

social and cultural phenomena initially but not exclusively from an etic perspective. The social nature of human groups is inferred from the density of interaction among human beings found in a particular spatial and temporal locus. Cultural materialists do not have to know whether the members of a particular human population think of themselves as a “people” or a group in order to identify them as a social group. Nor does the interaction among the members of such a group have to be primarily supportive and cooperative in order for it to be considered social. The starting point of all sociocultural analysis for cultural materialists is simply the existence of an etic human population located in etic time and space. A society for us is a maximal social group consisting of both sexes and all ages and exhibiting a wide range of interactive behavior. Culture, on the other hand, refers to the learned repertory of thoughts and actions exhibited by the members of social groups—repertories transmissible independently of genetic heredity from one generation to the next. (A more extended discussion of the nature of culture will be found in Chapters 5 and 9.) The cultural repertories of particular societies contribute to the continuity of the population and its social life. Hence the need arises for speaking of sociocultural systems, denoting the conjunction of a population, a society, and a culture, and constituting a bounded arrangement of people, thoughts, and activities. The systemic nature of such conjunctions and arrangements is not something to be taken for granted. Rather, it is a strategic assumption that can be justified only by showing how it leads to efficacious and testable theories.

The Universal Pattern

CULTURAL MATERIALIST theoretical principles are concerned with the problem of understanding the relationship among the parts of sociocultural systems and with the evolution of such relationships, parts, and systems. Alternative strategies construe these parts in radically different ways, and many inadequacies of substantive theories are already foreshadowed in general models of the structure of sociocultural systems. Consider, for example, the recurrent cognitive and behavioral components anthropologist Clark Wissler (1926) called the “universal pattern”—components allegedly present in all human societies:

Chapter Three

Theoretical Principles of Cultural Materialism

ONE CANNOT PASS directly from a description of the ways of knowing about a field to the principles useful for building networks of interrelated theories. First, I have to say something about what’s in the field—its major components or sectors. So far I’ve referred only to the etics and emics of human thought and behavior. But other components remain to be identified before the strategic principles of cultural materialism can be described.

The limitations of alternative research strategies are very much a consequence of how they conceptualize the nature of human societies and cultures. Idealist strategies approach the definition of social and cultural phenomena exclusively from an emic perspective: society exists to the extent that participants view themselves as members of social groups, sharing common values and purposes; social action is a special kind of behavior identified by the social intentions of the participants; and culture consists exclusively of the shared emics of thought and behavior. In extreme versions, such as those associated with cognitivism (see Chapter 9), even the emics of behavior are dropped and culture is restricted to rules allegedly guiding behavior without any investigation of the behavior itself.

On the other hand, cultural materialists approach the definition of

Speech	Knowledge	Property
Material traits	Religion	Government
Art	Society	War

Both epistemological and theoretical problems abound in Wissler's scheme. Note, for example, that the separately listed "material traits"—by which he meant such things as tools, buildings, clothing, and containers—are logically present in at least art, religion, property, government, and war; that "knowledge" must occur in all the other rubrics; that there are such glaring omissions as "economy," "subsistence," "ecology," "demography"; and finally, that it is dubious that "war" and "religion" are universal traits. These defects flow from Wissler's failure to specify the epistemological status of the rubrics in terms of taxonomic principles that would justify the contraction or expansion of the list by reference to systemic structural relationships among its components.

Murdock's Categories

THE RUBRICS under which entries in George Peter Murdock's *World Ethnographic Atlas* (1967) are arranged share the same defects. In the computer punch card version of the atlas, these are the components of sociocultural systems:

Subsistence economy	Type and intensity of agriculture
Mode of marriage	Settlement pattern
Family organization	Mean size of local communities
Marital residence	Jurisdictional hierarchy
Community organization	High gods
Patrilineal kin groups and exogamy	Types of games
Matrilineal kin groups and exogamy	Postpartum sex taboos
Cognatic kin groups	Male genital mutilations
Cousin marriage	Segregation of adolescent boys
Kinship terminology for first cousins	Metal working
	Weaving

Leather working	Succession to office of local headman
Pottery	Inheritance of real property
Boat building	Inheritance of movable property
House construction	Norm of premarital sex behavior of girls
Gathering	Ground plan of dwelling
Hunting	Floor level
Fishing	Wall material
Animal husbandry	Shape of roof
Agriculture	Roofing material
Type of animal husbandry	Political integration
Descent	Political succession
Class stratification	Environment
Caste stratification	
Slavery	

Part of the explanation for the peculiar "laundry list" variations in the coverage and focus of these categories (from slavery to shape of roof) is that they reflect the content of ethnographic monographs and are intended to facilitate the tabulation of what is available for tabulation. But that is only part of the story. Note also the neglect of the emic/etic distinction. This neglect adversely affects cross-cultural correlation studies that involve such categories as community organization, mode of marriage, family organization, marital residence, exogamy, jurisdictional hierarchy, clan stratification, and caste stratification—all of which exhibit emphatic emic/etic contrasts. Of course, here, too, the categorizations reflect the fuzzy epistemologies of the anthropologists who have contributed to ethnographic knowledge. But this weakness has been compounded in the coding operations Murdock and his associates employ. For example, the code for postmarital residence refers to "normal residence" without distinguishing between normal in the sense of on-the-ground etic averages or normal in the sense of "normative"—i.e., emically agreed to as the proper or ideal form by a majority of those interviewed.

As we shall see in Chapter 10, it is no accident that cross-cultural survey theories also look like open-ended laundry lists. Murdock and his followers have operated under an eclectic research strategy whose characteristic substantive theoretical products are fragmentary, isolated, and mutually opposed generalizations of limited scope. The laundry list of categories out of which such generalizations are constructed both

The commitment to the emics of mental life actually extends to the remaining five items as well, however, since in Talcott Parsons's theory of action, every aspect of social life must be approached from the standpoint of the actor's mental goals, thoughts, feelings, and values. The idealist bias here is also painfully evident in the proposal that *shared* cognitive orientations and *shared* articulated sets of goals are functional prerequisites for social survival, when as a matter of fact there is overwhelming evidence to the contrary, not only from complex state societies divided by bitter class, ethnic, and regional conflict, but in very simple societies as well, where sex and age antagonisms bespeak of fundamentally opposed value orientations. Note also the lack of concern with production, reproduction, exchange, and consumption—demographic and economic categories that cannot easily be crammed into "adequate relationship to the environment and sexual recruitment." Production, exchange, and consumption are not merely relationships with the environment; they denote relationships among people as well. Moreover, from retrospective comments made by Parsons (1970), the absence of "economy" in this scheme can only be understood as a visceral rejection of any form of Marxist determinism.

Universal Pattern in Cultural Materialist Strategy

THE UNIVERSAL structure of sociocultural systems posited by cultural materialism rests on the biological and psychological constants of human nature, and on the distinction between thought and behavior and emics and etics. To begin with, each society must cope with the problems of production—behaviorally satisfying minimal requirements for subsistence; hence there must be an *etic behavioral mode of production*. Second, each society must behaviorally cope with the problem of reproduction—avoiding destructive increases or decreases in population size; hence there must be an *etic behavioral mode of reproduction*. Third, each society must cope with the necessity of maintaining secure and orderly behavioral relationships among its constituent groups and with other societies. In conformity with mundane and practical considerations, cultural materialists see the threat of disorder arising primarily from the economic processes which allocate labor and the material products of labor to individuals and groups. Hence, depending on whether the focus of organization is on domestic groups or the internal and external relationships of the whole society, one may infer the

condition and reflect the chaotic nature of the theoretical products of most cross-cultural surveys.

Parsonian Rubrics

IN 1950 A GROUP of five anthropologists and sociologists who subscribed to the research strategy of structural-functionalism associated with the work of Harvard sociologist Talcott Parsons (see p. 279) drew up a list of universal components based on the identification of the "functional prerequisites of a society" (Aberle et al., 1950). The authors specified nine categories as "the generalized conditions necessary for the maintenance of the system":

1. Provision for adequate relationship to the environment and for sexual recruitment
2. Role differentiation and role assignment
3. Communication
4. Shared cognitive orientations
5. Shared articulated set of goals
6. Normative regulation of means
7. Regulation of affective expression
8. Socialization
9. Effective control of disruptive forms of behavior

The logic behind this list is that each item is supposedly necessary to avoid certain conditions which would terminate the existence of any society—namely, the biological extinction or dispersion of its members, the apathy of its members, "the war of all against all," or the absorption of a society by another one. As the proponents of this scheme themselves insisted, their notions about functional prerequisites were integrally linked to their acceptance of Parsons's structural-functional research strategy. Structural-functionalism, the most influential strategy in the social sciences in the United States and Great Britain during the period 1940 to 1965, is a variety of cultural idealism, much criticized for its inability to deal with social evolution and political-economic conflict. Its strategic biases are implicit in the preponderance among the alleged functional prerequisites listed above of emic and mental items such as cognitive orientations, shared goals, normative regulation, and affective expressions.

universal existence of *etic behavioral domestic economies* and *etic behavioral political economies*. Finally, given the prominence of human speech acts and the importance of symbolic processes for the human psyche, one can infer the universal recurrence of productive behavior that leads to etic, recreational, sportive, and aesthetic products and services. *Behavioral superstructure* is a convenient label for this universally recurrent etic sector.

In sum, the major etic behavioral categories together with some examples of sociocultural phenomena that fall within each domain are:

Mode of Production: The technology and the practices employed for expanding or limiting basic subsistence production, especially the production of food and other forms of energy, given the restrictions and opportunities provided by a specific technology interacting with a specific habitat.

Technology of subsistence
Techno-environmental relationships
Ecosystems
Work patterns

Mode of Reproduction: The technology and the practices employed for expanding, limiting, and maintaining population size.

Demography
Mating patterns
Fertility, natality, mortality
Nurturance of infants
Medical control of demographic patterns
Contraception, abortion, infanticide

Domestic Economy: The organization of reproduction and basic production, exchange, and consumption within camps, houses, apartments, or other domestic settings.

Family structure
Domestic division of labor
Domestic socialization, enculturation, education
Age and sex roles
Domestic discipline, hierarchies, sanctions

Political Economy: The organization of reproduction, production, exchange, and consumption within and between bands, villages, chiefdoms, states, and empires.

Political organization, factions, clubs, associations, corporations
Division of labor, taxation, tribute
Political socialization, enculturation, education
Class, caste, urban, rural hierarchies
Discipline, police/military control
War

Behavioral Superstructure:

Art, music, dance, literature, advertising
Rituals
Sports, games, hobbies
Science

I can simplify the above by lumping the modes of production and reproduction together under the rubric *infrastructure*; and by lumping domestic and political economy under the rubric *structure*. This yields a tripartite scheme:

Infrastructure
Structure
Superstructure

However, these rubrics embrace only the etic behavioral components of sociocultural systems. What about the mental components? Running roughly parallel to the etic behavioral components are a set of mental components whose conventional designations are as follows:

<i>Etic Behavioral Components</i>	<i>Mental and Emic Components</i>
Infrastructure	Ethnobotany, ethnozoology, subsistence lore, magic, religion, taboos

Etic Behavioral Components *Mental and Etic Components*

- Structure Kinship, political ideology, ethnic and national ideologies, magic, religion, taboos
- Etic superstructure Symbols, myths, aesthetic standards and philosophies, epistemologies, ideologies, magic, religion, taboos

Rather than distinguish the mental and etic components according to the strength of their relationship to specific etic behavioral components, I shall lump them together and designate them in their entirety as the *mental and etic superstructure*, meaning the conscious and unconscious cognitive goals, categories, rules, plans, values, philosophies, and beliefs about behavior elicited from the participants or inferred by the observer. Four major universal components of socio-cultural systems are now before us: the etic behavioral infrastructure, structure, and superstructure, and the mental and etic superstructure.

Language Again

ONE CONSPICUOUS omission from the above scheme is the category "language." It should be clear from the discussion of speech acts (p. 42) that studies of etic components usually involve the identification of speech acts and other communication events. For example, the description of domestic hierarchies by means of requests and commands to requests shows that such hierarchies involve communication components that can be studied by means of etic operations. Since communication acts, especially speech acts, usually occur in human scenes of even moderate duration, all major etic rubrics are to some degree built up out of the observation of communication events. Communication, including speech, serves a vital instrumental role in coordinating infrastructural, structural, and superstructural activi-

ties; hence it cannot be regarded as belonging exclusively to any one of these divisions. Moreover, communication in the form of speech acts is also the very stuff out of which much of the mental and etic superstructure is built. Hence language per se cannot be viewed as an exclusively infrastructural, structural, or superstructural component, nor as an exclusively behavioral or mental phenomenon.

Another important reason for not including language as a separate component in the universal pattern is that cultural materialism makes no claims concerning the functional relationship between infrastructure and the *major* phonemic and grammatical features of particular families of languages. Cultural materialism does not hold, for example, that particular modes of production and reproduction cause people to speak Indo-European rather than Uto-Aztecan languages. (But cultural idealists have proposed the now discredited theory that Indo-European grammatical categories led to the Industrial Revolution—see Whorf, 1956.)

We are now finally in a position to state the theoretical principles of cultural materialism.

The Major Principles of Cultural Materialism

THE KERNEL of the principles that guide the development of interrelated sets of theories in the strategy of cultural materialism was anticipated by Marx (1970 [1859]:21) in the following words: "The mode of production in material life determines the general character of the social, political, and spiritual processes of life. It is not the consciousness of men that determines their existence, but on the contrary, their social existence determines their consciousness." As stated, this principle was a great advance in human knowledge, surely equivalent in its time to the formulation of the principle of natural selection by Alfred Wallace and Charles Darwin. However, in the context of modern anthropological research, the epistemological ambiguities inherent in the phrase "the mode of production," the neglect of "the mode of reproduction," and the failure to distinguish emics from etics and behavioral from mental impose the need for reformulation.

The cultural materialist version of Marx's great principle is as follows: The etic behavioral modes of production and reproduction probabilistically determine the etic behavioral domestic and political economy, which in turn probabilistically determine the behavioral and

mental emic superstructures. For brevity's sake, this principle can be referred to as the principle of infrastructural determinism.

The strategic significance of the principle of infrastructural determinism is that it provides a set of priorities for the formulation and testing of theories and hypotheses about the causes of sociocultural phenomena. Cultural materialists give highest priority to the effort to formulate and test theories in which infrastructural variables are the primary causal factors. Failure to identify such factors in the infrastructure warrants the formulation of theories in which structural variables are tested for causal primacy. Cultural materialists give still less priority to exploring the possibility that the solution to sociocultural puzzles lies primarily within the behavioral superstructure; and finally, theories that bestow causal primacy upon the mental and emic superstructure are to be formulated and tested only as an ultimate recourse when no testable etic behavioral theories can be formulated or when all that have been formulated have been decisively discredited. In other words, cultural materialism asserts the strategic priority of etic and behavioral conditions and processes over emic and mental conditions and processes, and of infrastructural over structural and superstructural conditions and processes; but it does not deny the possibility that emic, mental, superstructural, and structural components may achieve a degree of autonomy from the etic behavioral infrastructure. Rather, it merely postpones and delays that possibility in order to guarantee the fullest exploration of the determining influences exerted by the etic behavioral infrastructure.

Why Infrastructure?

THE STRATEGIC priority given to etic and behavioral production and reproduction by cultural materialism represents an attempt to build theories about culture that incorporate lawful regularities occurring in nature. Like all bioforms, human beings must expend energy to obtain energy (and other life-sustaining products). And like all bioforms, our ability to produce children is greater than our ability to obtain energy for them. The strategic priority of the infrastructure rests upon the fact that human beings can never change these laws. We can only seek to strike a balance between reproduction and the production and consumption of energy. True, through technology we have achieved a considerable capacity to raise and lower productive and

reproductive rates. But technology in turn confronts a series of physical, chemical, biological, and ecological laws that likewise cannot be altered and that necessarily limit the rate and direction of technological change and hence the degree of control which can be achieved over production and reproduction by technological intervention in a specific environmental context. Moreover, all such interventions are limited by the level of technological evolution—a level that cannot be altered by an instantaneous act of will—and by the capacity of particular habitats to absorb various types and intensities of techno-economies without undergoing irreversible changes.

Infrastructure, in other words, 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. The order of cultural materialist priorities from infrastructure to the remaining behavioral components and finally to the mental superstructure reflects the increasing remoteness of these components from the culture/nature interface. Since the aim of cultural materialism, in keeping with the orientation of science in general, is the discovery of the maximum amount of order in its field of inquiry, priority for theory building logically settles upon those sectors under the greatest direct restraints from the givens of nature. To endow the mental superstructure with strategic priority, as the cultural idealists advocate, is a bad bet. Nature is indifferent to whether God is a loving father or a bloodthirsty cannibal. But nature is not indifferent to whether the fallow period in a swidden field is one year or ten. We know that powerful restraints exist on the infrastructural level; hence it is a good bet that these restraints are passed on to the structural and superstructural components.

To be sure, much attention is now being paid to pan-human neuro-psychological "structural" restraints that allegedly oblige human beings to think in predetermined patterns. Later on I shall examine these structuralist claims rather carefully. In the meantime, what needs to be said is that if, as Lévi-Strauss claims, the human mind only thinks thoughts that "are good to think," the menu allows for an extraordinary diversity of tastes. No doubt human beings have species-specific patterns of thought—just as we have species-specific patterns of locomotion and body-heat disposal. But how shall we use this fact to account for the tremendous variation in world views, religions, and philosophies, all of which are indisputably equally "good to think"? Structural-

ists and other varieties of idealists are no more capable of answering this question than they are capable of explaining why human beings, who are naturally terrestrial bipeds, sometimes ride horses and sometimes fly through the air, or why, given a species-specific endowment of sweat glands, some people cool off by sitting in front of air conditioners while others sip hot tea.

The strategic advantage of infrastructural determinism as opposed to structuralism and sociobiology is that the recurrent limiting factors are variables that can be shown to exert their influence in measurably variable ways. This enables cultural materialism to construct theories that account for both differences and similarities. For example, the need to eat is a constant, but the quantities and kinds of foods that can be eaten vary in conformity with technology and habitat. Sex drives are universal, but their reproductive consequences vary in conformity with the technology of contraception, perinatal care, and the treatment of infants.

Unlike ideas, patterns of production and reproduction cannot be made to appear and disappear by a mere act of will. Since they are grounded in nature they can only be changed by altering the balance between culture and nature, and this can only be done by the expenditure of energy. Thought changes nothing outside of the head unless it is accompanied by the movements of the body or its parts. It seems reasonable, therefore, to search for the beginnings of the causal chains affecting sociocultural evolution in the complex of energy-expending body activities that affect the balance between the size of each human population, the amount of energy devoted to production, and the supply of life-sustaining resources. Cultural materialists contend that this balance is so vital to the survival and well-being of the individuals and groups who are its beneficiaries that all other culturally patterned thoughts and activities in which these individuals and groups engage are probably directly or indirectly determined by its specific character. But we do not contend this out of any final conviction that we know what the world is really like; we contend it merely to make the best possible theories about what the world is probably like.

Thought and Behavior

MUCH OF THE resistance to cultural materialism stems from what seems to be the self-evident truth that behavior is governed by thought

—that human social life is rule-governed. I criticize this viewpoint in Chapter 9, but some preliminary clarifications may be appropriate in the present context. What puzzles many people is how it can be maintained that behavior determines thought when their own behavior intuitively appears to be an acting out of mental goals and moral precepts. Take the case of technological change, which is so vital to the evolution of culture. In order for cultures to develop stone tools, bows and arrows, digging sticks, plows, ceramics, and machinery, didn't somebody first have to think about how to make such things?

Cultural materialism does not view inventors or any other human beings as zombie-like automata whose activities are never under conscious control. In asserting the primacy of the behavioral infrastructure over the mental and emic superstructure, cultural materialism is not addressing the question of how technological inventions and other kinds of creative innovations originate in individuals but rather how such innovations come to assume a material social existence and how they come to exert an influence on social production and social reproduction. Thoughts in the minds of geniuses like Hero of Alexandria, who invented the steam turbine in the third century, or Leonardo da Vinci, who invented the helicopter in the sixteenth century, cannot assume a material social existence unless appropriate material conditions for their social acceptance and use are also present. Furthermore, the recurrence of such inventions as ceramics and metallurgy independently in different parts of the world under similar infrastructural conditions suggests that not even the most original ideas happen only once. Indeed, from the uncanny way in which the invention of the steamship, telephone, airplane, photography, automobile, and hundreds of other patentable devices have been subjected to conflicting claims of priority by independent individuals and laboratories (cf. Kroeber, 1948), the conclusion seems inescapable that when the infrastructural conditions are ripe, the appropriate thoughts will occur, not once but again and again. Furthermore, there is ample evidence to indicate that some of the greatest inventions ever made—for example, agriculture—were known in thought for thousands of years before they began to play a significant role in the infrastructures of prehistoric societies (see pp. 85ff).

The intuition that thought determines behavior arises from the limited temporal and cultural perspective of ordinary experience. Conscious thoughts in the form of plans and itineraries certainly help individuals and groups to find a path through the daily complexities of

social life. But these plans and itineraries merely chart the selection of preexisting behavioral "mazes." Even in the most permissive societies and the richest in alternative roles, the planned actions—lunch, a lovers' tryst, an evening at the theater—are never conjured up out of thin air but are drawn from the inventory of recurrent scenes characteristic of that particular culture. The issue of behavioral versus mental determinism is not a matter of whether the mind guides action, but whether the mind determines the selection of the inventory of culturally actionable thoughts. As Schopenhauer said, "We want what we will, but we don't will what we want." Thus the human intuition concerning the priority of thought over behavior is worth just about as much as our human intuition that the earth is flat. To insist on the priority of mind in culture is to align one's understanding of sociocultural phenomena with the anthropological equivalent of pre-Darwinian biology or pre-Newtonian physics. It is to believe in what Freud called "the omnipotence of thought." Such a belief is a form of intellectual infantilism that dishonors our species-given powers of thought.

Individual Versus Group Selection

IT IS ESSENTIAL to the task of constructing cultural materialist theories that one be able to establish a link between the behavioral choices made by definite individuals and the aggregate responses of sociocultural systems. One must be able to show why one kind of behavioral option is more likely than another not in terms of abstract pushes, pulls, pressures, and other metaphysical "forces," but in terms of concrete bio-psychological principles pertinent to the behavior of the individuals participating in the system.

Another way to phrase this imperative is to assert that the selection processes responsible for the divergent and convergent evolutionary trajectories of sociocultural systems operate mainly on the individual level; individuals follow one rather than another course of action, and as a result the aggregate pattern changes. But I don't mean to dismiss the possibility that many sociocultural traits are selected for by the differential survival of whole sociocultural systems—that is, by group selection. Because intense intergroup competition was probably present among early human populations, provision must be made for the extinction of systems that were bio-psychologically satisfying to the individuals concerned, but vulnerable to more predatory neighbors,

with a consequent loss of certain cultural inventories and the preservation and propagation of others.

However, such group selection is merely a catastrophic consequence of selection operating on or through individuals. Cultural evolution, like biological evolution, has (up to now at least) taken place through opportunistic changes that increase benefits and lower costs to individuals. Just as a species does not "struggle to survive" as a collective entity, but survives or not as a consequence of the adaptive changes of individual organisms, so too do sociocultural systems survive or not as a consequence of the adaptive changes in the thought and activities of individual men and women who respond opportunistically to cost-benefit options. If the sociocultural system survives as a result of patterns of thought and behavior selected for on the individual level, it is not because the group as such was successful but because some or all of the individuals in it were successful. Thus a group that is annihilated in warfare can be said to have been selected for as a group, but if we want to understand why it was annihilated, we must examine the cost-benefit options exercised by its individual members relative to the options exercised by its victorious neighbors. The fact that some people sincerely act in order to help others and to protect the group does not alter this situation. Saints and heroes sacrifice their lives for the "good" of others. But the question of whether the others accept or reject that "good" remains a matter of the balance of individual costs and benefits. Society does not live by saints alone. Altruism, to be successful, must confer adaptive advantages on those who give as well as on those who take.

This is not to say that the direction of cultural change in the short run can be predicted by summing up what is the greatest good for the greatest number of people. Obviously there are many innovations which are bio-psychologically more satisfying to some members of a society than to others. Purdah, the veiling of women in Moslem societies, facilitates domestic and political control by men over women. Presumably the bio-psychological rewards of purdah are greater for men than for women—indeed, one might say that for the women there are severe penalties. But the men have the power to make their own well-being weigh more heavily in the balance of advantages and disadvantages than the well-being of women. The more hierarchical the society with respect to sex, age, class, caste, and ethnic criteria, the greater the degree of exploitation of one group by another and the less likely it is that the trajectory of sociocultural evolution can be calculated

from the average bio-psychological utility of traits. This leads to many puzzling situations in which it appears that large sectors of a society are acting in ways that diminish their practical well-being instead of enhancing it. In India, for example, members of impoverished menial castes avidly uphold the rule of caste endogamy and insist that marriages be legitimized by expensive dowries. Abstractly, it would appear that the members of such impoverished castes would be materially better off if they practiced exogamy and stopped insisting on big marriage payments. But the victims of the caste system cannot base their behavior on long-term abstract calculations. Access to such menial jobs as construction worker, toddy-wine maker, coir maker, and so forth depends on caste identity validated by obedience to caste rules. In the lower castes if one fails to maintain membership in good standing one loses the opportunity to obtain work even of the most menial kind, and plunges still further into misery. To throw off the weight of the accumulated privileges of the upper castes lies entirely beyond the practical capacity of those who are at the bottom of the heap; hence, perverse as it may seem, those who benefit least from the system ardently support it in daily life.

Bio-Psychological Constants

THE DANGER in postulating pan-human bio-psychological drives and predispositions is that one is tempted to reduce all sociocultural similarities to an imaginary genetic "biogram" (see p. 127), whereas most similarities as well as differences are due to sociocultural evolutionary processes. For reasons that I shall spell out during the discussion of biological reductionism in the next chapter, the most important observation that one can make about the human biogram is that it is relatively free from species-specific bio-psychological drives and predispositions. As a species we have been selected for our ability to acquire elaborate repertoires of socially learned responses, rather than for species-specific drives and instincts. Nonetheless, without postulating the existence of selective principles operating at the bio-psychological level, one cannot explain how infrastructure mediates between culture and nature.

It is better to begin with a minimal set of human bio-psychological selective principles than with one that tries to render a complete account of what it is to be human. Hence I shall list only four:

1. People need to eat and will generally opt for diets that offer more rather than fewer calories and proteins and other nutrients.
2. People cannot be totally inactive, but when confronted with a given task, they prefer to carry it out by expending less rather than more energy.
3. People are highly sexed and generally find reinforcing pleasure from sexual intercourse—more often from heterosexual intercourse.
4. People need love and affection in order to feel secure and happy, and other things being equal, they will act to increase the love and affection which others give them.

My justification for this list is that its generality is guaranteed by the existence of similar bio-psychological predispositions among most members of the primate order. You may wish to postulate that human beings also naturally seek to create music and art, to dichotomize, to rationalize, to believe in God, to be aggressive, to laugh, to play, to be bored, to be free, and so forth. By succumbing to the temptation to open this list to all nominations, you will rapidly succeed in reducing every recurrent cultural trait to the status of a biological given. But the adequacy of the list must be judged by the adequacy of the theories it helps to generate. The more parsimonious we are about granting the existence of bio-psychological constants, the more powerful and elegant will be the network of theories emanating from sociocultural strategies. Our object is to explain much by little.

Despite the parsimony of my list, everyone can immediately think of antithetical behaviors and thoughts. For the first, there is obesity, voluntary starvation, vegetarianism, and self-inflicted dietary pathology. For the second, there is the intensive expenditure of energy in sports and artistic performance. For the third, there is abstinence, homosexuality, masturbation. And for the fourth, there is infanticide, domestic strife, and exploitation. However, the existence of these apparently contradictory patterns is not necessarily fatal to the scheme as proposed. Nothing in the statement of pan-specific bio-psychological principles indicates that selection acting through the preferences of individuals will in the long term contribute to the maximization of anticipated results. On the contrary, the selection of maximizing traits recurrently leads to ecological depletions. Thus the pursuit of more proteins frequently ends up with people getting fewer proteins; the adoption of labor-saving devices ends up with people working harder; the escalation of male sexual activity leads to a systemic shortage of

women; and greater affective bonding transmuted by politics leads to greater exploitation of one class by another. These paradoxes do not invalidate the list of universals nor falsify the principles of cultural materialism; they merely expose the puzzles that cultural materialism proposes to solve more effectively than rival strategies.

Mode of Production and Relations of Production

NO GENERAL AGREEMENT exists as to what Marx meant by infrastructure or the mode of production (Legros, 1979). While he distinguished between the relations and the forces of production, both of these concepts involve fatal ambiguities. As I stressed in the previous chapter, Marx left the problem of objectivity unresolved. Lacking the concepts of emic and etic operations and indiscriminately mixing mental and behavioral phenomena, he bequeathed a heritage of Hegelian dialectical double talk now being pushed to extremes by new-wave Marxists (to be discussed in Chapter 8). I do not believe it is possible to divine what Marx really meant by the mode of production, nor what components he intended to put into it or take out of it.

Rather than argue about what Marx intended, let me simply explain my reasons for the inclusions and omission on p. 52. As a cultural materialist, I hold that infrastructure should consist of those aspects of a sociocultural system which enable one to predict a maximum number of additional components up to the behavior of the entire system if possible. I have therefore removed certain key aspects of what many Marxists mean by "relations of production" from infrastructure to structure and superstructure. The classic Marxist concept of "ownership of the means of production," for example, denotes differential access to the technology employed in subsistence production and hence is an organizational feature of structure rather than a part of infrastructure. The strategic significance of this departure is that I think it is possible to explain the evolution of the ownership of means of production as a dependent variable in relation to the evolution of demography, technology, ecology, and subsistence economy. It would seem futile to object to the removal of ownership from infrastructure until it can be shown that such an explanation cannot be achieved.

Similarly, I view patterns of exchange—e.g., reciprocity, redistribution, trade, markets, employment, money transactions—not as infrastructure but partly as etic structural components—aspects of domestic

and political economy—and partly as emic and mental superstructural components. Once again, the justification for this decision lies in the hope that patterns of exchange can be predicted from a conjunction of more basic variables.

Clearly, some aspects of ownership and exchange will never be predicted simply from a knowledge of the demographic, technological, economic, and environmental components. There are whole universes of phenomena concerning ownership and exchange in price-market settings, for example, which must be approached by means of the categories and models by which economists describe and predict monetary inputs and outputs, capital investments, wages and prices, and so forth. Let me emphatically renounce any pretension that all economic events and processes can be understood as mere reflexes of the modes of production and reproduction. Remember that cultural materialism asserts the strategic priority of etic and behavioral conditions and processes over emic and mental conditions and processes, and of infrastructural over structural and superstructural conditions and processes, but it does not deny the possibility that emic, superstructural, and structural components may achieve a degree of autonomy from the etic infrastructure. Rather, it merely postpones and delays that possibility in order to guarantee the fullest exploration of the determining influences exerted by the infrastructure. To regard price values, capital, wages, and commodity markets as structure and superstructure rather than infrastructure and to accord them a *degree* of autonomy in determining the evolution of contemporary sociocultural systems is not to reverse or abandon the strategic priorities of cultural materialism. The principles of cultural materialism remain applicable. These principles direct attention to the predominance of the behavioral etics of exchange over the mental emics of exchange, and to the role of the etic behavioral infrastructure in determining the conditions under which price-making markets and money economies have come into existence. Indeed, cultural materialism cannot be reconciled with classical Marxist interpretations of the inner dynamics of capitalism precisely because Marx accorded the essentially emic mental categories of capital and profits a predominant role in the further evolution of modern industrial society, whereas from the cultural materialist perspective the key to the future of capitalism lies in the conjunction of its etic behavioral components and especially in the feedback between political economy and the infrastructure (see pp. 226ff.).

The Modes of Reproduction and Production

CULTURAL MATERIALIST principles also depart radically from classical Marxism in regarding the production of children as part of the infrastructure. I believe that this departure is necessary in order to explain why modes of production undergo changes that result in systemic transformations and divergent and convergent evolution. Marx attempted to explain the change from one mode of production to another by relying on the Hegelian idea that social formations during the course of their existence develop internal contradictions that are at once the cause of their own destruction and the basis for the emergence of new social formations.

According to Marx, modes of production evolve through the development of contradictions between the means of production and the relations of production. "At a certain stage of their development the material forces of production in society come in conflict with the existing relation of production." That is, the relations of production (as, for example, private ownership and the profit motive) hold back the provision of material satisfactions; they become "fetters" on the production process. They are destroyed and replaced by "higher" relations of production (for example, communal ownership) that permit a more ample expression of the potential of the means of production (an economy of abundance instead of scarcity).

In Marx's dialectic of history no less than in Hegel's, each epoch or social formation is urged onward toward its inevitable negation by an uncanny teleological thrust. For Hegel, it was the growth of the idea of freedom; for Marx, the development of the forces of production. In order for Marx's contradiction between forces and relations to provide the motive force of a sociocultural evolution faithful to Hegel's vision of a spiritualized cosmos dialectically negating itself into a heavenly utopia, the mode of production must tend toward maximum realization of its power over nature. As Marx put it: "No social order ever disappears before all the productive forces for which there is room in it have been developed" (1970 [1859]: 21). Why should one expect this to be true?

I believe that demographic factors help to explain the historic expansion of productive forces. Hence, the necessity arises for speaking of a "mode of reproduction" whose effect upon social structures and ideology is no less important than that of the mode of production.

Anthropologists have long recognized that in broadest perspective cultural evolution has had three main characteristics: escalating energy budgets, increased productivity, and accelerating population growth.

(1) Over the long haul the amount of energy per capita and per local system has tended to increase. Cultures at the band level of development used less than 100,000 kilocalories per day; cultures at the level of tropical forest slash-and-burn farming villages, used about a million per day; neolithic mixed dry-farming villages, about 2 million per day; the early irrigation states of Mesopotamia, China, India, Peru, and Mesoamerica about 25 billion per day and modern industrial super-states over 50 trillion per day. (2) Production efficiency, measured as energy output per unit of human labor has also increased, rising, for example, from about 10 to 1 among hunters and gatherers to 20 to 1 among swidden farmers to 50 to 1 among irrigation agriculturalists. (3) And human population has increased. There was a global density of less than 1 person per square mile in 10,000 B.C. Today there are over 65 persons per square mile. Settlements grew from 25 to 50 persons per band; 150 to 200 per slash-and-burn village; 500 to 1,500 per neolithic mixed farming village. By 200 B.C. there were more people living in the great preindustrial oriental empires than in all the world ten thousand years earlier.

Why should all three of these factors have increased in unison? Marx never really confronted this question because like Malthus he implicitly assumed that population growth was inevitable. Modern anthropological and archaeological findings, however, don't support this assumption. During as many as two or three million years, hominid populations probably remained stationary or fluctuated within rather narrow limits. Why should population ever have begun to increase? It cannot be argued that it increased as a result of technological progress and rising standards of living. Two additional major evolutionary trends negate such an interpretation. First, despite the increase in technological efficiency, numbers of hours per capita devoted to subsistence increased rather than decreased, reaching a peak with the industrial wage labor system of nineteenth-century capitalism. Second, substantial decrements in quality of life measured in terms of nutritional intake, health, and longevity can be linked to population growth.

In other words, cultures have not generally applied the increments in techno-environmental efficiency brought about by the invention and application of "labor-saving devices" to saving labor but to increasing the energy throughput, which in turn has not been used to improve

living standards but to produce additional children. This paradox cannot be explained by the development of class stratification and exploitation, since it was also characteristic of classless societies and was if anything a cause rather than a consequence of the evolution of the state (see pp. 100ff).

The solution to the problem of why new and more efficient modes of production produced people rather than reduced labor and/or increased per capita consumption lies in the methods employed by pre-modern societies to limit population growth. Malthus correctly perceived that the mode of reproduction throughout the preindustrial epoch was dominated by malign population-regulating techniques involving severe forms of psycho-biological violence and deprivation. It is true that relatively benign techniques were also available, principally homosexuality, coitus interruptus, delayed marriage, postpartum sexual abstinence, masturbation, and prolonged lactation. But these measures alone or in combination in historically or ethnographically ascertainable frequencies cannot account for the remarkably slow (.0007 percent to .0015 percent per annum) rate of increase prior to the neolithic, nor for the less than .056 percent rate between the neolithic and the emergence of the first states (Carneiro and Hulse, 1966; Coale, 1974; Kolata, 1974; Van Ginneken, 1974). Additional means of regulation must be invoked to account for the small size of the human global population prior to 3,000 B.C. in view of the inherent capacity of healthy human populations to double their numbers in less than twenty-five years (Hassan, 1973). I believe that these additional measures involved assault against mother and fetus with whole body-trauma abortifacients, infanticide (especially female infanticide), and systematic selective nutritional neglect of infants, especially of female infants and of preadolescent girls (Divale and Harris, 1976; Polgar et al., 1972; Birdsell, 1968; Devereux, 1967). With mode of production held constant, and an average of only four births per woman, almost 50 percent of the females born must be prevented from reaching reproductive age if a population initially in reasonably good health is not to suffer severe setbacks in the quality of life in a very short time. This exigency constitutes a great determining force of prehistory.

Before the development of the state, infanticide, body-trauma abortion, and other malign forms of population control predisposed cultures which were in other respects adjusted to their habitats to increase production in order to reduce the wastage of infants, girls, and mothers.

In other words, because prehistoric cultures kept their numbers in line with what they could afford by killing or neglecting their own children, they were vulnerable to the lure of innovations that seemed likely to allow more children to live. Thus Malthus was correct in his surmise that population pressure exerted an enormous influence on the structure of pre-state societies (cf. Dally, 1971).

It has lately been established that pre-state populations generally stop growing when they reach as little as one-third of the maximum carrying capacity of their techno-environmental situation (Lee and Devore, 1968; Casteel, 1972). As we shall see, this has been interpreted by structural Marxists and others as a refutation of the importance of Malthusian forces. Yet no such interpretation is warranted until the nature of the restraints on population growth has been clarified. As I have just said, the evidence indicated that slow rates of population growth were achieved only at great psycho-biological costs through infanticide, abuse, and neglect. This means that even societies with constant or declining populations may be experiencing severe population pressure—or better said, severe reproductive pressure.

The payment of Malthusian costs may account for many specific features of pre-state societies. The most important of these is warfare. Malthus correctly identified warfare as one of the most important checks on population, but he misunderstood the conditions under which paleotechnic warfare occurred and how it functioned to control population growth. He also overestimated the influence of combat deaths upon the rate of growth of modern societies. Pre-state warfare probably does not regulate population through combat deaths but through its effect on the sex ratio, encouraging people to rear maximum numbers of males and minimum numbers of females. Thus pre-state warfare occurs not simply as an aberration caused by the failure of the mode of production to provide adequate subsistence—a view Marx (1973 [1857-58]:607-608) surprisingly enough shared with Malthus. Warfare also occurs as a systemic means of slowing population growth, conserving resources, and maintaining high per capita levels of subsistence. (As for state-level warfare, it is not a check on population but an incentive for rapid population increase and resource depletion [see p. 102].)

The inadequacy of Marx's treatment of what I have called the mode of reproduction resulted from his contemptuous dismissal (1857-58;

1973:606) of the works of the "baboon"* Malthus. Marx's rejection of Malthus was motivated by Malthus's contention that no change in political economy could eliminate poverty (cf. Meek, 1971). But one can recognize the importance of the mode of reproduction in determining the course of sociocultural evolution without endorsing Malthus's reactionary view of history. By rejecting the totality of Malthus's work, Marx cut his followers off from collaborating in the development of a theory of human demography and ecology without which the divergent and convergent transformations of modes of production and their corresponding superstructures cannot be understood. There is no more important aspect of production than reproduction—the production of human beings. While there are structural and superstructural aspects to the modes of population control, the central issue has always been the challenge the biology of sexual reproduction presents to culturally imposed restraints. In this sphere, as in subsistence production, technological advances are of the greatest import, the only difference being that for production it is the means of increase that is decisive, while for reproduction, it is the means of decrease that is decisive. The failure to accord the development of the technology of population control a central role in the evolution of culture does great damage to the credibility of both classical and new-wave Marxist principles and theories.

If it is objected that much of what I have been saying about the relationship between production and reproduction is speculative and in need of further empirical tests, I surely agree. But the fact that an important original and coherent set of testable theories—I shall present more of them in the next chapter—can be formulated by including the mode of reproduction in the infrastructure is a cogent reason for doing so, even though the theories themselves need to be tested by further research.

The Role of Structure and Superstructure

ONE COMMON criticism of cultural materialism is that it reduces structure and superstructure to mechanical epiphenomena that play only a passive role in the determination of history. From this, critics infer that cultural materialism is a doctrine of political and ideological

*Among the other characterizations reserved for Malthus: "plagiarist by profession," "shameless sycophant," "a bought advocate."

apathy and inaction. One might very well wish to question the value of a research strategy which holds that political and ideological struggle are futile because the outcome is determined exclusively by the infrastructure. However, the strategy of cultural materialism is incompatible with any such conclusion. Then what precisely is the role of structure and superstructure in the causal determinations anticipated by cultural materialist strategy?

As I have said in previous sections, infrastructure, structure, and superstructure constitute a sociocultural system. A change in any one of the system's components usually leads to a change in the others. In this regard, cultural materialism is compatible with all those varieties of functionalism employing an organismic analogy to convey an appreciation of the interdependencies among the "cells" and "organs" of the social "body."

The conceptualization of the interrelationships in question can be improved by introducing a distinction between system-maintaining and system-destroying interdependencies. The most likely outcome of any innovation—whether it arises in the infrastructure, structure, or superstructure—is system-maintaining negative feedback, the dampening of deviation resulting either in the extinction of the innovation or in slight compensatory changes in the other sectors, changes which preserve the fundamental characteristics of the whole system. (For example, the introduction of progressive federal income taxes in the United States was followed by a series of privileged exemptions and "shelters" that effectively dampened the movement toward eliminating extremes of wealth and poverty.) However, certain kinds of infrastructural changes (for example, those which increase the energy flow per capita and/or reduce reproductive wastage) are likely to be propagated and amplified, resulting in positive feedback throughout the structural and superstructural sectors, with a consequent alteration of the system's fundamental characteristics. Cultural materialism denies that there is any similar class of structural or superstructural components whose variation leads as regularly to deviation amplification rather than to negative feedback.

The causal priority of infrastructure is a matter of the relative probability that systemic stasis or change will follow upon innovations in the infrastructural, structural or superstructural sectors. Cultural materialism, unlike classical structural-functionalism, holds that changes initiated in the etic and behavioral modes of production and reproduction are more likely to produce deviation amplifications

throughout the domestic, political, and ideological sectors than vice versa. Innovations initiated in the etic and behavioral structural sectors are less likely to produce system-destroying changes; and innovations arising in the emic superstructures are still less likely to change the entire system (due to their progressively remote functional relationships with the crucial infrastructural components). To take a familiar example: during the late 1960s many young people believed that industrial capitalism could be destroyed by a "cultural revolution." New modes of singing, praying, dressing, and thinking were introduced in the name of a "counterculture." These innovations predictably had absolutely no effect upon the structure and infrastructure of U.S. capitalism, and even their survival and propagation within the superstructure now seems doubtful except insofar as they enhance the profitability of corporations that sell records and clothes.

Nothing in this formulation of the probabilistic outcome of infrastructural changes warrants the inference that structure or superstructure are insignificant, epiphenomenal reflexes of infrastructural factors. On the contrary, structure and superstructure clearly play vital system-maintaining roles in the negative feedback processes responsible for the conservation of the system. Productive and reproductive processes are functionally dependent on etic domestic and political organization, and the entire etic conjunction is functionally dependent on ideological commitments to values and goals that enhance cooperation and/or minimize the costs of maintaining order and an efficient level of productive and reproductive inputs. It follows from this that ideologies and political movements which lessen the resistance to an infrastructural change increase the likelihood that a new infrastructure will be propagated and amplified instead of dampened and extinguished. Furthermore, the more direct and emphatic the structural and superstructural support of the infrastructural changes, the swifter and the more pervasive the transformation of the whole system.

In other words, although I maintain that the probability is high that certain kinds of changes in the modes of production and reproduction will change the system, I also maintain that functionally related changes initiated simultaneously in all three sectors will increase the probability of systemic change. Indeed, it would be irrational to assert that ideological or political struggle could not enhance or diminish the probability of systemic changes involving all three sectors. But the crucial question that separates cultural materialism from its rivals is this: to what extent can fundamental changes be propagated and am-

plified by ideologies and political movements when the modes of production and reproduction stand opposed to them? Cultural materialism holds that innovations are unlikely to be propagated and amplified if they are functionally incompatible with the existing modes of production and reproduction—more unlikely than in the reverse situation (that is, when there is an initial political and ideological resistance but none in the modes of production and reproduction). This is what cultural materialists mean when they say that in the long run and in the largest number of cases, etic behavioral infrastructure determines the nature of structure and superstructure.

To illustrate, let us consider the relationship between procreative ideologies, domestic organization, and the mode of production in the United States. When there was an agrarian homesteading, frontier infrastructure, families were large and women's roles as mother and unpaid domestic laborer were emphasized. With urbanization and the increasing cost of reproduction relative to benefits expected from children, women began to "raise their consciousness," demanding entrance to the general employment market on an equal basis with males. Clearly the consciousness-raising process has been an important instrument for liberating women from the role of domestic drudge. But one cannot argue that political-ideological struggle by women was responsible for the vast shifts in technology, production, demand for cheap labor, rise of cities, and increased costs of rearing children, and so forth—all of which provide the functional infrastructural conditions upon which the propagation and amplification of modern feminist political-ideological struggle is premised. In order to grasp the asymmetrical nature of the causal relationships between superstructure and infrastructure, let us suppose that somewhere isolated groups of men are beginning to engage in ideological and political struggle aimed at the revival of nineteenth-century sex roles. Can one assert that the decisive factor in their success or failure will be their commitment to their goal—their degree of political-ideological struggle? Scarcely, because in effect their viewpoint is not likely to be propagated or amplified as long as the present urban industrial infrastructure holds sway.

On the other hand, cultural materialism does not propose that goals will be achieved regardless of whether people struggle consciously to achieve them. Conscious political-ideological struggle is clearly capable of sustaining, accelerating, decelerating, and deflecting the direction and pace of the transformational processes initiated within the infrastructure.

The fear that infrastructural determinism deprives people of the will to engage in conscious struggle is based on an entirely false understanding of the status of politically and ideologically relevant cultural materialist theories. Infrastructure is not some simple, transparent, single-factor "prime mover"; rather, it is a vast conjunction of demographic, technological, economic, and environmental variables. Its description and analysis require enormous amounts of research whose results can only be presented as tentative and probabilistic theories and hypotheses. While some alternative political-ideological courses of action can be dismissed as virtually impossible, several alternative courses of action may appear to be supported by theories and hypotheses to which decisively different degrees of certainty cannot be assigned. Where equally probable alternative cultural materialist theories hold sway—as is often the case—the outcome of political ideological struggle will appear to be decisively influenced by the degree of commitment of the opposing factions and parties. For example, it is difficult to decide whether the productive and reproductive interests of certain low-population-density underdeveloped countries are effectively served by rapid or slow population increase. On the one hand, high rates of population growth intensify the exploitation of the poor; but on the other, slow rates of population growth may lead to labor shortages, underproduction, and the prolongation of economic and political-military subordination to imperialist superpowers. Theoretical ambiguities of this sort can be interpreted in two ways: either the outcome is genuinely open-ended—i.e., not infrastructurally determined but largely dependent upon the respective political-ideological commitments to population growth versus population control; or the outcome is highly determined, but the researchers have failed to provide the amounts or kinds of data necessary for identifying what that determined outcome is likely to be. I contend that from the point of view of the active participants it makes no difference which of these two interpretations one wishes to accept. Unless the theoretical ambiguity can be resolved, the outcome will appear to result from the degree of political-ideological commitment of the opposing factions. (However, the hope always remains that better data collection and better theories will eventually reduce the uncertainties.)

To sum up: cultural materialist theories may invoke different degrees of infrastructural causation ranging from virtual certainty to virtual indeterminacy. Along this entire range, structural and superstructural commitments appear to shape the final outcome through negative

and positive feedback processes, in inverse relationship to the ability of existing theories to identify the infrastructural determinants.

Some people assert that by upholding the primacy of the infrastructure, cultural materialism contributes to the "dehumanization" of the social sciences. To this I would reply that failure to attempt an objective analysis of the relationship between infrastructure and a particular set of political-ideological goals serves only those who benefit from the wanton waste of other people's lives and possessions. Self-deception and subjectivity are not the measures of being human. I do not accept the moral authority of obscurantists and mystics. They cannot take away the humanity of people who want to understand the world as well as to change it (see Chapter 11).

Dogmatism

THIS IS NO DOUBT an appropriate moment for me to reaffirm the scientific expectations that underlie these apparently dogmatic assertions. My scientific aim is to formulate interpenetrating sets of theories of broad scope and wide applicability. Such theories can arise only in the context of a definite strategy. It is by requiring every hypothesis worthy of research to implicate etic and behavioral demo-techno-econo-environmental variables that cultural materialism hopes to avoid the proliferating fragmentation of disconnected and mutually contradictory theories.

Against the charge that commitment to cultural materialism is dogmatism (cf. Anderson, 1973:187), there are three rejoinders. First, the credibility of the entire strategy rests upon the empirical status of the interpenetrating theories, and upon their continuous refinement and replacement by more powerful theories. In other words, all of the specific theories that flow from the principle of infrastructural determinism must be the object of continuing critical scrutiny and are held only as tentative approximations. Second, as a matter of existential fact, many competitive research strategies are now actively confronting each other in the social sciences. I do not advocate the elimination of these alternatives; I advocate professional and public evaluations of their respective ability to solve puzzles pertaining to socially significant issues. Elimination of all or most alternative strategies would be a scientific disaster, since the advance of science, as I have said, requires competitive strategies. It is senseless to criticize cultural materialism in

terms of a wholly imaginary future state of affairs in which all other strategic alternatives have somehow been eliminated, when under actual conditions, cultural materialism holds a subordinate, minority position within the social science establishment, and is subject to attack from numerous critics on both the left and right of the political spectrum. Third, the charge of dogmatism can easily be flung back at those who make it. If the strategic program advocated here is not acted upon, how can those who reject it pretend to know for certain that cultural materialism is not a more scientifically efficacious way to explain social-cultural differences and similarities than their own? The charge of dogmatism is admissible only on the level of theory; cultural materialists are fully committed to operationalism and to tests of verifiability and falsifiability. To repeat: research strategies cannot be falsified; only theories can be falsified (and only by those who offer better theories!). Nothing corresponds as much to the essence of dogma therefore as the belief that social scientists do not need to choose among research strategies before they embark upon the study of human social life.

Chapter Four

The Scope of Cultural Materialist Theories

THE VALUE of a research strategy does not reside in the profundity of its epistemological viewpoint or the luminosity of its abstract theoretical principles; it lies in the cogency of its substantive theories. Only the capacity of a research strategy's theories to penetrate beneath the surface of phenomena, to reveal new and unsuspected relationships, to tell us why and how things are what they are, can justify its existence. Furthermore, what we want from a strategy is not just a list of disjointed, isolated, and mutually irrelevant or contradictory theories, but an organized set of consistent and concise theories; not the definitive answer to every conceivable question, but tentative answers to important questions over broad and continuously expanding frontiers of knowledge.

A detailed exposition of the total corpus of cultural materialist theories together with the archaeological and ethnological evidence upon which they are based would fill many volumes. Obviously in a single chapter I cannot hope to satisfy the reader's right to know what these theories are about and at the same time provide a satisfactory account of their evidentiary basis.* What I can show, however, is that

*Since the issues covered in this chapter correspond to the subject matter of the entire field of social and cultural anthropology, I have refrained from attempting to