SICKNESS AND HEALING

An Anthropological Perspective

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men of death," its victims sometimes believed to manifest intensified creative powers as they were "consumed." Ideologies continue to be modified. The Duboses suggest that the term *tuberculosis,* already bearing a denotation not directly indicative of contemporary etiological conceptions, could be modified to fit current knowledge. The bacterium itself was then being shown to be neither necessary nor sufficient to the symptomatic complex that we call tuberculosis. The Duboses insisted on the causative importance of the host's sociocultural and natural environment. They also noted that though psychological factors were likely to be of importance, their extent and workings were unknown. A great variety of remedial efforts have also followed beliefs about this condition and about the broader order of social life. Tubercular patients have been revered and isolated, placed in dry climates and wet ones, required to rest and to exercise exhaustively.

Culture, nature, and the human mind between play central roles in diseases commonly thought of in terms of microorganisms and toxins as well as in apparently strange behavioral complexes. Only an inclusionist framework can encompass the range of pathological (and healthy) forms.

Culture-bound syndromes constitute an important frontier between anthropology, Biomedicine, and the medical systems of other societies. Built in premises different from our own, they challenge our standard divisions of things. In striking fashion they have reminded us that our own forms of sickness and of reacting to events do not cover the spectrum of the humanly possible. A comprehensive theory of human reactions and pathology must take them into account.

I have argued that the exclusionist understanding of culture-bound syndromes, implicit in the term, yet not intended by early proponents, distorts the role of culture and of physiology in human affairs. It claims too much of culture at the margin of our nosological scheme and too little of culture at medicine's core. Medical professionals, anthropologists, and others have conspired in a false division of labor. False divisions obstruct understanding. The abandonment of the erroneous category, culture-bound syndrome, might serve to redirect our attention to the formulation of a theory of human sickness in which culture, psychology, and physiology were regarded as mutually relevant across cultural and nosological boundaries.

3 THREE THEORIES OF SICKNESS AND HEALING

The price of metaphor is eternal vigilance.

—*Lewontin 1983:36*

Scholars have proposed a wide range of explanations for the forms of human sickness and healing found in different cultural and historical settings. In this chapter, I review three basic theories underlying a variety of explanations: an *environmental/evolutionary theory,* which argues that the physical environment and human adaptations to it are the principal determinants of sickness and healing; a *cultural theory,* which posits cultural systems of beliefs, values, and customs as basic determinants; and a *political/economic theory,* which proposes that economic organization and contending relationships of power are the principal forces controlling human sickness and healing. Some of the examples I examine are not directly concerned with sickness and healing, but nevertheless have profound implications for an understanding of these matters. Several of the scholars I discuss are anthropologists, and others are sociologists, biologists, physicians, and geographers.

The explanations I review differ not only in what they consider the determinants of sickness and healing but also in the nature of this determination. Three alternative positions, reductionism, emergentism, and interactionism, may be found in versions of the major theories I examine. Each posits a different basic relationship between phenomena of different "levels"—for example, molecules, cells, tissues, organs, organisms, persons, societies, and ecosystems.

Reductionism: Explanations that assert that one phenomenon (for example, social behavior) is entirely explained by another phenomenon (for example, human biology or genetics) are reductionist—they *reduce* phenomena of one kind to phenomena of another kind.

Emergentism: Other explanations assert that the phenomena of interest are autonomous, independent of phenomena at lower levels of organization. Because higher-level phenomena (such as human behavior) are said to have distinctive properties that *emerge* from the combination of lower-level phenomena (such as genes), these explanations are described as emergent; the emergentist position is captured by the epigram, "The whole is greater than the sum of its parts." For example, Emile Durkheim, a father of twentieth-century sociology, regarded social phenomena as inherently unpredictable from psychological states. He wrote, "There is between psychology and sociology the same break in continuity as between biology and the physiochemical sciences. Consequently, every time that a social phenomenon is directly explained by a psychological phenomenon, we may be sure that the explanation is false" (1966/1895:104). Emergentist explanations are the opposite of reductionist explanations; what one claims the other denies.

Interactionism: Finally, interactionist explanations assert that phenomena at different levels—for example, human social behavior and genes—are separate but mutually influential or *interacting*. Genes constrain behavior; behavior modifies the distribution of genes in populations.

Proponents of different theories commonly think about reality in a variety of ways. They may maintain variant ideas about the grounds of knowledge—how we justify our claims—and about "human nature" and its features. They may define "sickness" and "healing" differently. They may differ as well about the goals of their research (for example, knowledge and/or intervention and social change) and the implications of the research for human well-being. Insofar as these differences are discernible in the theorists' writings, I attempt to describe them.

Theories of sickness and healing may be arrayed on a continuum according to their principal determinants (Hahn and Kleinman 1983a). At one end of the continuum are theories that focus on the environment and human biology; at the other end are theories that focus on cultural beliefs and social relationships. In the middle are theories that recognize roles for biology, the environment, and human society and culture. In my review of alternative theories, I first analyze environmental/evolutionary theories, next consider cultural theories, and conclude by examining political/economic theories.

ENVIRONMENTAL/EVOLUTIONARY THEORIES

In *Adaptation in Cultural Evolution: An Approach to Medical Anthropology,* Alexander Alland (1970) outlined the importance of principles of evolution for an understanding of medical systems found in different cultural and historical settings. Alland claimed that a society's environment and its medical system influenced each other in powerful ways: "My theoretical bias is tied to the biological theory of evolution. It is my strong conviction that the evolution of human behavior, including what has come to be called culture history, can best be understood in terms of such a theory" (1970:5). Alland, however, was not a reductionist but adopted an interactionist position; he believed that the effects of evolution on human culture were limited: "The role of the environment must not be exaggerated in explanations of cultural development. Environment is a selecting agent and not an active force itself capable of producing change" (1970:34).

Like species, human cultures and their medical systems evolve over time. Although Alland did not believe that environmental circumstances determined the specifics of cultures, he asserted that the environment might constrain cultural development, since cultural practices affected the success of a population in reproduction and survival in its environment. "Man changes his environment, often drastically, through the adaptive mechanism of culture, and this changed environment then acts as a selective agent on man's physical structure as well as on his behavior" (34). "I would expect that much (certainly not all) of what appears to be irrational behavior will turn out to fit the prevailing ecological conditions and demonstrate that much of behavior is either health oriented or produces maximization in some other way" (129). The "carrying capacity" is a measure of a population's successful adaptation and ability to maintain or increase its size in given ecological circumstances.

Alland defined disease and health in terms of the observable physical conditions of people in societies rather than in terms of the people's own experiences of unwanted states. For example, he reports that, though the Mano people of Liberia do not consider malaria to be a disease, malaria is widespread among them, significantly affecting their well-being and ability to survive and reproduce in their environment. (Perhaps because it is so common, the Mano take malaria for granted, the way things are, natural.) Thus, contrary to Mano thought, by Alland's definition, the Mano have a substantial disease burden in their endemic malaria. Alland believes that consideration of sickness as what people themselves report—the approach of cultural analyses—will be blind to much suffering. "An ethnoscientific analysis [that is, one that focuses on the native point of view] of medically oriented behavior will miss much of this material because it restricts itself to what the natives themselves define as medicine" (1970:129).

Alland cited the remarkable and well-documented association between

sickle cell anemia, malaria, and human behavior in West Africa. Sickle cell anemia (named for the effect of the disease in creating a sickle-shaped red blood cell) is an inherited condition. If inherited from both parents—that is, homozygously—this form of anemia is most often fatal; but if inherited from only one parent, heterozygously, it may cause nonlethal symptoms but also reduce susceptibility to the effects of malaria. Thus, in this case a relatively mild pathology (sickle cell anemia) protects its patients from another more serious one (malaria).

In 1958, Frank B. Livingstone published a breathtaking study demonstrating that in regions of Africa where malaria was most prevalent, sickle cell anemia was also more common, and vice versa. Since the homozygous sickle cell condition is fatal at young ages, Livingstone assumed that reported sickle cell prevalence rates were essentially rates of the heterozygous, nonlethal, antimalarial form.

Livingstone then gave evidence that the historical appearance of malaria in certain regions of Africa was associated with the introduction of agriculture. *Anopheles gambiae,* the mosquito vector of malaria in West Africa, cannot live in dark, shaded areas or areas with quickly running water; in addition, the mosquito requires a "blood meal" from another animal in order to reproduce, and it reproduces most effectively with larger and more concentrated host populations. Thus African people who live in wooded regions, most often nonagricultural hunter-foragers, suffer little malaria. But when hunters become agriculturalists, clearing land, living in larger communities, and leaving standing water (for example, in pools or refuse piles), they provide more hospitable breeding grounds for the mosquito. The shift to agriculture thus fosters the introduction of malaria, which in turn increases the likelihood that populations with high frequencies of heterozygous sickle cell trait will survive. In this interactionist view, human culture leads to environmental change that then alters population biology and patterns of sickness.

The environmental/evolutionary theory has much in common with the field of medical geography, "that discipline that describes spatial patterns of health and disease and explains those spatial patterns by concentrating on the underlying processes that generate identifiable spatial forms" (Mayer 1984:2680). A basic theme of medical geography is that health characteristics of populations are significantly associated with patterns of human interaction with the physical environment. Melinda Meade suggests that thinking in geography has evolved through several stages, from " 'environmental determinism' (hot wet climates cause lethargy and poor health) to 'possibilism,' in which the environment sets the ultimate constraints (one cannot get mosquito-transmitted diseases at 15000 feet elevation) but interacting cultural forms are varied, to a 'cultural ecology' in which human existence is inextricably interwoven with the biosphere" (1986:314).

Some geographic patterns are explained by the distribution of risk factors—the behaviors that cause a disease. For example, the highest mortality

rates of chronic obstructive pulmonary disease, caused principally by a history of cigarette smoking, occur in western states (Centers for Disease Control 1989a); it is likely that this concentration is explained by geographic patterns of smoking (Centers for Disease Control 1989b), possibly also by the migration of people with lung disease to western states where air is believed to be healthier (Lebowitz and Burrows 1975). Similarly, the highest rates of stroke mortality are concentrated in southeastern states, possibly corresponding to greater rates of untreated hypertension, particularly among blacks (Centers for Disease Control 1989c). Knowledge of the spatial distribution of disease rates has been used to plan the location of medical facilities and emergency vehicles (Mayer 1984).

Biologists also have proposed accounts of human social life, including patterns of sickness and healing. Perhaps the most extreme environmental/biological explanation developed in recent years is sociobiology, "the scientific study of the biological basis of all forms of social behavior in all kinds of organisms, including man" (Wilson 1979:230). Edward O. Wilson, sociobiology's foremost proponent, argues that early in the growth of disciplines there is a more established "antidiscipline," a devil's advocate that seeks to reduce the phenomena of the new discipline, say, human social and cultural life, to lower-level phenomena such as human biology. Wilson believes that biology is the antidiscipline of the social sciences. "Biology is the key to human nature, and social scientists cannot afford to ignore its rapidly tightening principles" (Wilson 1979:14). In addition to evolutionary and genetic principles, the other discipline that Wilson believes underlies, reductionistically, sociology and human social behavior is brain biology. As this discipline develops, Wilson predicts, "cognition will be translated into circuitry. Learning and creativeness will be defined as the alteration of specific portions of the cognitive machinery regulated by input from the emotive centers" (1975a:575).

Wilson claims that there is a "human nature" fundamentally determined by human genetics and Darwinian natural selection. Genetics explains the reproduction and variation of population characteristics from generation to generation, and natural selection accounts for the perpetuation of populations whose characteristics allow them to best procreate and survive in their environments. Humans are primates who left their relatives in the trees and began to walk on their lower limbs, freeing their hands for other purposes and accelerating the growth of tool use. At the same time, increasing human brain capacity facilitated the growth of culture, communication, and society. These developments have enhanced the ability of humans to survive in their environments.

Wilson believes that genetic and evolutionary principles have determined fundamental features not only of human biology but of human social life as well, both prior to and following the advent of culture. He has argued, for example, that incest rules found in different forms in all societies prevent the

hazards of inbreeding and thus strengthen the ability of populations to survive and reproduce. He has also claimed that warfare serves adaptational needs of protecting and expanding the society's territory for its survival.

Wilson asserts that evolutionary principles explain the overall shape of human society and culture, but not its specifics. He refers to variant cultural forms as "accidental details," minimizing their significance. "Most kinds of human social behavior are hypertrophic [greatly elaborated] forms of original, simpler responses that were of more direct adaptive advantage in hunter-gatherer and primitively agricultural societies" (1979:226).

He draws conservative political conclusions from his research by arguing that social movements directed against purportedly overwhelming biological imperatives will exact great costs in energy and social functioning and are likely to fail. For example, he recommends that genetic differences in human nature, such as those that supposedly exist among "races," should be investigated, perhaps with the rationale of justifying and accepting the differential distribution of resources and opportunities. Wilson also believes that affirmative action to achieve equality of employment for men and women contradicts human nature and evolutionary principle and should thus be avoided. He has argued that ethics should be founded on biology rather than philosophy: "Scientists and humanists should consider together the possibility that the time has come for ethics to be removed from the hands of the philosophers and biologicized" (1975a:562). The role of sociobiology, Wilson believes, is to assess the best way to live, given the underlying biological principles of human social life.

Sociobiology has been widely criticized both as scientific theory and as political agenda. For one, biologist Richard Lewontin has argued that most sociobiological explanations are "imaginative reconstructions" for which evidence is not produced, perhaps because it cannot be produced (Lewontin 1983). For example, Wilson makes no attempt to demonstrate a genetic basis for aggressiveness or xenophobia in "human nature." Nor does he present evidence for the universality of these traits—in fact, he ignores anthropological evidence to the contrary.

Lewontin also claims that sociobiological arguments for the necessity of existing forms of social organization, such as male domination, are illogical. They assume that, because group averages—say, in the capacity for analytic reasoning—differ among men and women, therefore there is an inherent, categorical difference between all men and all women. To the contrary, Lewontin argues, population averages are not inherited and cannot justify current arrangements of power. Sociobiology is seen as a misleading rationalization of the status quo.

In contrast to theories focused on the determining influences of genetics, evolution, and adaptation on human society and culture, Marvin Harris has proposed a theory of "cultural materialism" (Harris 1968, 1974, 1977, 1979). Harris claims that sociobiologists have ignored the great range of societal and cultural patterns, providing speculative explanations for human social life without evidence. "Our primary mode of biological adaptation," Harris writes (1974:85), "is culture, not anatomy." He argues that social organization and culture are fundamentally determined by the way in which human societies satisfy the basic needs of their members—nutrition, shelter, conservation of energy, sex, and love and affection.

Building on his interpretation of the ideas of Karl Marx, Harris distinguishes three levels in the organization of a society: the infrastructure, the structure, and the superstructure. A society's *infrastructure* includes a "mode of production," the technology and activity directed toward the production of food and energy, and a "mode of reproduction," the means of sustaining and reproducing the population. Included in the infrastructure's mode of reproduction are patterns of birth, disease, and death. Infrastructure "is the principal interface between culture and nature, the boundary across which the ecological, chemical, and physical restraints to which human action is subject interact with the principal sociocultural practices aimed at overcoming or modifying those restraints" (Harris 1979:57). A society's *structure* consists of its "domestic economy," its way of organizing home life, and its "political economy," its way of organizing the segments of society or the nation as a whole. Finally, the *superstructure* consists of religion, music, literature, other arts, and sports; included also is science, thus presumably medicine as well.

Harris summarizes the thesis of cultural materialism as follows: "The . . . behavioral modes of production and reproduction probabilistically determine the . . . behavioral domestic and political economy, which in turn probabilistically determine the . . . superstructures. For brevity's sake, this principle can be referred to as the principle of infrastructural determinism" (1979:55–56).

Among Marxist scholars who interpret Marx as taking what they call "dialectical" and what I have called an "interactionist" position, Harris has been accused (by Sahlins 1978, for example) of practicing a form of "vulgar Marxism," that is, "a form of economic reductionism that locates all forms of human consciousness, knowledge, and cultural expression as determined by the mode of economic production and the social relations that this engenders. . . . Disease, illness, depression, and the pain of day-to-day living are no more than the inevitable consequence of a capitalist and patriarchal social order. The only 'science' is economics" (Lewontin, Rose, and Kamin 1985:76). In his defense, however, by describing the determining power of infrastructure as probabilistic, Harris allows for the possibility that superstructure may influence structure and infrastructure.

In contrast to many other anthropologists, Harris is explicit about the methodology he believes underlies his research strategy. Others may (and do)

disagree with his position, but at least they know what it is. Harris believes that anthropology should be a science in which theory, hypothesis, and inductive inference (from elementary fact to theory) are balanced.

> The aim of scientific research strategies in general is to account for observable entities and events and their relationships by means of powerful, interrelated parsimonious theories subject to correction and improvement through empirical testing. The aim of cultural materialism in particular is to account for the origin, maintenance, and change of the global inventory of sociocultural differences and similarities. Thus cultural materialism shares with other scientific strategies an epistemology which seeks to restrict by means of explicit, logico-empirical, inductive-deductive, quantifiable public procedures or "operations" subject to replication by independent observers. (1979:26–27)

Although Harris does not directly address matters of sickness and healing, his theory and analyses touch on matters of health, such as nutrition. For example, he has examined the role of cattle in Indian society (Harris 1974). While Hindus say they do not eat beef because the cow is a sacred animal—Harris refers to this reverence as "cow love"—Western agronomists proclaim that malnourished Indians are wasting a valuable food resource by not fattening and slaughtering the "excess" animals that wander freely in the cities and countryside. In contrast, Harris shows how Hindu beliefs rationalize an effective and balanced use of cattle in their ecological setting and how Westerners are mistaken about the case of India and are themselves relatively inefficient.

In India, the population of cows is approximately two-thirds that of oxen, suggesting systematic elimination by some unspoken means. But there is also more direct evidence that, in addition to the consumption of cows' milk, cattle themselves are eaten—by Muslims and Christians, by Hindus of the untouchable caste, and, under conditions of famine, even by Hindus of other castes.

Cattle also fulfill many needs other than the provision of meat. Perhaps most important, oxen are needed as draft animals for cultivation—a possible explanation of their greater survival than cows. In addition, cattle dung provides fertilizer, cooking fuel, and material for covering dirt floors. Leather is used as well. Moreover, Indian cattle consume few resources of direct use to humans. Harris suggests that the Indian arrangement with cattle provides a near-optimal use of local resources. "Cow love mobilizes the latent capacity of human beings to persevere in a low-energy ecosystem in which there is little room for waste or indolence" (1974:30). Hindu superstructural beliefs about the sanctity of cattle are explained by the Indian infrastructure of agriculture, technology, and demographics.

Harris finds further support for the theory of "probabilistic infrastructural determination" of ritual, medicine, and religious ideas in the cultural distribution of attitudes about pig flesh. While among some Oriental and Western societies, pork is a prized dish, pig meat is abhorrent—an abomination—to "pig-hating" Jews and Muslims and is sacred to "pig-loving" societies in New Guinea. Harris rejects the explanation of pig hating as the tacit recognition of disease (now known to be trichinosis) transmitted by consumption of insufficiently cooked (infected) pork. Diseases transmitted by consumption of undercooked beef, goat, and mutton, such as brucellosis and anthrax, are far more serious than trichinosis. In addition, if undercooking were the problem, the respective gods of the Hebrews and the Muslims could simply have mandated thorough cooking instead of abstinence.

As an alternative to the explanation in terms of disease risks, Harris proposes a broader public health perspective that considers the organization of Hebrew and Muslim economic and social life and its ecological setting: "The Bible and the Koran condemned the pig because pig farming was a threat to the integrity of the basic cultural and natural ecosystems of the Middle East" (1974:40). Early Hebrews inhabited arid lands and were "nomadic pastoralists, living almost entirely from herds of sheep, goats, and cattle." In contrast to these animals, pigs do best with low cellulose diets, preferably of grains, nuts, fruits, and tubers, which generally require cultivation and a sedentary way of life; in addition, pigs have a low tolerance for heat and cover themselves with their dung when overheated, thus increasing the likelihood of disease transmission in inhospitable porcine environments. Consumption of pork would thus have required the abandonment of nomadic pastoralism—highly suited to arid Middle Eastern environments. In addition, the raising of pigs would have required supplementary agriculture for production of food for pigs that was also edible by humans themselves. Harris argues that Hebrew and Muslim gods forbade the consumption of tasty pork to eliminate a temptation ecologically inefficient and harmful to their followers. Again, religious beliefs are maintained because they are ecologically sound.

Based on the research of Roy Rappaport (1967), Harris describes the contrasting situation of the pig-loving Maring people of New Guinea. The Maring are a sedentary people who inhabit a forested mountain environment well suited for pig raising. Unlike cow love among Hindus, among the Maring, "the climax of pig love is the incorporation of the pig as flesh into the flesh of the human host and of the pig as spirit into the spirit of the ancestors. Pig love is honoring your dead father by clubbing a beloved sow to death on his grave site and roasting it in an earth oven dug on the spot" (1974:46). Most of the time, the Maring abstain from the consumption of pork. But about every twelve years, Rappaport estimates, Maring clans have massive pig feasts in which large portions of their herds are slaughtered. They invite their allies and "pig out" over the course of a year. During a festival witnessed by Rappaport, about seven-eighths (by weight) of the pig population was slaughtered. The Maring then take to war with their enemy in order to

defend or expand their territory; during war, they continue to consume their pigs. Their protein nutrition is thus greatest, Harris argues, during a period when it is most likely to be needed. Eventually, the Maring declare the war ended and return to nurse their sacred, though depleted pig stock.

Among the Maring, care of pigs is women's work. Along with their infants, women carry piglets around and are responsible for the gardening that provides food for their families as well as their pigs. Rappaport calculates that, as the herd matures, a woman may spend half of her energy providing for her pigs. New gardens may be needed, requiring longer walks and more carrying. Mature pigs invade fenced gardens, destroying crops. In addition to normal women's work of child care, cooking, and the manufacture of artifacts, the burdens of piggery may lead to increasing tensions within families and among neighbors. Thus, as the local herd grows following feasts, social relations may be strained. The Maring come to decide it is time to feast again.

Harris proposes that the ecology of the Maring setting, along with their technology and basic social organization, makes their practice of cyclical pig raising and pig slaughter an efficient way to live; Maring ideas about pigs and ancestors make local sense of a highly rational process.

CULTURAL THEORIES

In contrast to proponents of environmental and evolutionary theories, many anthropologists have focused on cultural systems as basic determinants of sickness and healing in societies. A cultural system is a more or less coherent set of values, concepts, beliefs, and rules that guide and rationalize people's behavior in society. Cultural anthropologists who adopt this perspective examine the elements of cultural systems in order to portray the interconnections among elements and to explain the behavior of persons inhabiting these settings.

Marshall Sahlins is a cultural anthropologist who has reacted strongly and articulately to environmental and materialist theories such as those of Wilson and Harris (Sahlins 1976, 1978). Harris, for example, in a manner similar to his explanations of human arrangements with cows and pigs, has proposed an explanation of human sacrifice among the Aztecs as a means of satisfying nutritional needs. "The Aztec priests can legitimately be described as ritual slaughterers in a state-sponsored system geared to the production and redistribution of substantial amounts of animal protein in the form of human flesh" (1977:164).

Against this explanation, Sahlins contends that the nutritional argument is inadequate for a variety of reasons: there are reliable historical records of abundannt alternative sources of protein in the Aztec environment; the food and care lavished on sacrificial candidates would have made sacrifice a highly

inefficient source of nutrition; sacrifice was commonly preceded by self-initiated ritual bleeding by the sacrificial consumers; and the amount of flesh provided to Aztec citizens, on the average, was negligible—less than a pound each year. To Harris's suggestion that human flesh went mostly to the nobility, Sahlins replies that the nobility in particular had many other sources of protein.

Sahlins sketches an alternative, cultural theory of Aztec sacrifice. Sacrifices were held regularly in the Aztec calendar. They involved highly elaborate, interrelated beliefs and practices—hardly worthwhile for an extra pound of meat a year. "In connection with various sacrifices, different categories of people would ritually fast, bleed themselves, paint themselves, climb mountains, go into and come out of seclusion, stage farces, drink pulque, eat earth, offer valuable gifts to the gods, take ceremonial baths, parade in the streets, play games, hold sham fights, practice chastity, hunt deer, sing and dance for days on end, beg alms, erect and adorn idols, prepare and eat special delicacies, and much else" (1978:45). For Aztecs themselves, sacrifice fit into a cosmological scheme in which sacrificial subjects—mostly captives and slaves—were "treated as if they had been gods"; gods were made offerings, and humans partook in the divine feast. Blood was associated with flowers and with the fertility of the land. Sacrifices were rituals for the renewal of society and of cosmological and earthly connections.

Sahlins comments on Harris's studies in cultural materialism: "What is truly at stake in these works is whether human culture is meaningful in its own right. . . . Do people employ customs and categories to organize their lives within local schemes of interpretation, thus giving uses to material circumstances which, cultural comparison will show, are never the only one possible?" (1978:49).

Sahlins argues that to explain elaborate cultural institutions in terms of their satisfaction of nutritional needs, Harris "abandons the possibility of understanding" and makes "some kind of bargain with ethnographic reality" (Sahlins 1976:47, 45). Sahlins remarks that Harris's approach, despite assertions to the contrary, "demands a heroic disregard of the appearances in favor of a theory of the realities"; that is, under the influence of his theory, Harris disregards empirical evidence. Sahlins refers to Harris's technique as "a kind of academic parlor game. . . . any sort of economic value that can plausibly be suggested for any cultural practice scores points—regardless of whether the same custom entails economic penalties or irrationalities in some other sector of the social order" (1978:52).

Harris describes his thesis as "cultural determinism," but Sahlins suggests that Harris's position is not truly cultural insofar as Harris, for the most part, looks at behavior as an outsider, ignoring its meaning to participants. Sahlins believes that cultural conditions—the indigenous worldview and symbolism—explain the way in which the material world is encountered rather than the reverse.

A cultural approach more focused on medical matters has been formulated by psychiatrist-anthropologist Arthur Kleinman (see chaps. 1 and 10, this book). In a classic paper, "Culture, Illness, and Care," Kleinman and his colleagues, Leon Eisenberg and Byron Good, note the popular perception of a crisis in medical care in the United States (Kleinman, Eisenberg, and Good 1978). They believe that effective response to this crisis requires attention to popular medical culture; they describe responses that do not address the concerns of popular culture as mere tinkering.

Kleinman and his colleagues outline for physicians the role that culture plays in medical settings. First they report that between 70 and 90 percent of episodes of sickness in the United States are not brought to medical attention. Based on their ideas about sickness and healing, people take care of most of their conditions themselves. Cultural ideas play a central role in determining who seeks medical attention, for what conditions, when, and with what results. Again based on their ideas, people may decide to seek medical help; they may also respond to clinical recommendations based on their own ideas. Thus, Kleinman and his colleagues argue, if people are to receive appropriate medical treatment (however "appropriate" treatment is determined), it is essential to understand their cultural ideas about sickness and healing.

Kleinman and his colleagues encapsulate their approach to "clinical social science" in the notion of "explanatory model," that is, a set of ideas about sickness. Both patients and healers have explanatory models. Patients have learned theirs in common cultural settings; healers have acquired additional training—overlapping their first cultural learning—in professional schools. An explanatory model (affectionately known as an "EM") is characterized by five elements: (1) an explanation of the cause(s) of a sickness, (2) a description of precipitating circumstances and first symptoms, (3) an explanation of the physiology of the sickness, (4) an outline of the course of the sickness and appropriate patient behavior, and (5) a formulation of available treatments. Explanatory models, particularly those of patients, may be only partially articulated and may be inconsistent or even self-contradictory. Kleinman and his colleagues recommend that clinicians include as an essential component of medical practice the elicitation of patients' explanatory models. They further recommend that physicians make their own explanatory models explicit and seek negotiated understandings with their patients.

Along similar lines, a colleague, Marjorie Muecke, and I have taken a cultural approach in preparing a guide for Biomedical clinicians to variations in birth practices in five U.S. ethnic populations—whites, blacks, Chinese, Mexican Americans, and Hmong (Hahn and Muecke 1987). We first describe the great variety of characteristics reported for these populations in prenatal care, fertility, low birthweight, and infant mortality. For example, three times as many blacks and Mexican Americans (10 percent) are reported to delay prenatal care (in Biomedical settings) as whites and Chinese (3–4 percent). On the other hand, blacks are reported to have twice the infant mortality of whites, and Mexican Americans and Chinese are reported to have lower rates of infant mortality than whites.

It is our premise that a large part of the differences in birth-related events among these populations can be explained by their cultural attitudes and practices regarding childbearing. We summarize published studies of the birth cultures of these populations and of Biomedicine as well. We then recommend to clinicians attending childbearing women and their families ways to understand and respond to the cultural variations among their patients. We recommend that childbearing women and their families be given orientations to the culture of Biomedical settings where they deliver, and that culture brokers, intermediaries between patient cultures and medical cultures, be available to translate the cultural differences between childbearing women and medical attendants.

Among cultural perspectives, an extreme, but currently fashionable version—one with which I disagree—leads to a paradoxical view of reality as fiction. In the classic study *The Social Construction of Reality,* for example, authors Berger and Luckmann describe the way in which persons in society collaborate in the formulation of the way the world is. Despite its centrality to their perspective, the notion of "reality" is dismissed in a sentence: "It will be enough, for our purposes, to define 'reality' as a quality appertaining to phenomena that we recognize as having a being independent of our own volition (we cannot 'wish them away')" (Berger and Luckmann 1966:1). It is as if reality exerted no constraint on the way in which humans come to view it. Berger and Luckmann go on to argue (contrary to such analysts as E. O. Wilson) that there is no human nature determined by "a biologically fixed substratum," but rather that "man constructs his own nature, or more simply, that man produces himself" (1966:49). It seems, according to this view, that human beliefs constrain nature rather than the reverse.

A view of reality as a human product rather than as "something out there" emerges from a fascinating study of the evolution of medical knowledge in *Laboratory Life* by Bruno Latour and Steve Woolgar. "Science," they write, "is entirely fabricated out of circumstance" (1986:239). And circumstance, they suggest, is the evolving product of human interaction.

Latour and Woolgar observed a setting of Nobel Prize–winning research on Thyrotropin Releasing Factor (Hormone), "TRF(H)," a compound now thought to play an important role in the control of thyroid and reproductive function. (It is found in such small quantities in research animals that purification of only 1/1,000th of a gram for laboratory analysis required extraction from the hypothalamus glands of a million sheep that had been slaughtered for meat.) Latour and Woolgar argue that TRF(H) was not *discovered,* but *created* in a social dialogue that depended in part on "facts" already established by similar processes and physically incorporated in laboratory equipment and techniques: "We do not wish to say that facts do not

exist nor that there is no such thing as reality. In this simple sense our position is not relativist. Our point is that 'out-there-ness' is the *consequence* of scientific work rather than its *cause*" (1986:180–82).

Latour and Woolgar describe the development of facts such as TRF(H) in terms of five types of statements found in researchers' writings and dialogues: (1) statements of conjecture or speculation, (2) statements regarding the evidence for (or against) an association, (3) statements about associations embedded within other statements about the status of evidence for these associations, (4) statements of association that are deemed credible, but that still bear repetition, and (5) statements corresponding to acknowledged "facts." The work of science is the stabilization (or destabilization) of statements about matters of interest. "A laboratory is constantly performing operations on statements; adding modalities, citing, enhancing, diminishing, borrowing, and proposing new combinations. Each of these operations can result in a statement which is either different or merely qualified. Each statement, in turn, provides the focus for similar operations in other laboratories" (1986:86–87).

For example, prior to 1962, researchers had speculated that TRF(H) might exist. Culminating from the research of this lab in 1962, researchers came to believe in TRF(H) and now speculated whether it was or was not a peptide. Speculation continued until January 1969 when TRF(H) was confirmed as peptide and its chemical components analyzed. In April 1969, researchers proposed alternative structures of TRF(H), excluding others as implausible. And in November 1969, the structure was confirmed (from among structures previously judged implausible). Thus, though not always in linear sequence, new "things," such as TRF(H), are created from others already accepted as real.

> Scientific activity is not "about nature," it is a fierce fight to *construct* reality. The *laboratory* is the workplace and the set of productive forces, which makes construction possible. Every time a statement stabilises, it is reintroduced into the laboratory (in the guise of a machine, inscription device, skill, routine, prejudice, deduction, programme, and so on), and it is used to increase the difference between statements. The cost of challenging the reified statements is impossibly high. Reality is secreted. (1986:243)

Latour and Woolgar claim that, once a new thing has been established as real, it is embodied in equipment and technique. It is taken for granted, difficult to dislodge from reality. And the social circumstances of its creation are forgotten.

With laudable consistency, Latour and Woolgar conclude by examining their own research activity by the same standards they use to examine the inventors of TRF(H). They conclude, "In a fundamental sense, our own account is no more than *fiction*" (1986:257; emphasis in original).

Although this cultural perspective illuminates the evolution of scientific knowledge, I believe that its proponents' ideas about reality are untenable. Moreover, these ideas are not only unnecessary for their analysis, but make the whole enterprise futile and vacuous. Like Berger and Luckmann, Latour and Woolgar appear to believe both that there are "facts" and "reality" independent of human knowledge and that facts and reality are human "constructions," "fictions." They concede to "facts" and "reality" parenthetically and apologetically, while insisting adamantly on the essence of human invention. They give minimal credence to the referents of these realities—what they are about—for example, sicknesses. They seem to assume that there is no physical and biological reality, independent of human ideas, from which cultural realities are constructed.

In my view, human knowledge is, perhaps inevitably, imperfect. Our knowledge is persistently based on interpretation, shaped by prior interpretations and by observations framed by interpretation. But our interpretations and observations are objectively constrained by the physical and other realities we observe. Misinterpretations and poor (unobjective) observations may lead to actions that indicate our error. Our knowledge evolves and may increasingly approximate truth. We propose principles and standards, themselves subject to examination and improvement, by which to judge and advance our knowledge. In contrast, the constructionist cultural perspective eliminates standards of evidence and standards of inference. There are no grounds to stand on, no grounds to judge our own work or the work of others. Indeed we have no reason to judge since all is interpretation.

POLITICAL/ECONOMIC THEORIES

Over the past decade, a movement referred to by its proponents as "critical medical anthropology" has grown in reaction to approaches described by proponents as "conventional"—that is, ecological and cultural theories. Although the specific referent of the "critical" perspective is not made explicit, the writings of proponents indicate several candidates: Biomedicine itself, the capitalist society whose interests Biomedicine is said to serve, and conventional forms of medical anthropology. Critical medical anthropologists have several specific complaints about conventional medical anthropology (Singer 1989; Morsy 1990).

They complain that the ecological approach to sickness and healing ignores the role of power in society in controlling factors such as "ownership of the means of production, export of capital, extraction of profit, and racial and sexual oppression that underlie and ultimately determine human response to the physical environment" (Singer 1989:1194). Human populations do not interact directly with their environments; rather, populations are organized by societal rules, backed by consensus and/or force, which differentially

allocate control over material hazards and material resources. The human benefits (and harms) of interaction with the physical environment are unequally distributed in society. Societal changes that are adaptive for one societal segment may be detrimental for another segment.

Critical medical anthropologists also claim that, by focusing on isolated populations and circumscribed settings, for example, in medical clinics or so-called traditional societies, conventional, noncritical anthropologists have failed to consider the broader social forces that shape these settings and populations. Omafume Onoge describes this flawed approach as a "truncated sociology" (1975:221). Conventional anthropologists have ignored the influence of capitalist social organization (for example, the accumulation of corporate profit by entrepreneurs) on medical settings in Western societies; they have also ignored the forces of colonialism and the capitalist "world system" affecting sickness and healing in so-called traditional societies whose apparent isolation is illusory. With an emphatic political connotation, critical medical anthropologists define "health" as "access to and control over the basic material and non-material resources that sustain and promote life at a high level of satisfaction" (Baer, Singer, and Johnsen 1986:95). They argue that the economic forces of capitalism are manifest not only at international and national levels, but in local settings and local relationships as well, resulting in an unequal societal distribution of sickness and healing.

Several social scientists have explored effects of the international economic world system on the world distribution of sickness and healing (for example, Elling 1981; Onoge 1975). Onoge and others (such as Navarro 1976; Taussig 1978; Brown 1979) have argued that, rather than promoting the health of third world countries, colonialism and imperialism have served capitalist interests, while degrading the health status of its subjects, causing underdevelopment rather than alleviating it. Fertile land has been appropriated for the cultivation of crops to be exported to the colonists' home nations, thus reducing traditional sources of nutrition and trade; laborers have been forced to migrate to earn meager wages under minimal conditions, disrupting family and community connections; colonized people have been persuaded to consume goods from the colonists' home nations—at high cost and frequently little benefit, and resulting in dependency on the colonizers; and colonial medicine has served the exploitive goals of the colonists, assuring human capital for labor. Onoge argues that the systems of exploitation left by colonists have often been retained by new national governments.

Analysts of the capitalist world system have distinguished a core of entrepreneurial nations that direct the system and accumulate its profits from both a periphery of nations where natural resources are extracted and poorly paid laborers are employed in the production of goods and a semiperiphery of nations that occupy an intermediate position. Ray Elling has analyzed the effects of this system on the health and sickness of its participants (1981). To begin, there is a strong inverse correlation between per capita gross national product and national rates of infant mortality. Conversely, there is a direct correlation between per capita gross national product and life expectancy. There is also what Elling refers to as "comerciogenic malnutrition," that is, not only the restriction of traditional land use noted above, but also the export to peripheral nations of inappropriate dietary products—for example, baby formula for routine use. Elling also notes examples of the export of drugs that are either banned or whose use is highly restricted in core nations, but are freely, probably inappropriately, dispensed in peripheral nations. Elling notes a study of this phenomenon by Mintz (1979) entitled, "If There Are No Side-Effects, This Must Be Honduras." Hazardous industry—for example, the production of asbestos products—may also be exported to peripheral nations, a phenomenon known as "dumping." Critical theorists argue that the core nation programs for the accumulation of profit are often cloaked in ideologies of benevolent assistance and development.

Critical medical anthropologists call conventional colleagues to task for adopting an "ahistorical, apolitical, and cultural relativistic stance" (Morsy 1990:27). The relativistic stance assumes that societies are integrated systems of customs, values, roles, and institutions that all fit together and are comprehensible as a whole. This assumption has been pejoratively referred to as "socioculturalism" (Onoge 1975:221). The sociocultural position tends to place blame for poor health in impoverished and/or underdeveloped areas on the victims of those settings, insofar as their cultural beliefs and practices are regarded as obstacles to proper medical treatment. In addition, non-Western medical traditions are regarded as nonscientific, if not irrational. But, Onoge points out, "surely it must have required an exploratory scientific attitude toward the ecology to select out what was edible from the billions of weeds. It required an experimental attitude to achieve the feat of processing vegetables and tubers that are poisonous in their natural state into safe items for the palate" (1975:222).

In contrast to the sociocultural view, the critical perspective posits that societies, at least capitalist societies and societies under the influence of capitalism, are not harmonious, integrated wholes, but are riddled by conflicts and struggles among social classes—principally the classes that control resources and those whose labor produces wealth, but who do not benefit proportionately. When societies are examined in terms of their historical and political relations with other societies, critical medical anthropologists argue, conflict and struggle become apparent.

In the same way that early anthropologists who worked in colonial settings have been accused of having produced "colonialism's social science," so conventional medical anthropologists are accused of reinforcing "the medical monopoly on human suffering," the exclusive control by the Biomedical profession in defining sickness and treating it (Singer 1989:1194). Critical medical anthropologists fault their colleagues for not reflecting on their own perspective as the product of historical and political circumstances. They

argue that the conventional discipline has been "a handmaiden of medical imperialism," serving the interests of Biomedicine by working to facilitate doctor-patient communication in clinical settings. They refer to the co-optation of medical anthropologists within Biomedicine as "the medicalization of medical anthropology" (Singer 1989:1194). Traditional anthropologists perpetuate the capitalist relations of oppression and exploitation, instead of working toward a radically new medical system and a radical transformation of existing social and economic relationships (Baer, Singer, and Johnsen 1986:97). What is regarded as revolutionary in the cultural perspective (for example, Kleinman, Eisenberg, and Good 1978) becomes complicit tinkering in the view of critical medical anthropologists.

Critical medical anthropologists have an explicit political agenda; consistent with their agenda, their writings read like political arguments as well as scientific analyses. The new order they envision is based in broad societal reform and the egalitarian social distribution of resources. They focus on prevention rather than on curative medicine and on primary rather than tertiary specialty care of patients in the later stages of sickness. They encourage community participation in health decisions. Critical medical anthropologists hope that in these transformations, their discipline will serve as "a vanguard of social liberation" (Baer, Singer, and Johnsen 1986:97).

A THEORY COMBINING THE BEST OF OTHER THEORIES

I find much merit in each of the three basic theories I have reviewed. I reject, however, both reductionist and emergentist claims that all matters of sickness and healing are explained either solely or not at all by other specific chosen phenomena. Instead, I maintain the interactionist position that the world consists of phenomena of different levels that are neither entirely determined by or entirely autonomous of each other. For example, lower-level physiological phenomena, such as genes, cells, and body organs, constrain the functioning of higher-level phenomena, such as thought, culture, and society; but higher-level phenomena may affect lower-level ones as well. I thus consider theoretical principles insofar as they do not profess exclusivity. I suggest in chapter 4 that systems theory provides a useful framework in which to examine the interactions among levels of phenomena. Systems theory has been applied to matters of sickness and healing by Howard Brody (Brody and Sobel 1979) and George Engel (Engel 1980).

Any theory, including a theory of sickness and healing, is itself part of a cultural system, namely the theorist's. It is an interpretation of observed events framed by particular concepts and values. Science is associated with particular kinds of theories characterized by adherence to basic principles, among them, the validity of concepts, the examination of hypotheses by

systematic observation, and pursuit of consistency among theory, method, and observation. Speculation, intuition, and imagination are integral elements of the scientific process whose results should be rationally scrutinized and empirically tested before accepted as valid. I have suggested that several conceptual and speculative elements in sociobiology, cultural materialism, and the cultural perspective fail to meet rational or empirical standards.

Although I cannot here propose a detailed theory of sickness and healing, my theory would include principles of human evolution and human culture. Humans adapt to novel environmental events and commonly alter their environments in doing so. As evidenced by the evolution of humans, malaria, and the physical environment in Africa, cultural practices may affect an environment and, by doing so, subsequently modify the biological characteristics of the human population. Knowledge of the local culture allows prediction of its adherents' responses in new environmental circumstances.

While I believe that a comprehensive theory of sickness and healing must consider adaptation and culture, my own theory would begin with the position of critical medical anthropology, for several reasons. First, as critical medical anthropologists clearly recognize, events that occur in social settings are powerfully influenced by forces emanating from far beyond those settings; the understanding of local events must take wider forces into account. Second, power, including the control of exposures to sickness and resources for healing, is unevenly distributed in most societies; the understanding of sickness and healing must take into account the local and global maldistribution of power. Third, theories, including anthropological theories of sickness and healing, are themselves elements of a culture, principally a Western, developed-world culture; the roots and values of this culture must be acknowledged and made explicit. And fourth, research and theorizing are themselves social acts; they must be made ethical acts. Where injustice and inequity prevail, scholars must strive not to rationalize the system (which may support their work) but to unmask and remake it.