” you attribute to CM [cultural materialism] on the first page of the Evolutionary Materialism article (EM, p. 47). CM according to you doesn't do well when it comes to explaining the evolution of divergent and convergent forms of the state: the rise of capitalism and industrialism, the rise and fall of dynasties, the commercialization of agrarian states, the rise of Europe to world dominance, or the evolution of the contemporary economic system (EM, p. 48). If this were true, you would have to explain why it is true. Why does this flaw exist? Surely a paradigm that can't deal with the last 5,000 years of human history must have a very significant flaw indeed. Yet there is nothing in the EM paper that remotely resembles a critique of CM's basic theoretical principles with respect to their limited applicability; nor do you advance any new set of theoretical *principles* from which the asserted advantages of EM follow. To add to the confusion, the second half of the paper, which is intended to test EM, doesn't test substantive theories, but continues to list general theoretical *principles* that can be matched almost without exception with the basic theoretical principles of CM.

The Transition from Feudalism to Capitalism paper does not solve the problem. This paper attempts to show that EM leads to a better theory of the origin of capitalism than CM (and other) paradigms. Two problems arise: First, no sustained CM theories of the origin of capitalism have been offered (although sketchy treatments and suggestions can be found in *Cannibals and Kings* and in Johnson and Earle 1987). Ironically, yours is actually the only sustained attempt to present such a theory.

Second, there is nothing included in your theory which in any way contradicts CM's theoretical principles. For example, the inclusion of a long term trend toward global trade certainly does not contradict the principle of the primacy of the infrastructure. I don't happen to think that world system theory is as strategically important or illuminating as a theory that invokes demographic crises in feudal Japan and Europe; nor do I think that you should ignore Wittfogel's theories regarding why China followed a different path than Europe and Japan. (I also think that feudalism was an extremely common form of archaic state and that it is Japan and Europe that are exceptions produced by

the influence of Rome and China.) But these are differences of theory that point to the need for more data; they are not differences of principle.

Perhaps I am missing something. Enlighten me.

I replied to Harris's letter on May 19, 1994, saying the following:

Well, to tell you the truth most of what you say is correct. There is little if anything in my EM that contradicts, at the abstract level of a theoretical (research) strategy, your CM. As I see it, EM is to a considerable extent an elaboration and formalization of CM principles applied to the phenomenon of social evolution. However, I have added quite a few notions of my own, and addressed issues that you either do not address, or do so only implicitly. For example, there is my discussion of the pace of social evolution, of the role of increasing complexity, of the contrasts between social and biological evolution, of different "evolutionary logics" at different world historical periods, of endogenous vs. exogenous causes, and of the role of the "drive for mastery." Most, perhaps even all, of what I have to say about these issues is compatible with CM, but I think I have made some contribution by formalizing and systematizing things to a higher degree. And my point about different "evolutionary logics" at different historical periods, to the best of my knowledge, is not only not found in your work, but might actually contradict it. At the very least it shows CM's incompleteness. I argue explicitly that demography and ecology decrease in importance as societies evolve, and that political economy increases in importance.

When I said that CM hasn't done well in explaining such things as the commercialization of agrarian states, the rise of European capitalism in the sixteenth century, and the evolution of the modern world economic system I didn't mean that CM is incapable of addressing such issues, or that you yourself have not addressed them to some extent. What I meant was that CM has been applied much more extensively to more traditional anthropological concerns and has done *better* in explaining these things. My EM incorporates things like world-system theory into its basic structure, something I think is crucial to understanding the modern world. Whereas demographic and ecological factors are of tremendous importance in the precapitalist, and particularly in the pre-agrarian, world, they seem to me to be of considerably less significance in the modern world of the last 500 years. Here's where the world-economic system becomes crucial, something that CM does not pay all that much attention to (although, of course, *in principle* it can do so).

In sum, EM is basically an extension of CM. It is certainly not in any sense intended as a refutation of CM or anything remotely of the sort. The reason I don't have any systematic critique of CM is that, at the abstract level of theoretical or research strategy, there really isn't any. There is a lot less difference between EM and CM than there is between CM and Marxian historical materialism. You've broadened HM [historical materialism] by adding demography and ecology, but of course you've also explicitly rejected some elements of HM, such as the role of dialectics. I don't explicitly reject any significant part of CM, but I do move it in directions not particularly chosen by you. When I said that a significant flaw in CM was a failure to apply adequately to the full range of social and cultural phenomena, I was in my mind giving emphasis to the word *adequately*. I didn't mean that CM didn't apply at all.

To address your point about my paper on the transition to capitalism: I think what you say here is precisely what I am getting at. The theory of the transition that I offer

in the paper is certainly different from and a lot more elaborate than your discussion in *Cannibals and Kings*. I do not accept demography as a major cause of the transition to capitalism, whereas this is your major causal variable. You're right, my theory does not contradict CM; yet it gives emphasis to phenomena—most particularly, world trade networks—not usually stressed by CM.

In my recent book *The Evolution of Human Sociality* (2001a), I developed a more general theory of human society that resembles cultural materialism, and that incorporates evolutionary materialism, but that pushes their principles to a deeper level. (I do not know whether Harris ever saw or read this book, which was published only a few months before he died. He certainly would have disapproved of its basic argument.) Although in the letter I sent to Harris in 1994 I said I did not have any systematic critique of cultural materialism, I later came to develop one and laid it out in this book. Three main problems stand out in my mind: first, difficulties with Harris's conceptualization of "economy"; second, difficulties involving Harris's mixing of the emic-etic and mental-behavioral distinctions with his infrastructure-structure-superstructure distinction; and finally, Harris's rejection of sociobiology. Let me briefly look at each of these.

One of the things that distinguishes Harris's notion of economy from Marx's is his relocation of the "relations of production" from infrastructure to structure, specifically to "political economy." Brian Ferguson (1995) argues that Harris thus distinguishes two types of economy, "infrastructural economy," which involves mostly technological applications to economy, and "structural economy," which involves economic ownership, distribution, and exchange. Harris believed this distinction is crucial because it is largely infrastructural economy that determines structural economy. I think this may often be true in preindustrial and precapitalist societies, but it is often the other way around in modern capitalism, where it is the search for profits that largely determines technology and other aspects of infrastructural economy. And even in precapitalist systems, the search for wealth by ruling classes is often critical to shaping technological applications.

In addition, I am not sure that Ferguson's view that Harris has two conceptually distinct types of economy completely captures how Harris has modified the Marxian notion of economy. In fact, I have trouble getting rid of the idea that Harris ended up with a very messy, inconsistent, and even incoherent notion of economy. Consider his analysis of the collapse of Communism in the Soviet Union, where great emphasis is placed on deteriorating economic conditions since the 1970s (Harris, 1992). If economy is this important, then why is it not formally retained within the infrastructure? After all, Harris's great theoretical principle is the Principle of *Infrastructural* Determinism. There is no corresponding Principle of *Structural* Determinism. I see it as a serious mistake to put so much of economy in the structure, because then we lose most of the explanatory power of capitalism, which Harris obviously wants to retain. And it is even worse to have "technology" in the infrastructure at the same time, because then we have our causation backwards—in capitalist societies the production relations, which are part of the structure for Harris, would be determining part of the infrastructure. Again, there is no Principle of Structural Determinism.

To complicate the issue further, there is one very odd aspect of Harris's conceptualization of modern economies, capitalism in particular: his argument that capital and profits are essentially emic and mental categories. This is nothing short of a shocking statement. Capital and profits are not emic and mental phenomena, but rather the most crucial behavioral characteristics of the capitalist system! The search for profits and the ceaseless accumulation of capital are the driving engine of capitalism, the whole material logic of the system. Harris's classification of capital and profits as emic point to a faulty understanding on his part of the emic-etic distinction.

Harris's attempt to incorporate this distinction into the tripartite universal pattern seems to me to have been a serious mistake (Sanderson, 2001a:117–118). As Harris (1968b, 1979) himself has stressed and as others have emphasized (e.g., Lett, 1990), emics and etics are *epistemological* concepts with important methodological implications. What sense does it make, then, to try to integrate them with the concepts of infrastructure, structure, and superstructure, which are *ontological* categories—parts of sociocultural systems? I have reluctantly concluded that the emic-etic distinction is so complicated and so confusing that perhaps the best course of action is to drop it, at least for theoretical purposes (it should probably be retained as a methodological device). Not much is lost, and a great deal of clarity is gained, and besides it has been pointed out that Harris consistently violates his own pronouncements anyway—for example, constantly producing emic explanations while claiming to generate etic ones (Oakes, 1981). If we drop emics and etics out of the universal pattern, then infrastructure, structure, and superstructure can be reformulated rather simply approximately as follows:

Infrastructure consists of those natural phenomena and social forms essential to economic production and biological reproduction, and especially including the technology of subsistence, ecosystems, “economy,” knowledge and ideas concerning the subsistence quest and economic production, and demographic patterns.

Structure consists of those organized patterns of social behavior common to the members of a society, excluding those relating directly to production and reproduction; it includes especially family and kinship patterns, gender roles, politics and war, social stratification, educational systems, and organized patterns of sport, games and leisure.

Superstructure consists of beliefs, norms, values, and symbols, especially in the areas of religion, taboos, myth, art, music, and literature.

My final criticism of Harris concerns his stance on sociobiology. Harris has been a strong and persistent critic of this approach, although it needs to be acknowledged that his criticisms have been made from a conceptual and scientific standpoint rather than from the political perspective of most of the critics. As a strong defender of sociobiology, I argue that Harris's argument is unnecessary and that he has missed the boat badly because cultural materialism and sociobiology are in some respects compatible and can be synthesized. In fact, I have performed such a synthesis myself under the name of *Darwinian conflict theory* (Sanderson, 2001a). I discuss this synthetic theory and provide an application of it in the final sections of this paper. This will show how I try to reformulate and extend cultural materialism even beyond my earlier evolutionary materialism and, more importantly, how I deepen cultural materialism.

Before explicating and illustrating Darwinian conflict theory, however, let me first address several important questions: Which of Harris's substantive theories have stood the test of time, and which must be judged wanting? Where does Harris get it right, and where does he get it wrong? And where is he somewhere in between, or the data inconclusive?

Harris's Substantive Theories: The Good, The Bad, and the So-So

Despite his strong epistemological commitment to science, Harris advocated it much more strongly than he practiced it himself. Virtually all of the hypotheses he formulated were testable, and he carried out empirical tests of most of them, either by drawing on evidence collected by others, or by producing new evidence himself. However, these tests were often distinctly lacking in rigor. He employed no formal methodologies or rigorous statistical testing of hypotheses (Daniel Gross, personal communication). (A good example of a failure to use a rigorous statistical procedure, when one was clearly required, was the article on tribal warfare that Harris wrote with William Divale [Divale and Harris, 1976]. The analyses of this article were totally inadequate to test Harris's theory.) Often Harris simply collected just enough evidence to satisfy himself that the hypothesis was confirmed, and then stopped. In some cases, his hypotheses seem well corroborated by the evidence, whereas in other cases Harris either ignored or was unaware of disconfirming evidence, and these hypotheses have not survived rigorous testing. Let us see which hypotheses fall into which categories.

The Good

I would say that the very best theorizing Harris has done is with respect to the following six phenomena: food taboos and food preferences; why we eat too much, feast, and get fat; the origins of early Christianity; long-term social evolution; the women's movement; and the collapse of Communism.

1. *Food taboos and food preferences.* Harris's approach to food habits is conceived in direct opposition to cultural idealist approaches, especially the structuralism of Lévi-Strauss and Mary Douglas—the notion that food is “good to think” or represents cryptic messages (Harris, 1987b). Harris's most basic theoretical premise is that people select and avoid potential food sources on the basis of the material costs and benefits that the foods provide in particular environments at particular times. What is chosen provides more benefits than costs, and what is avoided provides more costs than benefits. Foodways are, in short, materially adaptive in most instances, anything but culturally arbitrary or irrational. Harris even makes explicit use of optimal foraging theory, a theory that stems from evolutionary biology and sociobiology (demonstrating, in spite of himself, that cultural materialism and sociobiology can be friends rather than enemies).

Harris's (1966, 1974a) most famous theories of foodways concern the Hindu sacred cow and the Jewish-Muslim abominable pig. Cows were and still are worshiped in

India because they are much more valuable alive than dead. They are essential traction animals and provide several other important benefits, and the temptation to kill and eat them during times of drought and famine could best be curtailed by a strong religious taboo. The pig in the ancient Middle East became more costly than beneficial when forests were cut down and the pig no longer had enough shade to cool itself. Providing artificial moisture and shade, and feeding pigs that no longer had forests to forage in, overtaxed the resources of the peoples who became Jews and Muslims.

Harris (1985) has insisted that humans have a special kind of hunger that he calls "meat hunger." Meat has special nutritional significance and eating it is an extremely efficient way of getting amino acids and various nutrients; the only way to get all of the essential amino acids is through meat eating. Harris's argument seems well supported by the universality of meat eating in human societies, as well as by the great significance that people give to meat: It is the most highly desired and esteemed food in all societies. Another innate taste emphasized by Harris (1987b) is the taste for sweet substances. This seems to stem from the nutritional importance of fruits in the ancestral environment and in many hunter-gatherer populations. Harris (1985) has also developed a very convincing theory of milk drinking and milk avoidance in human populations. Until a few thousand years ago the vast majority of adults could not digest the lactose in milk, and thus did not drink it. A selective advantage was given to milk drinking, however, in northern European populations. In the cloudy, wet environments of northern Europe, people had difficulty getting enough calcium and Vitamin D for strong bones and teeth, but milk could provide this. As a result, milk drinking and the ability to absorb lactose coevolved. African populations depending on animal herds for their subsistence also evolved the capacity to digest lactose, whereas those with hunter-gatherer or horticultural modes of subsistence did not.

Harris also shows that insect eating is common in societies that have limited supplies of game animals but large supplies of big, swarming insects. And dogs and cats are not eaten in societies with enough animal protein because these animals, being carnivores, have to be fed meat in order to make meat. Dogs and cats are often eaten when animal protein is scarce. Horsemeat is avoided in societies in which the horse is ridden for military or other reasons, but may be eaten in societies in which the horse may otherwise have limited value. Capitalism can also contribute to the costs and benefits of certain potential foods. For example, the shift from pigs to cattle as the high-status meat in American society coincided with the opening of the grasslands of the American Midwest to grazing cattle, the invention of the railroad for transporting cattle to more distant markets, and the invention of the refrigerated boxcar. Cattle became extremely profitable for capitalist ranchers (Ross, 1980b; Harris, 1985).

2. *Why we eat too much, feast, and get fat.* Obesity, sometimes of morbid proportions, has become a major social problem in the contemporary United States, with a very large segment of the population now overweight. And the problem is growing continually. It is hard to ignore the fact that this obesity is largely the result of over-eating on the part of Americans, along with the more sedentary lifestyle imposed by modern work habits. Harris points out that humans not only have an innate tendency to eat, but to overeat; we have been built this way by natural selection because such

traits were highly adaptive in the environments that humans lived in throughout 99 percent of their existence. In these environments, during which of course people subsisted entirely by hunting and gathering, there were always periods of time during which people went hungry for weeks or months. They ate, but they did not get enough to eat to provide proper nourishment or maintain their body weights. When these periods ended, people often gorged themselves and held elaborate feasts, and as a result they put on weight and stored fat that could help them through the periods of scarcity that they would invariably encounter again. These periods of scarcity helped to ensure that people would not get fat.

But today we live at a level of affluence unimaginable in the past. We love to eat, and to overeat, but the consequences today are different. There is so much food available all of the time that people now *do* get fat—many of them at least, and many of those to an extremely unhealthy extent. This, at least, is Harris's explanation, and it seems to me eminently sensible. However, there is one point with which I would take issue. Harris correctly says that contemporary overeating "is not a character defect, a longing to return to the womb, a substitute for sex, or a compensation for poverty. Rather, it is a hereditary defect in the design of the human body, a weakness that natural selection was unable to get rid of" (1989:150). However, not everyone overeats and not everyone gets fat. Many people do neither. Harris correctly points out that it tends to be the poor who are most overweight and the rich who are slimmest, pointing out that the poor are less educated and thus have much less knowledge of good nutrition and diet. This is right as far as it goes, but it seems to stop short. It is true that overeating is not a "defect of character," but it would seem to have a lot to do with self-discipline. Not to overeat when food is delicious and highly abundant requires a lot of self-discipline, and this trait is not randomly distributed throughout society. The upper-middle-class and the wealthy seem to have it to a much greater extent than the rest of society. Harris seems too quick to let individuals off the hook for their problems, too quick to cling to an ideology of victimization that is so common in today's society. After all, he does say, "Too long have the victims of obesity been blamed for their affliction" (1989:150). Harris seems to need a more psychological perspective here. Individuals differ in a variety of traits, and the ability to exercise self-discipline is certainly one of these.²

3. *The origins of early Christianity*. In *Cows, Pigs, Wars, and Witches* (1974a), Harris laid out a provocative theory of early Christianity. In ancient Palestine there was a long tradition of Jewish military messianism as the result of colonial exploitation, oppression, and misrule. Most of the population consisted of landless peasants, poorly paid artisans, servants, and slaves. The Galilean peasants hated the Jerusalem aristocrats, and the messiahs claimed to be able to deliver their people from oppression and establish the Kingdom of God on earth. These messiahs fused religious and political messages, and often organized armies to fight against their oppressors. Harris viewed Jesus as merely the most important of these military messiahs and stressed that Jesus's actions were highly consistent with the whole tradition of Jewish military messianism. Jesus was a protorevolutionary whose message involved political action and the use of violence; he was not simply the "Prince of Peace." The belief that he was resulted from a reinterpretation of Jesus's teachings after the Jewish forces were defeated in the

messianic war of 68–73 CE, and this reinterpretation was a necessary response to the military defeat. According to Harris, it became a practical necessity for Christians to stress that their messiah was different from the zealot-bandit messiahs who had provoked the war and who were a serious political threat. In Harris's words (1974a:195), "A purely peaceful messiah became a practical necessity when the generals who had just defeated the Jewish messianic revolutionaries—Vespasian and Titus—became the rulers of the Roman Empire."

Harris's argument shows how his cultural materialism sometimes converges closely with Marxism, for here he was pushing an "opium of the people" type of argument, and he situated early Christianity in the larger context of millenarian and revitalization movements more generally. Harris's analysis is undoubtedly very incomplete, and there is much more to be learned about early Christianity than we learn from Harris (cf. Stark, 1996). But it seems to have been a good start in a useful direction.

4. *Long-term social evolution.* In *Cannibals and Kings* (1977), Harris laid out an especially impressive theory of long-term social evolution, accounting with considerable success for the origins of agriculture; the rise of social stratification, chiefdoms, and states; and the origins of the modern world. Moreover, he dealt not only with general social evolution, but with specific evolution as well. Harris's theory rested on an individualistic foundation in which people are attempting to make rational decisions about the costs and benefits of a given course of action, and it was highly notable for its antiprogessivist nature (Sanderson, 1990). The key evolutionary process is one in which environmental depletion, usually as the result of population growth and the intensification of production, has continually led to new forms of technological intensification, which in turn lead to new forms of environmental depletion, and so on. This process occurring within the infrastructure has led to the continual reorganization of structures and superstructures.

Harris's theory was a great achievement and substantially reoriented the study of social evolution. As already noted, my evolutionary materialism (Sanderson, 1994, 1995b, 1999b) was an attempt to codify and extend this line of argument about the great social transformations of human history. However, as pointed out earlier, Harris's theory of social evolution suffered from an overemphasis on ecological factors and an underappreciation of economic and political factors. Ecological factors seem to matter most in the earlier stages of social evolution, but diminish in importance and come to be exceeded by the importance of economic and political factors in the later stages, particularly in the last 500 to 1,000 years.

5. *The women's movement.* Harris (1985) made a notable attempt to explain the origins of the women's movement and feminist ideology in Western societies since the end of World War II. He rejected the notion that it was feminist ideology that arose first. Rather, feminism as a set of ideas emerged from preceding structural changes in the position of women. Harris's starting point was the capitalist economy and the changes it began to undergo in the 1940s. The most important change relevant to the position of women was the shift toward a more service and information oriented economy. Once this shift got underway, capitalists sought a new type of worker, particularly one that would be highly subordinate and who could be paid a relatively low wage. Women

fit best because they were used to being in a subordinate position to men and because they were seeking work primarily to supplement their husbands' incomes rather than to be the sole breadwinner. Women were thus gradually drawn into the labor force. However, because of inflation and the greater difficulty of families in maintaining their standard of living, women also sought work themselves, and so this was another force bringing women back into the sphere of economic production, a sphere from which they had been largely removed with the emergence of intensive agricultural societies. As women entered the labor force in greater and greater numbers, at least two changes in their consciousness began to occur. First, they began to realize that there was an entire sphere of existence beyond the home that offered opportunities for achievement and self-realization beyond being a housewife and mother. In addition, women also began to realize how little they were paid vis-à-vis men, that is, they came to be aware of the forces of gender discrimination. Thus was the ideology of feminism born.

Harris's analysis rings true to me because the evidence seems to fit it very well. In the late 1940s only about one woman in nine who was married and who had small children was in the labor force, but by the early 1980s this had increased to one woman in two and by the late 1990s had increased to almost two women in three. Moreover, these changes were occurring not only in American society, but throughout Western Europe as well, and women's movements and feminist ideologies also arose in those countries. The progress of the women's movement and feminism seemed to parallel in almost step-by-step fashion the changing sexual composition of the labor force. The causal sequence specified by Harris—that feminist ideology followed rather than preceded the changing sexual composition of the labor force—seems to be correct as well, since feminism was rather tepid at the beginning and has grown increasingly intense and powerful as labor force changes have occurred.

6. *The collapse of Communism.* Harris's (1992) analysis of the collapse of Communism in the Soviet Union was originally presented as the Distinguished Lecture at the annual meetings of the American Anthropological Association in 1991. At this time the collapse had just occurred. Harris wished to emphasize, in typical fashion, the causal priority of infrastructure in the collapse. He argued that "the political-economic (i.e., structural) and symbolic-ideational innovations introduced in the name of Marxian materialism were selected against because they resulted in a stagnant, declining, or increasingly inefficient infrastructure. State communism failed because it decreased the efficiency of its smokestack-type infrastructure and inhibited the application of high-tech innovations to the solution of a deepening technological, demographic, environmental, and economic crisis." Harris emphasized, in the manner of the Hungarian economist János Kornai (1992), the built-in limitations of an economy dependent on centralized planning and lacking any market mechanisms. The costs of such an economic system involved such things as persistent shortages, inhibition of technological innovation, and the lack of sufficient incentives for maximizing productivity. This analysis seems just about right to me, and corresponds to evidence produced by many analysts of the collapse (cf. Sanderson and Alderson, 2005). Although Harris noted that the Soviet collapse was just one more nail in the coffin of Marx's specific historical predictions,

he is also quick to reject Francis Fukuyama's (1992) argument that liberal capitalism represents some sort of "end of history."

The Bad

Where, then, did Harris get things wrong? Here I would point to his theorizing in the following seven areas: war; male domination; the potlatch; the incest taboo; family size; homosexuality; and why we seek status.

1. *War*: Harris (1974a, 1977; Divale and Harris, 1976) viewed war in bands and tribes largely as a population-regulating mechanism. It is population pressure and resource scarcity, especially scarcity in the availability of animal protein, that are the principal causes of warfare. Warfare leads to a male supremacist complex, which in turn helps to provide a justification for female infanticide. This, combined with male deaths from combat, helps to regulate population growth. Warfare also creates "no-man's lands" that help to regulate population against the available supply of animal protein. Harris has used the Yanomamö as an illustration of his theory, but that tribe's principal ethnographer, Napoleon Chagnon (1983), has shown with detailed analyses that the Yanomamö are in fact eating well more than the necessary daily supply of animal protein. Keeley (1996) tested Harris's theory and failed to find any correlation between population density and the frequency of warfare for 87 societies. I conducted my own test using the Standard Cross-Cultural Sample of 186 societies (Murdock and White, 1969). The correlation between warfare and population pressure was not only very low ($r = -.109$), but was actually pointing in the wrong direction.

Brian Ferguson (1984, 1990) has formulated an alternative cultural materialist theory that rejects the protein scarcity hypothesis and that specifies a much broader range of material benefits that can motivate war, such as increasing access to fixed resources, capturing movable goods, or enhancing the power and status of those individuals who make the decisions about going to war. Ferguson nominates Western contact as the most important cause of warfare among the Yanomamö and other Amazonian groups.

Ferguson's theory is a major improvement on Harris's, but his view of Western contact as a critical cause is dubious. It could well intensify warfare, but it is not likely one of its major causes. The major alternative to both Harris and Ferguson's theories is a sociobiological theory. In this way of thinking, warfare is mainly about gaining access to women as sexual partners in order to maximize one's reproductive success. The scarcity of women—which, according to Donald Symons (1979), is always present to at least some extent in all societies—leads to severe male competition for them; when this scarcity is severe enough warfare is the result (Chagnon, 1988; Low, 1993; van der Dennen, 1995:317–331). The most reproductively successful men will usually be the most successful warriors, and men will therefore be strongly motivated to form themselves into bands and go to war (cf. Tooby and Cosmides, 1988). Although this theory requires much more careful study and empirical testing, there is a great deal of evidence from other bands and tribes that conflict over women is a major cause of war (some of this is summarized in Betzig, 1986).

2. *Male domination.* Harris (1974a, 1977, 1989) agreed with the feminists that male domination is not rooted in any basic biological differences between the sexes. Males have no natural tendency to dominate females, he argued, but rather are socially conditioned to do so. Harris singled out militarism and warfare as the primary cause of male domination. The greater the degree to which a society both prepares for and goes to war, the more male dominated it will be. Males will be the warriors in every society, Harris claimed, not because they are naturally more aggressive or warlike, but because in hand-to-hand combat men's greater strength will lead to their cultural selection for war. Any society that made females the warriors would invariably confront societies of male warriors, and the societies with female warriors would have been driven to extinction long ago. Since warfare places a premium on masculine characteristics, the more warlike the society the greater the extent to which males will be induced to exaggerate their masculine qualities and, correspondingly, to denigrate female qualities.

With two colleagues I carried out an empirical test of Harris's argument (Sanderson, Heckert, and Dubrow, 2005). We used the Standard Cross-Cultural Sample and the gender status variables coded for half of these societies by Martin King Whyte (1978). Our findings completely falsified Harris's argument. Depending on which of three measures of male dominance we used, warfare either had no effect on the level of male dominance, or had the opposite effect from that predicted. The variable that contributed the most to the level of male domination was the economic status of women, especially the degree to which women made an important contribution to subsistence. In hunter-gatherer societies where women's gathering provides a great deal of what people eat, their status was relatively high; and in agricultural societies where women provide a great deal of the agricultural labor (as in horticultural as opposed to intensive agricultural societies), their status was also relatively high. Social stratification also made some difference, as women did better in egalitarian than in stratified societies.

One limitation of this study, however, is that it is only able to explain why the level of male domination varies from one society to another. It is unable to explain why male domination is, in fact, a universal feature of human social life. All societies are to at least some extent male dominated in that males are always the primary (and often the only) political leaders and males monopolize every society's high-status social positions. I suggest, contra Harris, that this universality of male domination is a fundamental part of the human biogram. A great deal of evidence has now accumulated to suggest that men are naturally more aggressive and competitive, and that in an open competition with women they will predominate in social positions that require these traits (evidence reviewed in Sanderson, 2001a).

3. *The potlatch.* Early in his career, Harris (1974a) turned his attention to the famous Northwest Coast potlatch, an elaborate giveaway feast in which rival chiefs gave away their property to one another and, in some extreme cases, even burned down their own houses. Harris offered a functionalist theory, contending that the potlatch was one of many mechanisms of economic redistribution found throughout the world's societies. Harris pointed out that the Northwest Coast environment was one that was unusually abundant in resources, but that there was a great deal of variability in productivity from

one microregion to another. Chiefs practiced the potlatch, Harris claimed, as a way of evening out this variability and creating a more egalitarian network of societies.

I had never been completely satisfied with this explanation, and fortunately another much better one has now come along. This is a Darwinian explanation that relies on a special modification of Darwinian natural selection theory known as the *Handicap Principle*. Amotz and Avishag Zahavi (1997) use the Handicap Principle to explain such things as the elaborate plumage of peacocks. For them, the peacock's plumage is an *honest or costly signal* indicating that he is of high quality and thus desirable as a mate. Only healthy peacocks can grow long, beautiful tails because it takes a great deal of energy to do so. The Zahavis also suggest that animals may seek prestige by providing resources to others, thus indicating that they are of high quality. The Handicap Principle would seem to be almost tailor-made to explain the potlatch (Boone, 1998). In terms of this principle, the chief who gave away his property and burned down his house was engaged in a form of *costly signaling* or a *costly display*. He was sending a message to other chiefs that he was so rich that these things didn't matter. He could easily recover from such losses.

Harris's explanation of the potlatch is another example of how he often got caught in functionalist traps. Harris wanted to admit group selection as well as individual selection into his explanatory repertoire, but this seems to me to have been a serious mistake. Harris wanted to see the competition for status in societies without true stratification as driven by egalitarian goals. It is true that people in unstratified societies may demand, and often get, egalitarian economic outcomes—they may prevent, for example, “big men” from becoming too “big”—but this is different from the motivations of the status seekers themselves. Perhaps the bigger problem is that Harris saw status seeking as a cultural phenomenon detached from human nature (see #7 below).

4. *The incest taboo*. In his explanation of the incest taboo Harris showed himself to be a traditional anthropologist and yet again an old-fashioned functionalist. He depended not on cultural materialism at all, but rather on E. B. Tylor's old theory that the incest taboo was motivated by a desire for people to form alliances so they could live in greater peace. Harris even challenged the so-called universality of the incest taboo, pointing to a number of instances of brother-sister marriage in human societies. Harris actually went on to predict, quite startlingly, that the incest taboo may eventually disappear, and claimed that “brother-sister mating is probably on the verge of becoming just another ‘kinky’ sexual preference of little interest to society” (1989:206).

Harris was quite critical of the major alternative to Tylor's theory, the well-known Darwinian theory of Edward Westermarck. This theory holds that incest is usually avoided because individuals of the opposite sex who are reared together in the same household acquire a sexual indifference or aversion to each other. Although there is now a great deal of research evidence that is highly supportive of Westermarck's theory, Harris questioned the validity of some of it. One line of evidence has involved apparent resistance to consummation of the marriage in Taiwanese *sim-pua* marriages, a type of marriage in which an infant girl is adopted into a family and grows up to marry her adopted brother. Harris argued that the brides and grooms who failed to consummate

their marriages were not harboring a sexual indifference, but rather were expressing disappointment and chagrin because the Taiwanese regarded these marriages as distinctly inferior to the more common form of marriage. This criticism seems far-fetched because it is hard to see how being consigned to an inferior form of marriage would produce sexual disinterest rather than some other emotion. Moreover, Harris begged the question by failing to explain why *sim-pua* marriage should be regarded as inferior (it is probably because the Taiwanese know in advance that it often results in sexual disinterest and consequent marital difficulties). A second line of evidence concerns the tendency of Israeli kibbutzim youth to avoid marrying other individuals from the same communal nursery. Referring to Joseph Shepher's (1983) data, Harris argued that out of 2,516 marriages, there were 200 undertaken between kibbutz partners, a number so large that it casts serious doubt on Westermarck's theory. But Harris had his numbers wrong. Shepher studied 2,769 marriages, not 2,516, which is not of dramatic importance, but there were only 13 marriages, not 200, undertaken between members of the same communal nursery. Moreover, those 13 have been carefully studied by Arthur Wolf (1995), who found that in 11 of them the marriage partners did not actually meet until age 4 or older. This has led him to specify that Westermarck's theory depends on a critical period, which is in fact the first three years of life.

There are many other lines of evidence in favor of Westermarck's theory that go unmentioned by Harris (summarized in Sanderson, 2001a; cf. Turner and Maryanski, 2005). Harris's argument in favor of Tylor's theory is weakened by the fact that marriage alliances are only one of several ways to establish solidarity and live in greater peace. Moreover, research has shown that societies that permit cross-cousin marriage, and thus that establish marriage alliances between lineages and clans, do not, in fact, live in any greater harmony than those that have no such alliances (Kang, 1979; M. Ember, 1975). Tylor's theory is a functionalist theory, but the apparent function of the incest taboo and marriage alliances does not exist—surely the test of a functionalist theory if ever there were one.

In short, the evidence for Tylor's theory is nonexistent, whereas the evidence for Westermarck's theory is considerable, Harris's protestations notwithstanding. This is an area of anthropological theory and research where Harris was far off the mark.

5. *Family size.* Harris (1989; Harris and Ross, 1987) devoted considerable attention to explaining why fertility levels are high in agrarian and Third World societies and much lower in modern industrial societies. He related the number of children produced per woman to the economic value of children's labor. In societies where agriculture is still the primary basis for subsistence, the economic value of children's labor is high. Under such conditions, by age 6 children are able to gather firewood, carry water, plant and harvest crops, run errands, sweep floors, take food to adults in the fields, peel and scrape tubers, and grind and pound grains. At a later age they are able to work full time in the fields, cook meals, herd, fish, hunt, and make pots and other containers. Where children can perform so many useful services, couples will be motivated to have many of them. However, as societies industrialize, the economic value of children's labor declines and children's economic value eventually turns negative, and so couples have few of them and family size declines.

Harris used the same type of argument to explain why members of lower-class racial and ethnic minorities in industrial societies such as the United States often have large numbers of children. Here again, Harris argued, children perform economically valuable labor. Having children entitles mothers to welfare support, housing subsidies, educational benefits, and medical care. In their teenage years, children of ghetto families contribute economically through part-time jobs, theft, and drug sales, as well as through protection against thieves and muggers.

Harris was especially critical of the sociobiological argument that humans have an innate procreative imperative. As evidence, he pointed to the frequency of noncoital sex, contraception, and abortion, and especially to the frequency of infanticide throughout the whole range of human societies. Reviewing a wide variety of infanticidal practices, Harris (1989:214) concluded that these practices “would not be possible if the bond between parents and child were a natural outcome of pregnancy and delivery. Whatever the hormonal basis for mother love and father love, there evidently is not sufficient force in human affairs to protect infants from culturally imposed rules and goals that define the conditions under which parents should or should not strive to keep them alive.”

Sad to say, but Harris’s analysis was very superficial and simplistic—and wrong. It is of course true that humans widely and often frequently practice contraception, abortion, and infanticide, but Harris failed to consider the specific conditions under which these are or are not practiced. Given the strength of the human sex drive, contraception is certainly necessary in order for people to avoid producing far more children than they can possibly care for, and abortion and infanticide become important, and often necessary, when contraception fails, which it frequently does. In particular, Harris seemed unfamiliar with the well-known sociobiological distinction between *r*-selection and *K*-selection. *r*-selection is a reproductive strategy involving having many children but devoting little parental care to each. If enough children are born, the odds are fairly good that some will live to adulthood and go on to have children of their own. This kind of strategy seems to be what is happening where the rate of infant and child survival is relatively low, as in agrarian and Third World societies, or where children’s economic prospects are poor, as in lower-class ghettos. *K*-selection, by contrast, is a reproductive strategy in which few children are produced but a great deal of parental investment is made in each child. This strategy is what we find among the middle and upper-middle classes of modern industrial societies and seems to be favored when infant and child mortality are very low and children’s economic prospects are average or better.³

In her excellent book *Mother Nature: Mothers, Infants, and Natural Selection*, Sarah Blaffer Hrdy (1999) makes the extremely important point that maternal care is highly conditional. Mothers are biologically wired to produce children, and to nurture them, but the extent to which they do the latter depends on whether the conditions for rearing are good or poor. Hrdy documents in great detail that in many societies and throughout world history mothers have often practiced infanticide when conditions for rearing are poor, but have avoided it when the conditions for rearing are good. Mothers are naturally predisposed to bond to their infants, but they will avoid doing

so when there is not enough food to support an infant, or because the infant will take away food from older children in which a great deal of time and energy has already been invested. A natural predisposition to want children and to bond with them does not mean that the behavior is automatically produced anywhere at anytime.

Recently I engaged in a study of fertility rates in a wide range of contemporary nation-states (Sanderson and Dubrow, 2000). I performed a series of regression analyses designed to determine whether the economic value of children's labor or some other factor was critical in determining fertility rates between 1960 and 1990. The results showed that the economic value of children's labor, as measured primarily by the percentage of the population working in agriculture, mattered very little if at all. The key factor was the infant mortality rate: Where the rate of infant survival was high, fertility was low, and where the rate of infant survival was low, fertility was high. The more likely infants are to die in the first year of life, the more of them people have in order to replace the ones that have been lost. In the same study, analyses were also carried out for the period between 1880 and 1940, the approximate period of the original demographic transition. The results were essentially the same: Infant mortality was the key determinant, and the economic value of children's labor, although somewhat more important for this period, was clearly of secondary significance.

Finally, it is worth mentioning that Hillard Kaplan (1994) has carried out research in band and tribal societies designed to see whether children's labor contributes more calories than children actually expend. The answer is a clear no in all of the societies he studied. In fact, children appear to be very economically costly in all societies (we have long known that they are extremely costly to rear in modern industrial societies). Since they do not produce economic benefits that exceed what they themselves cost, why then do people have them? The answer, I believe, is that humans are biologically predisposed to do so because that is how they maximize their reproductive success. It is Darwinian theory, not cultural materialism, that explains reproductive patterns.

6. *Homosexuality*. In his discussion of homosexuality in *Our Kind* (1989), Harris made rather a mess of things. The basic problem is that he treated all homosexual practices as essentially the same. To his credit, at the beginning of his discussion Harris acknowledged that there is now a great deal of evidence that in every society there is a small number of males and females who are genetically predisposed toward homosexual rather than heterosexual sex. He admitted that people do not start out a blank slate in the realm of sex. Harris then went on to say that in many societies institutionalized forms of homosexuality have been found. He discussed homosexual practices among the ancient Greeks, the Etoro and other New Guinea societies, the Azande of Africa, the *berdache* among North American Indian groups, the similar *hijras* of India, and several alleged examples of institutionalized female homosexuality.

Harris was emphatic that in most societies people do not believe that homosexual practices are deviant and bad. They have held such beliefs in the United States and other Western societies with Christian religious traditions, but these societies seem to be in the minority throughout the world. Harris may have overstated the case somewhat, but it is true that homosexuality has been tolerated in many societies. Oddly, for a chapter entitled "Why Homosexuality?", the widespread tolerance of homosexual practices

seemed to be Harris's only real concern and he did not actually attempt to explain homosexuality at all. The main difficulty with his analysis, however, was that he failed to make the crucial distinction between *preferential* and *situational* homosexuality. Preferential homosexuality involves same-sex relations between individuals who are not attracted to members of the opposite sex; situational homosexuality, on the other hand, occurs between heterosexuals who are substituting homosexual relations for heterosexual relations when the preferred sexual object, a member of the opposite sex, is unavailable. Homosexual relations among men in prisons is the example of situational homosexuality best known to members of modern industrial societies, but all of the examples of tolerated homosexual practices Harris provides are additional examples of situational homosexuality. There is no single answer to the question, Why Homosexuality?, because there is no single type of homosexuality. Situational homosexuality stems from the relative unavailability of heterosexual partners, whereas preferential homosexuality, as Harris suggests, seems to be biologically programmed.

It is also odd that Harris made no attempt to explain situational homosexuality, because explanations are available that seem plausible. One explanation of ancient Greek homosexual practices between male tutors and their boy pupils is that women were secluded, marriage was late, prostitution was disdained, and men therefore had to spend a long period of time without heterosexual relations (Posner, 1992). Since the educational system already brought tutors into contact with boy pupils, the tutors became opportunistic and substituted their pupils for females. Another explanation of the Greek pattern is overpopulation (Percy, 1996), which has also been offered as an explanation of New Guinea man-boy homosexual practices. But why men and young boys? The answer seems to be that boys most closely resemble females, and thus are the best substitute for them.⁷ *Why we seek status*. Harris (1989) made the sensible claim that humans have a need for love, approval, and emotional support that is biologically rooted, part of our fundamental human nature. Individuals who have a particularly strong form of this need are the ones who are most likely to become headmen in hunter-gatherer societies and big men in horticultural societies. Individuals who have a strong need for social approval become leaders in band and tribal societies because successful performance of their leadership roles generates a great deal of approval. However, Harris insisted that the innate desire for love and approval stops well short of an innate desire for prestige, wealth, and power. He was highly critical of Thorstein Veblen's famous idea that humans have an innate desire for status that leads them to become conspicuous consumers. The desire for prestige, wealth, and power, which is so characteristic of societies at higher levels of evolutionary development, Harris tells us, is "socially constructed" rather than innate. It is rather astonishing that Harris would use this phrase, since it is normally associated with the idealist and subjectivist theoretical traditions that he found anathema. Be that as it may, Harris went on to say that "the universal drive to emulate the leisure class presupposes that a leisure class exists universally, which is factually untrue" (1989:367). Of course Harris is right that leisure classes are far from being universal, but he is wrong in his claim that they are necessary for individuals to be prestige seekers and conspicuous consumers. All that is required is that individuals have a generalized innate tendency to seek prestige and to turn that

tendency into specific imitation of a leisure class when one comes into existence. But Harris never did explain why ruling classes form in the first place, except to point to certain infrastructural conditions necessary for them to exist, and thus he begged the very question he was trying to answer. It is true that certain minimal infrastructural conditions are required for the existence of ruling classes, but this does not adequately explain why they always arise when those conditions are present. Surely there must be something about the human animal and the way it interacts with those conditions that call forth ruling classes. In stressing the economically and politically egalitarian nature of band and tribal societies, Harris also failed to point out that these societies are filled with prestige- and power-seekers whose ambitions must be curtailed by the rest of the society, lest they get out of control. There seems to be more than a desire for love and approval that is motivating leaders in such societies; it is simply that they have to be satisfied with those outcomes because they will not be permitted anything more. (In the last major section of the paper I will discuss the empirical evidence for an innate human desire for status, wealth, and power.)⁹

The So-So

One area where Harris got it partially but not quite right involves the rise of modern capitalism, an issue with which both he and I have had a major concern. He devoted a chapter to this in *Cannibals and Kings*, emphasizing demographic factors and the importance of the feudal mode of production in Europe. When I sent him a copy of my much more detailed and rather different interpretation of the rise of capitalism (Sanderson, 1994), he objected to much of what I said, commenting that what was right in my article was not original—he had already said it—and that what was original in the article was not right. (Typical Marvin!) He then wrote a paper, “Ecological Factors and the Rise of Capitalism,” which he originally presented at a conference in Valencia, Spain. This paper was later published in the language Catalan, and he sent me a reprint. He also said that he hoped to publish an English version and that I would get a chance to write a reply for publication. He published the English version of the essay as Chapter 13 of his book *Theories of Culture in Postmodern Times* (Harris, 1999b), but for whatever reason I never did get a chance to reply. Therefore, I will do it here.

In my analysis of the rise of capitalism (Sanderson, 1994, 1995b, 1999b), I stressed that capitalism developed not only in Europe after about 1500, but also in Japan at approximately the same time. Previous theorizing has almost totally ignored the Japanese case, but an adequate theory of the emergence of modern capitalism must explain both. My theory consisted of two parts. First, I identified five preconditions that existed in both Western Europe and Japan that gave them a significant head start in capitalist development. These were demography, geography, climate, size, and political structure. Regarding *demography*, I stressed that both regions had experienced substantial population growth during the period in question, but, in contrast to previous theories, I argued that the importance of population growth was its role in increasing the size of markets, not in degrading the environment. Harris said that I make an important contribution in stressing the role of population growth in increasing market size,

although this did not commit him to abandoning his ecological degradation argument. He also pointed out that my argument is consistent with cultural materialism in stressing the primacy of the infrastructure.

With respect to *geography*, I stressed the maritime location of the societies in the two regions. England, the Netherlands, and northern France are all located on the North Sea, and Japan is a set of islands off the coast of China. These maritime locations were important because they allowed for the primacy of maritime as opposed to overland trade, with the former being much more efficient than the latter. Harris countered that the maritime location of Japan was not a significant contributing factor because China shared the same sea with Japan and had an enormous coastline. In reply I would say that capitalist and mercantile activity was greatest in China along its southern coastline, which supports my point that maritime location is important. By contrast with China, Japan was *completely surrounded by the sea*, which I think helps to explain the greater significance of mercantile activity there. Much of China was far from the sea, but no part of Japan was, and this helps to explain the developmental potentialities and actualities of the two societies.

I argued that *climate* was another similarity between the two regions: Both had far northerly locations and temperate climates. This was important in the case of Japan because it discouraged attempts at capitalist peripheralization. Harris failed to see this as important, noting that my logic implies that unless a country avoided colonization it could never develop a robust form of capitalism. He then pointed to Hong Kong, Brazil, and Indonesia as former colonies that have experienced significant economic development. But Harris misinterpreted my logic. He was speaking of Hong Kong, Brazil, and Indonesia in the present, and it is true that they are former colonies that have undergone substantial development. However, my point was that peripheralization hindered economic development throughout much of the history of capitalism, and this is precisely true of the three societies Harris mentioned. Again, I am only trying to explain why Japan and Western Europe led in the way in the early development of capitalism, not explain the organization of the world-economy as it looks today. I would add that the absence of peripheralization is not a condition which is itself favorable for the development of capitalism, but instead represents the *absence of a negative condition* that would have prevented significant capitalist development. Harris's rejection of my argument for the importance of the failure of Western Europe to peripheralize Japan is surprising, because he makes the very same point in his general anthropology textbook.

As for the role of *size*, I pointed out that England, the Netherlands, and Japan were very small states and that this was beneficial for them because maintaining a large state is expensive and drains away resources that could be put directly into economic development. Harris challenged this point by arguing that the larger the state the greater the potential volume of trade. My response is that this is certainly true, but this potentially greater trade is only that—potential. The actual volume of trade will likely be restricted in large states that have to divert so many of their resources into the various managerial functions of the state. My point is that the larger the state, the larger its burden of political rule and therefore the weaker its capacity to stimulate commercial activity.

The final precondition shared by Western Europe and Japan was their *feudal politico-economic structures*. This was important, I argued, because decentralized feudal states provide much more freedom for commercial activity than large agrobureaucratic states. Big agrarian bureaucracies like China and India stifled the development of capitalism because the economic interests of the nobility conflicted with those of the bourgeoisie, and the nobility controlled the state. In Western Europe and Japan, however, even though the nobility controlled the state, the state was far less effective in curtailing the actions of the bourgeoisie even though it desired to do so. Harris more or less accepted all of this, but took issue with my argument because he believed it stopped short. Feudalism was important, he claimed, but one must also explain why it existed in these regions; since I failed to do so, my explanation was deemed inadequate. In other words, in order to explain the origins of capitalism I also had to explain the origins of feudalism. Harris seemed to be imposing an extremely high standard here that few social scientists could ever meet. If we carry Harris's argument to its logical conclusion, we could never stop until we had explained everything that came before the particular historical phenomenon we were trying to explain. It seems unreasonable to ask scholars to keep explaining the causal factors that lie behind the first set of causal factors, and then explain the causal factors that lie behind the second set, and so on. One has to impose a stopping point somewhere.

The second part of my theory, which I actually regarded as the more important part, focused on the particular timing of capitalist development in the two regions. I argued that it took a very long time for capitalism to develop after the origins of the first cities and states some 5,000 years ago because of what was said earlier: Big agrarian bureaucracies stifle capitalist development. The bourgeoisie struggled for existence within the constraints of these bureaucratic states. Nevertheless, because capitalists provided a wide range of goods that noble classes desired, capitalism could not be dispensed with altogether, and this allowed it not only to gain a foothold, but to expand. Capitalists could be slowed down, but they could not be stopped, and as a result there occurred over time a process of *expanding world commercialization*. The level of world commercialization had reached a critical threshold by about 1500 CE, and this is why capitalism began a major developmental spurt at this time, taking off first in those regions that were most hospitable to it. However, capitalism, I argued, would sooner or later have developed anyway because world commercialization would eventually have crashed through the barriers imposed on it by nobilities and their bureaucratic state partners. I estimated that, had there never been regions favorable to capitalism in the ways that Western Europe and Japan were, in another 1,000 or 2,000 years capitalism would have achieved its takeoff point.

Harris seemed to disagree flatly with this analysis, claiming that world trade networks were not an important causal factor and that I selected the figure of another 1,000 or 2,000 years for capitalism to have occurred in the absence of favorable preconditions in an entirely arbitrary manner. But I did not choose these figures arbitrarily. Why not 10,000 years? Because world commercialization had already become very extensive by 1000 CE and, given how much it had developed in the previous 4,000 years, I would not think another 10,000 years would be needed for a capitalist explosion. The figure

of 1,000–2,000 years is certainly an estimate, but it is an informed one based on an extrapolation from previous trends. It is not arbitrary.

Now to answer Harris's contention that expanding world trade networks were not important causal factors (and were more *outcomes* rather than causes of capitalism). Harris wanted to emphasize feudalism as the principal causal factor and to link feudalism to ecology (rainfall farming versus irrigation agriculture). Of course I agree that feudalism was important (and Harris may well be correct in his explanation of the origins of feudalism), but my point would be that feudalism by itself was not enough. By the sixteenth century feudalism could interact with extensive world commercialization to produce a capitalist takeoff. *But feudalism in 1000 BCE or even in 1 CE could not have generated a capitalist takeoff.* It could only have made a small difference to the stimulation of mercantile activity. It was the *interaction* of feudalism and world commercialization that made the difference.

As for Harris's point that capitalism created world trade more than world trade created capitalism, I would say it differently: World trade and capitalism created each other in a ratchet-like fashion over several millennia. There was extensive world trade long before there was modern capitalism, but the development of modern capitalism certainly led to a tremendous increase in the volume of world trade. Both created each other in a slow evolutionary fashion over a very long period of time.

In conclusion, Harris's fallback on ecological factors (i.e., in explaining the origins of feudalism) and his resistance to my emphasis on a slow process of expanding world commercialization precisely exemplifies my point about the differences between my evolutionary materialism and his cultural materialism. Ecological factors are very important in precapitalist and preindustrial societies, and especially in band and tribal societies, but their causal significance seems to be less important in more complex societies, especially modern ones. In its analysis of more complex societies, evolutionary materialism emphasizes some things that are underplayed in cultural materialism. Expanding world commercialization, derived from world-systems theory, is one such thing.

Conclusion

There are also a number of Harris's theories that I am either unqualified to evaluate, or that cannot be properly evaluated because of a paucity of adequate data. In this regard I would list his arguments on cannibalism, Aztec cannibalism in particular; hydraulic agriculture as the basis for ancient agrobureaucratic states; the rise of the nonkilling religions; the great witch craze; and gay liberation. The jury is still out, I think, on why Africa lags so far behind the rest of the world in economic development.

So cultural materialism in the hands of Harris has made important achievements with respect to many important arenas of human social life, but it has also failed with respect to a variety of other arenas. Looking back over those areas in which Harris's explanations seem to falter, I cannot help but notice that in every single case it is because he failed to take sociobiology seriously. Therefore, we need to push cultural materialism in a sociobiological direction and show how the two perspectives can be

synthesized into a more comprehensive perspective whose explanations will be more adequate. This is a step Harris steadfastly refused to take, but it was there for the taking all the time because cultural materialism and sociobiology are, or at least can be made, compatible. They should be friends, not enemies. As noted earlier, I have performed my own synthesis of these two theoretical strategies, which I call Darwinian conflict theory. What does it have to say?

Deepening and Amending Cultural Materialism: Darwinian Conflict Theory

In *The Evolution of Human Sociality* (Sanderson, 2001a), I present the principles of Darwinian conflict theory in full, along with an extensive summary of evidence that I believe supports these principles. Here I will limit myself to an abbreviated version of the theory (more accurately, theoretical strategy).

I. Principles Concerning the Deep Wellsprings of Human Action

1. Like all other species, humans are organisms that have been built by millions of years of biological evolution, both in their anatomy and physiology and in their behavioral predispositions. This means that theories of social life must take into consideration the basic features of human nature that are the products of human evolution.
2. The resources that humans struggle for, which allow them to survive and reproduce, are in short supply. This means that humans are caught up in a struggle for survival and reproduction with their fellow humans. This struggle is inevitable and unceasing.
3. In the struggle for survival and reproduction, humans give overwhelming priority to their self-interests and to those of their kin, especially their close kin.
4. Human social life is the complex product of this ceaseless struggle for survival and reproduction.
5. Humans have evolved strong behavioral predispositions that facilitate their success in the struggle for survival and reproduction. The most important of these predispositions are as follows:
 - Humans are highly sexed and are oriented mostly toward heterosexual sex. This predisposition has evolved because it is necessary for the promotion of humans' reproductive interests. Males compete for females and for sex, and females compete for males as resource providers.
 - Humans are highly predisposed to perform effective parental behavior, and the female desire to nurture is stronger than the male desire. Effective parental behavior has evolved because it promotes reproductive success in a species like humans. The family as a social institution rests on a natural foundation.

- Humans are naturally competitive and highly predisposed toward status competition. Status competition is ultimately oriented toward the securing of resources, which promotes reproductive success. As the result of sexual selection, the predisposition toward status competition is greater in males than in females.
- Because of the natural competition for resources, humans are economic animals. They are strongly oriented toward achieving economic satisfaction and well-being, an achievement that promotes reproductive success.
- In their pursuit of resources and closely related activities, humans, like other species, have evolved to maximize efficiency. Other things being equal, they prefer to carry out activities by minimizing the amount of time and energy they devote to these activities. A Law of Least Effort governs human behavior, especially those forms of behavior that individuals find burdensome or at least not rewarding in and of themselves. The Law of Least Effort places major limits on the behavior of humans everywhere; much behavior can only be explained satisfactorily by taking it into account.
- None of the tendencies identified above are rigid. Rather, they are behavioral *predispositions* that move along certain lines rather than others but that interact in various ways with the total physical and sociocultural environment. The behavioral predispositions tend to win out in the long run, but they can be diminished, negated, or amplified by certain environmental arrangements.
- From the above it follows that humans' most important interests and concerns are reproductive, economic, and political. Political life is primarily a struggle to acquire and defend economic resources, and economic life is primarily a matter of using resources to promote reproductive success.
- Many, probably most, of the features of human social life are the adaptive consequences of people struggling to satisfy their interests.

II. Principles Concerning Systemic Relations within Societies

1. Human societies consist of four basic subunits:
2. Individuals themselves as biological organisms, which we may call the *biostructure*.
3. The basic natural phenomena and social forms that are essential to human biological reproduction and economic production, i.e., the ecological, demographic, technological, and economic structures essential for survival and well-being; this we may call the *ecostructure*.
4. The institutionalized patterns of behavior shared by individuals, especially the patterns of marriage, kinship, and family life; the egalitarian or inegalitarian structuring of the society along the lines of class, ethnicity, race, or gender; its mode of political life; and its mode or modes of socializing and educating the next generation; these patterns may be identified as the *structure*.
5. The primary forms of mental life and feeling shared by the members of the society, i.e., its beliefs, values, preferences, and norms as these are expressed in

such things as religion, art, literature, myth, legend, philosophy, art, and music; these we may refer to as the *superstructure*.

6. These four components of societies are related such that the flow of causation is primarily from the biostructure to the ecostructure, then from the ecostructure to the structure, and finally from the structure to the superstructure; the flow may sometimes occur in the reverse manner, or in some other manner, but these causal dynamics occur much less frequently.
7. According to the logic of II.2, it is clear that the forces within the biostructure and the ecostructure are the principal causal forces in human social life; the biostructure structures social life both indirectly, i.e., through its action on the ecostructure (which then acts on the structure and superstructure), and through its direct effect on some of the elements of the structure and superstructure. It follows, then, that the ideas and feelings within the superstructure have the least causal impact on the patterns of social life.
8. The components of societies are related as they are because such causal dynamics flow from the deep wellsprings of human action. The biostructure and the ecostructure have a logical causal priority because they concern vital human needs and interests relating to production and reproduction.
9. Once structures and superstructures have been built by biostructures and ecostructures, they may come to acquire a certain autonomy. New needs and new interests may arise therefrom, and these new needs and interests, along with reproductive, economic, and political interests, may form part of the human preference and value structure characteristic of the members of a society.

III. Modes of Darwinian Conflict Explanation

1. As is obvious from the principles stated in II, Darwinian conflict explanations are materialist in nature; these explanations may take any or all of three forms: biomaterialist, ecomaterialist, or polimaterialist.
2. *Biomaterialist* explanations explain a social form by direct reference to a basic feature of the biostructure. That is to say, an explanation is biomaterialist if it links a social form to the biostructure without reference to any mediation of the causal relationship by some other social form. *Example:* Polygyny is a widespread feature of human societies because it springs from an innate desire of males for sexual variety and from the tendency of females to be attracted to resource-rich males.
3. *Ecomaterialist* explanations explain a social form by linking it directly to the influence of ecological, technological, demographic, or economic forces, and thus only indirectly to a feature of the biostructure. *Example:* Hunter-gatherer societies frequently display intensive sharing and cooperation because these are behaviors that promote individuals' interests within the configuration of hunter-gatherer technoeconomic systems and natural environments.
4. *Polimaterialist* explanations explain a social form by linking it directly to the political interests or situations of the participants. Political interests or situations

ordinarily spring from the participants' economic interests, which in turn are ultimately derived from the character of the biostructure. *Examples:* Democratic forms of government emerged earliest in those Western societies with the largest and most politically organized working classes. Third World revolutions occur most frequently in societies where the state is highly vulnerable to a revolutionary coalition.

Darwinian Conflict Theory Applied and Illustrated: The Case of Social Hierarchies

Social hierarchies are a universal feature of the human condition, although their nature and extent vary greatly from one society to another. At one end of the continuum, marked by hunter-gatherer and simple horticultural societies, we find few or no differences in wealth or power between individuals and only differences of social esteem or rank. At the other end, marked by agrarian and industrial societies, we find highly stratified societies with major differences in wealth and power between relatively distinct social strata or classes. My argument is that social hierarchies have to be explained by all three modes of Darwinian conflict explanation, that is, bio-, eco-, and polymaterialistically. Social hierarchies are biologically rooted but elaborated by a range of social and cultural conditions, especially those relating to economic and political organization.

A number of social scientists have stressed that hierarchies are biologically rooted. Albert Somit and Steven Peterson (1997) have noted that all human languages contain words referring to distinctions of honor and status. James Woodburn (1982) and Elizabeth Cashdan (1980) point out that, whereas there are a number of societies that have been able to maintain very high levels of social and economic equality, this equality seems to be constantly challenged. In order for it to be maintained, people must be ever vigilant and constantly monitor the tendency of at least some individuals to seek dominance over others. Joseph Lopreato (1984) claims that humans have an innate desire for creature comforts, and Jerome Barkow (1989) argues that there is a natural human hunger for prestige that governs much human behavior. Why should such innate human motivations exist? The answer is that competition for status and resources, not only in the human world but throughout the animal world as well, is essential for mating and thus the promotion of an individual's reproductive success. Hundreds of studies show that social rank and reproductive success are highly correlated among mammals, humans included (Ellis, 1995). However, it should not be assumed in the human case that people seek status and resources only to reproduce. At the proximate level of human experience, humans seek status and privilege for their own sake and find achieving them inherently pleasurable. Nonetheless, the human brain has evolved for status and resource seeking because throughout hominid evolution those individuals who displayed such behavior left more offspring than those who did not.

Alice Rossi (1977, 1984) has argued that a pattern of human behavior can be assumed to have a biological basis if two or more of four conditions are met: the behavior is

universal or at least widespread in human societies; the behavior is widely found among other animals, especially nonhuman primates and other mammals; the behavior is found in young children prior to major socialization influences or emerges at puberty; the behavior is closely associated with anatomical or physiological attributes. In the case of hierarchy formation, all four of Rossi's criteria are met. In terms of the second condition, Pierre van den Berghe (1978) is only one of many scholars who have pointed to the virtual universality of hierarchy among primates.⁵ Van den Berghe notes that some primate societies display only minimal hierarchies, but among terrestrial primates, from whom humans are descended, strongly hierarchical societies are the rule.

As already noted, hierarchies are universally found in human societies (Rossi's first condition), and, in terms of Rossi's third condition, dominance- and rank-oriented behavior appears to be characteristic of infants and young children, as shown by a variety of ethological studies (e.g., Bakeman and Brownlee, 1982; Missakian, 1980; Strayer and Trudel, 1984; Russon and Waite, 1991). Most of these studies have been of children in American society, but an important cross-cultural study has been carried out by Barbara Hold (1980). She looked at the behavior of German and Japanese kindergarten students as well as children of comparable age from the G/wi San, hunter-gatherers from southern Africa. The children established dominance hierarchies in all three societies. In all cases, there were children who sought the limelight. Those children who became the center of attention were much more likely to initiate activities than lower-status children, and the lower-status children frequently imitated the behavior of the dominants.

There are also abundant data to show that Rossi's fourth condition is also well met. Height is a widespread and possibly universal indicator of social status (Freedman, 1979; Brown and Yü, 1993). In a well-known study, ostensible job recruiters were asked to choose between two applicants for a position, one of whom was much shorter than the other. The vast majority of the recruiters chose the taller applicant (Freedman, 1979). In presidential elections throughout the history of the United States, the taller candidate has nearly always won the election. In Africa, shorter tribes have been dominated by taller tribes. In many horticultural societies, the highest-ranking man in a village is often called by a word that literally means "big man." In Russia and England higher-status individuals have tended to be much taller than those of lower status.⁶ A common expression of submission throughout the world is bowing or crouching.

If human anatomy is related to status, is physiology as well? The answer appears to be yes. The best candidate for a neurochemical substrate of status-seeking behavior is the neurotransmitter serotonin. Research showing that serotonin and dominance-seeking are related in vervet monkeys (McGuire, 1982; McGuire, Raleigh, and Johnson, 1983) has been replicated for humans (Madsen, 1985, 1986, 1994). In one of the most recent studies, Douglas Madsen (1994) examined the relationship between blood serotonin levels, social rank, and aggressiveness in the context of a game-playing situation. He found that the serotonin levels of the participants who played the game nonaggressively declined as their perceived social status rose. By contrast, the serotonin levels of the participants who played the game in an aggressive fashion increased as their perceived social status climbed. Moreover, serotonin is known to play a major role in the

regulation of mood, with low brain serotonin levels being associated with depression. Many individuals who have been treated for depression with fluoxetine (trade name = Prozac) have not only seen an improvement in mood, but have also experienced personality changes in the direction of less shyness or reticence and more confidence and boldness (Kramer, 1993). Confidence or boldness are very likely correlated with status-seeking behavior.

How does this natural status- and resource-seeking behavior of humans get translated into the actual systems of inequality and stratification that we observe in human societies? It seems to be the case that where societies are small, simple in scale, technologically rudimentary, and incapable of producing economic surpluses, hierarchies are minimally developed because there is no real wealth that can be contested and thus no basis for the formation of classes (Lenski, 1966). And in these kinds of societies no one is in a position to compel others to work for them and create wealth. Moreover, where people live only or primarily by hunting and gathering, intensive cooperation and sharing are common behaviors. This has been identified as *generalized reciprocity* and explained in terms of a strategy of *variance reduction* (Wiessner, 1982; Cashdan, 1985; Winterhalder, 1986a, 1986b). The argument is that hunting success varies greatly both temporally and spatially, and thus by sharing with others when you have resources others will share their resources with you when you are in need. Sharing is in everyone's long-run self-interest.

In previous publications (e. g., Sanderson, 2001a:269–270) I have been inclined to accept this explanation, but it has had to be completely rethought. In one of the earliest challenges to the variance reduction hypothesis, Kristen Hawkes (1993) showed that it lacked empirical support for three of the most intensively studied hunter-gatherer societies. For the !Kung, in one month one particular hunter provided more than three-fourths of the meat for the entire camp; four men did no hunting at all, but they seemed to acquire sizable portions of meat. Among the Aché, there are very large differences among men in the amount of meat provided, and those who provide little or none still seem to eat about as much meat as others. Among the Hadza, in one sample of 130 observation days over half of the meat provided was procured by only two hunters, and people who provided nothing got substantial shares of meat nonetheless. Hawkes concluded that the main incentive for hunting among these hunter-gatherers is the “social attention” that the most skilled hunters get from displaying their hunting prowess.

Nicholas Blurton Jones (1987) has proposed an alternative argument—that food sharing amounts to “tolerated theft.” Because hunter-gatherer societies have no means of individual coercion, individuals who have not killed an animal may demand an equal share of it and the man who killed the animal is unable to prevent him from taking one (this has also been called “demand sharing”). More recently, a number of anthropologists have employed costly signaling theory to argue that meat sharing may result more from status competition than from a strategy of variance reduction. Richard Sosis (2000) found that men on the island of Ifaluk spend a great deal of time torch fishing on atolls for dog-toothed tuna even though the rate of return from this type of fishing is much lower than from trolling for yellow-fin tuna. Sosis found that torch fishing

was the type of fishing most widely observed by women, and that through successful torch fishing men seemed to be advertising themselves as high-quality mates. Similarly, Eric Alden Smith and Rebecca Bliege Bird (2000) studied turtle hunting among the Meriam of Torres Strait, Australia. Turtle hunting is energetically very costly, and yet at the feasts at which men distribute turtles, they receive no material compensation, not even getting a portion of their own catch. Only a small number of select men turtle hunt, with just three men accounting for 38 percent of the nominations for good turtle hunters. The authors conclude that demonstrated skill at turtle hunting is the primary means by which men advertise leadership skills, and that the main benefit they receive is high social status. Smith and Bliege Bird regard their results for turtle hunting not only as supporting costly signaling theory, but also as contradicting the expectations of the variance reduction and tolerated theft hypotheses. Spear fishing among the Meriam also seems to contradict these hypotheses, because when men are engaged in spear fishing they ignore the abundant shellfish all around them, which are easy to collect and which would maximize energy returns (Bliege Bird, Smith, and Bird, 2001). It is highly noteworthy that spear fishing confers status but shellfish collecting does not.

In a very compelling study, Bliege Bird, Bird, Smith, and Kushnick (2002) provide a great deal of evidence that is inconsistent with the variance reduction explanation, again using the Meriam as a case study. They found that the size of the harvest predicted sharing better than risk reduction as measured by the hunting failure rate. They also found that households that share more do not receive more in return—that most flows of food were one-way flows—and that there was no bias against free-riders. Individuals could provide nothing over long periods of time, but they still received food from those who had it.

Hawkes, O'Connell, and Blurton Jones (2001a) evaluated the variance reduction hypothesis among the Hadza and found no support for it at all. The most skilled hunters actually spent more time hunting, not less, as the variance reduction hypothesis would suggest. Moreover, the authors argue that the style of interaction at kill sites is highly suggestive of tolerated theft as an explanation for much of the sharing of meat. But beyond this, the fact that the most skilled hunters spent so much time hunting seems to support the costly signaling hypothesis.

Polly Wiessner (2002) has attempted to salvage at least part of the reciprocity hypothesis in her study of large game hunting among the Ju/'hoansi (called the !Kung by others). She hypothesized that, even though most Ju/'hoansi hunters do not reciprocate receiving large shares of meat by becoming skilled and generous hunters themselves, it is possible that they may nevertheless be reciprocating in other ways. "Might reciprocity in currency other than meat play a role in the motivation to hunt large game?" she asks (2002:421). And the answer appears to be yes. Her data show that good hunters and their wives had significantly more economic exchange partners than poor hunters and their wives, and that as a result they were able to obtain significantly more household possessions. Good hunters and their families were also able to maintain a core residential group of close kin for almost twice as many years as poor hunters and their families. "In contrast to good hunters," Wiessner (2002:425) says,

“poor hunters changed camps frequently and therefore received less sustained support from a steady core of kin.” The wives of good hunters had 84 percent of their adult married children coresident with them in the year 1998 compared to only 31 percent for the wives of poor hunters.

Taken as a whole, the research findings discussed above suggest that the variance reduction hypothesis may explain only a small part of hunter-gatherer generosity (cf. Gurven, Allen-Grave, Hill, and Hurtado, 2000). It seems increasingly clear that many forms of hunting and most forms of sharing result from either tolerated theft or costly signaling. When skilled hunters do benefit economically from hunting and generous sharing, the benefits are more likely to come in the form of more indirect and delayed types of reciprocity.

The growing evidence for the role of costly signaling and status competition in hunting success is yet one more strong indicator of a biological basis to status seeking in the human animal. What then happens when societies evolve in size and scale, become more technologically advanced, and become capable of producing large economic surpluses? The answer is that more open forms of status competition become increasingly common because now there are more resources that individuals deem it valuable to compete for (Lenski, 1966). Inequalities of esteem or status not only get magnified, but are accompanied by differences in wealth that develop a rigidly hereditary character. Also critical to this process seem to be changes in political relations that allow some people to be in a position to compel others to produce the economic surpluses that more advanced technology makes possible. As technological, economic, and political evolution continue, stratification systems become more elaborate and extreme.

A close examination of hunter-gatherer societies will show that they seldom extend hierarchies beyond the level of status differences, and often these differences are minimal. Yet we know that the tendency toward stratification is there, not only because of the growing evidence for costly signaling, but also because under certain conditions hunter-gatherers have become stratified, sometimes markedly. One of these conditions is the presence of an environment or economy sufficiently productive to allow people to accumulate and store foodstuffs. Alain Testart (1982) has divided hunter-gatherer societies into two types, those who store food and those who do not. Upon examining 40 contemporary hunter-gatherer societies, he found that the vast majority who stored food had genuine class stratification compared to only a small fraction of the nonstorerers. The Kwakiutl of the Northwest Coast of North America, for example, were storing hunter-gatherers *par excellence*, and as a result had developed a highly stratified society led by ruling chiefs who ranted about their own prestige and displayed it by giving away wealth to neighboring chiefs.

In simple horticultural societies the technological and economic base is usually not sufficient to allow for the creation of stratification, but the desire of some individuals for high status and even deference from others is given freer rein than among hunter-gatherers. These societies are often characterized by status-seeking men known in the local language as “big men” (Sahlins, 1963; Harris, 1977). Big men are village leaders and economic organizers. They prod people to work harder and produce more food so they can hold feasts and distribute this food widely, certainly to all of the members

of their own village but usually to some of the members of other villages as well. Big men are greatly admired and often given considerable praise and deference. One sees individuals like this among hunter-gatherers only seldom.

Compared to simple horticultural societies, advanced or intensive horticultural societies cultivate the land more intensively and more permanently, squeezing more out of it, and thus are more economically productive. These societies are often divided into social strata or classes that have a highly hereditary or self-perpetuating character. A common pattern is a division into three main social strata, consisting, respectively, of chiefs, subchiefs, and commoners. These strata are distinguished by differences in social status, political power, dress and ornamentation, consumption patterns, the extent of direct involvement in subsistence production, and styles of life. Many African horticultural societies in recent centuries have had stratification systems of this type, as have a number of Polynesian societies. Precontact Hawaii, for example, had a hierarchy consisting of a paramount chief and his family at the top, regional or village subchiefs in the middle, and a large class of commoners at the bottom (Lenski, 1966).

Agrarian societies have been devoted to the cultivation of large fields with the use of the plow and traction animals. As a result, they have been far more economically productive than horticultural societies, which use only hand tools. Agrarian stratification systems have been the most extreme of any found in human history, and they contained numerous social classes (Lenski, 1966). However, the most important of these classes, those that related to the primary axis of economy activity, were the political-economic elite and the peasantry. Lenski has divided the elite class into two segments, the ruler and the governing class. The ruler was the official political leader of society, and he surrounded himself with an administrative apparatus of government. What Lenski calls the governing class might be more accurately called the landlord class, since its members were the major owners of land. The political-economic elite as a whole usually consisted of no more than one or two percent of the population but controlled perhaps as much as half to two-thirds of the total wealth. Wealth was created by imposing rent and taxation on the peasantry, or perhaps by exploiting slave labor, and thus was skimmed off as an economic surplus. It was also created by plundering other societies and incorporating their land, peasants, slaves, and other economic resources, and by receiving economic tribute from them (Snooks, 1996). Elites in most agrarian societies created an elaborate status culture that distinguished them sharply from the rest of society (Annett and Collins, 1975).

As Lenski has noted, in the transition from agrarian to industrial societies after the Industrial Revolution of the last two centuries, there occurred something of a reversal in the relationship between the level of stratification and the degree of technological development. In many respects, modern industrial societies are less stratified than their agrarian predecessors. Agrarian elites controlled much more wealth than do elites in modern industrial societies, and industrial societies have also witnessed a much greater diffusion of income and wealth throughout the large mass of the population. However, industrial societies still exhibit very high levels of stratification.

Another major change in the nature of stratification in the transition to industrial societies is the decline in status and deference cultures and the emergence of a widely

accepted ideology of egalitarianism, especially in the United States (Annett and Collins, 1975). This decline, along with the greater economic equality of industrial societies, might be thought to undermine biologically oriented theories of society, such as Darwinian conflict theory. But this is not the case. Once again it is a matter of biological tendencies interacting with a wide array of social conditions. These changes in industrial stratification systems can be linked to the emergence of mass consumer capitalism and the rise of democratic forms of government. Democratic governments—themselves the result largely of the rise of large and powerful working classes and of systems of mass education and widespread literacy—allowed the many to combine against the few in order to restructure society more in their favor. The rise of mass consumer capitalism led to the disintegration of the old patterns of status and deference for several reasons, but especially because increases in the financial resources of the working and middle classes have allowed them to maintain a lifestyle closer to that of the upper classes. In the end, status distinctions have shrunk not because society dominates biology, but because of the very existence of natural status desires on the part of the large mass of the population. It has been through their status-seeking behavior that the status gap between themselves and the old elite has been reduced.

The industrial societies we have been discussing have been industrial *capitalist* societies. So-called *state socialist* societies emerged earlier in the twentieth century as an alternative form of society that would eventually become highly industrialized and attempt to equal or surpass the capitalist societies in the standard of living and the quality of life. The Soviet Union, of course, was the primary exemplar of this type of society. One of its official aims was to create a “classless” society, and it attempted to accomplish this by means of socializing the means of production. This was rooted in the Marxian assertion that social classes could not exist if there was no private ownership of the means of production. However, despite these changes in the economic system a classless society did not emerge; what developed instead was a new type of class society (Djilas, 1957; Parkin, 1971). Broadly speaking, the most privileged social class was the so-called white-collar intelligentsia, which comprised some twenty percent of the population and consisted primarily of top Communist party bureaucrats, managers of state-owned companies, and learned professionals. This class received higher incomes than the rest of society, but also had access to a range of special privileges unavailable to others. A small segment of this class, consisting of full-time, high-level party bureaucrats and known most often as the *nomenklatura*, constituted a ruling class virtually in the Marxist sense of the term (Parkin, 1971). These developments, occurring as they did in the face of an official policy of classlessness, strongly suggest that the reality of human nature was at work under the surface and behind the scenes, a reality that would make a mockery of public declarations.

It is also highly instructive to see what has happened in Russia since the collapse of Communism in the Soviet Union in 1991. Increasing privatization has created far greater economic inequalities that will probably expand even further in the years to come. The old *nomenklatura* has been broken up, with the careers of many of its members ruined, but other members of this ruling elite have found themselves in a position to benefit from the economic changes. They seem to be forming a new class

of private entrepreneurs and have become extremely wealthy, often displaying their wealth in the most garish and ostentatious ways (Zaslavsky, 1995; Kagarlitsky, 2002). These changes of the last decade are also strong evidence for a human primal urge for status-seeking and resource accumulation. Although this urge was always present in the old Soviet Union, privatization of the economy has given it much freer rein, and the results are apparent to all.⁷

Conclusion

Marvin Harris was a great anthropologist who battled vigorously—sometimes a little too vigorously—for a scientific anthropology guided by his cultural materialist theoretical principles. He had a great deal of success, although not as much as he wanted. Many were greatly influenced by his work, but many others demurred. I have been one of the few sociologists to have read and studied Harris's work carefully and to have used it as a basis for my own empirical work and theoretical reformulations. No single scholar has had a greater influence on my thinking and the intellectual trajectory of my career than Marvin Harris. Yet a number of years ago I began to see problems with cultural materialism as a general theoretical strategy as well as with a number of Harris's specific substantive theories. The problem with Harris's thinking was not that it was materialist, but that it was not materialist enough. It needed to move in a more biologically materialist direction by embracing the principles of sociobiology, principles that are needed to take cultural materialism to a deeper level. After all, the infrastructure has priority because it is a response to humans' most basic biological needs and drives. Where cultural materialism works, it is because of the biological needs and drives that give rise to the material interests that are so much a part of Harris's thinking. But where cultural materialism does not work, it is because these biological needs and drives are more fundamental than other material interests. Harris steadfastly refused to take this biological step, but we can take it for him and thus extend the logic of his own paradigm. Harris would not have liked it, but then sometimes people have to be saved from themselves.

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Notes

1. In Chapter 4, Alan Sandstrom relates three anecdotes demonstrating that the hostility to Harris and cultural materialism could often reach stratospheric levels. I have an anecdote of my own to relate. At one of the first meetings of the American Anthropological Association I ever attended—I believe it was the 1979 meeting in Cincinnati—there was a major session with a very large audience in which Harris presented his (actually, Michael Harner's) protein deficiency theory of Aztec cannibalism. Once Harris had finished and the question-and-answer period had begun, a man stood up in the row right behind me and, quite literally, started screaming and shrieking in a near hysterical manner. He said something to the effect that "the only protein Marvin Harris has to offer is pure baloney" and some other nasty things that I have now forgotten. I looked at his name tag and saw that he was Paul Diener, a name I immediately recognized from Harris's *Cultural Materialism* (1979:246n) as an anthropologist Harris claimed had severely misrepresented cultural materialism (cf. Diener and Robkin, 1978). Harris remained relatively calm, but said quite forcefully, "Let's all identify ourselves." It is the most extreme instance of hostility that I have ever encountered at a professional meeting in more than three decades of attending such meetings.

It is unfortunately true that some of the hostility to Harris was "self-invited." Harris had a very strong personality and could be dogmatic, intolerant, and sometimes abrasive. Even fellow traveling materialists were sometimes taken aback by Harris's style. Napoleon Chagnon, a vigorous supporter of sociobiology, clashed severely with Harris, often in public, and it was usually a matter of the "irresistible force" meeting the "immovable object." Chagnon's style could be equally dogmatic and intolerant, and when these two exceptionally strong personalities came together it was no-holds-barred intellectual combat. In this regard, I have another anecdote to relate. At another AAA meeting years ago, and again in a major session with an extremely large audience, Harris presented his views on tribal warfare, with the Yanomamö case being particularly emphasized. Of course, Harris contended that the Yanomamö were fighting because of the scarcity of animal protein, whereas Chagnon claimed they were fighting over women. After Harris finished his presentation, Chagnon took the podium to denounce Harris for not only an incorrect theory, but an overall misrepresentation of sociobiology. Chagnon then hurried out of the room without giving Harris a chance to respond. Marvin retook the podium and lamented the fact that Chagnon was not permitting them to have any debate. Unfortunately, it is true that Harris did misrepresent both sociobiology in general and Chagnon's views in particular on numerous occasions.

2. None of this is to deny genetic differences among individuals, and perhaps among populations, in the tendency toward obesity. In any modern industrial population, the most overweight individuals will be those with the greatest genetic tendency toward weight gain and the least self-discipline with respect to overeating, whereas the thinnest will be those with the lowest genetic tendency toward weight gain and the most self-discipline regarding overeating.

3. Some social scientists, and most evolutionary biologists, object to the use of the terms *r*- and *K*-selection to refer to differences *within* species rather than to differences *between* species. It is undeniably true that these terms originated to refer only to differences between species. *r*-selected species tend to be small organisms that leave many offspring and practice low (or no) parental investment (e. g., paramecia, snakes, fish), whereas *K*-selected species tend to be larger organisms that leave few offspring and practice high parental investment (e. g., birds, mammals). Nevertheless, I still think it is useful to say that, within a species, individuals may use a more "*r*-like" reproductive strategy in some circumstances and a more "*K*-like" strategy in other circumstances. We clearly see this in humans, where the more *r*-like strategy is associated

with higher levels of infant and child death and the more *K*-like strategy is associated with lower levels of infant and child death.

4. It seems highly noteworthy that Harris's explanations of warfare, male domination, the potlatch, the incest taboo, family size, homosexuality, and status seeking all fail for one or both of two reasons: attachment to the largely discredited notion of group selection (in the form of functionalist reasoning), and failure to take human biology seriously.

5. It might be more appropriate to say "near universality" of hierarchy among primates, given the research findings of recent years on bonobos (*Pan paniscus*). This species of chimpanzee is certainly a lot less hierarchical (and aggressive) than the common chimpanzee (*Pan troglodytes*), and, perhaps, lacking in hierarchy altogether.

6. This widely observed association between height and social status is by no means being attributed solely to a biological predisposition for individuals to value more positively, and thus to grant higher status to, taller individuals. It is certainly recognized that height is also a function of nutrition, and that the adequacy of nutrition varies among populations and among social classes within populations. The fact that Oxford dons were historically taller, on average, than members of the English working or lower classes, is undoubtedly related to differences in nutrition and dietary intake. I am not trying to explain all of the association between height and social status in terms of a human tendency to elevate taller individuals in status, but simply calling attention to the existence of the phenomenon and its explanatory relevance.

7. It is noteworthy that humans seem to be not only innate prestige seekers, but also innate prestige *conferers*. Humans seek prestige, and its close relatives status and dominance, because these things are the key avenues to productive and reproductive success. But why do humans seem to be so ready to confer prestige and esteem on others? This occurs even in the simplest of hunter-gatherer societies, but of course takes exaggerated form in modern industrial societies, where, for example, people fawn over celebrities, whether rock stars like Mick Jagger, actresses like Jennifer Lopez, or great athletes like Michael Jordan or Tiger Woods. Joseph Henrich and Francisco Gil-White (2001) argue that the tendency to confer prestige on others is an evolved adaptation that, at least in the ancestral environment, allows individuals to get close enough to prestigious individuals to be able to copy their behavior. Imitation of the prestigious, an extremely widespread human trait, is adaptive for the imitators to the extent that the most prestigious individuals also tend to be the most skilled or knowledgeable. This generally holds true in environments approximating the ancestral environment, although will often not be true under modern conditions (and thus no longer adaptive).