

THE RIDDLES OF CULTURE: Marvin Harris' Cultural Materialism

Cultural Materialism is a major anthropological theory that aims to demonstrate how the practical conditions of human life have a decisive influence on cultural patterns. American anthropologist Marvin Harris (1927-2001) first introduced the cultural materialist paradigm in his work *The Rise of Anthropological Theory* (1968) and he developed it further in *Cultural Materialism: The Struggle for a Science of Culture* (1979). This paper summarizes three of Harris' most popular (and controversial) books, which were written for a general audience and proposed scientific solutions for several "riddles of culture": *Cows, Pigs, Wars, and Witches* (1974), *Cannibals and Kings* (1977), and *Good to Eat* (1985). Additionally, it provides a brief outline of the theory of Cultural Materialism.

COWS, PIGS, WARS, AND WITCHES

This book seeks to explain the causes of apparently irrational or inexplicable lifestyles. Many customs and institutions seem mysterious because we have been taught to value "spiritualized" explanations of cultural phenomena. Each lifestyle comes wrapped in myths and legends that draw attention to impractical or supernatural conditions. Our everyday consciousness is mystified, isolated from the practical facts of life because of ignorance, fear, and conflict. "Everyday consciousness cannot explain itself."

The first cultural riddle Harris considers are India's sacred cows (he had first tackled this issue in a famous article: "The Cultural Ecology of India's Sacred Cattle," 1966). The average yield of whole milk from a humped-back zebu cow in India is 500 pounds a year, and half of India's cows give no milk at all (ordinary American dairy cattle produce 5,000 pounds, and champion milkers can give 20,000 pounds). The main economic function of the zebu cow is to breed male traction animals, not to produce milk. Nonetheless, their milk plays an important role in meeting the nutritional needs of numerous poor families. Indian cattle also produce 700 million tons of recoverable manure per year. Half of this total is used as fertilizer. Most of the rest is burned to provide heat for cooking. Some is mixed with water, made into a paste, and used as a household flooring material. American farmers stopped using manure when they began to plow with tractors. Around the world there has developed a vast, integrated petrochemical-tractor-truck industrial complex that produces farm machinery, motorized transport, oil and gasoline, and chemical fertilizers and pesticides. Most of India's farmers cannot participate in this complex because they cannot afford tractors. Cows and oxen provide low-energy substitutes for tractors and tractor factories. Harris follows the principle of ecological analysis that states that communities of organisms adapt not to average but to extreme conditions, such as the recurrent failure of the monsoon rains in India. Zebu cattle have small bodies, energy-storing humps, and great powers of recuperation. These features are adapted to the specific conditions of Indian agriculture. They are capable of surviving long periods of drought and are resistant to tropical diseases that affect other, non-native breeds. During times of drought and famine, farmers who succumb to the temptation to kill or sell their livestock seal their doom. When the rains come, they are unable to plow their fields. Cow love, with its sacred symbols and holy doctrines, protects the farmer against calculations that are "rational" only in the short term. From a

Western agribusiness viewpoint, it seems irrational for India not to have a meatpacking industry. But the actual potential of India to sustain such an industry is limited. In any food chain, the interposition of additional animal links results in a sharp decrease of efficiency of food production: more calories are available per capita when plant food is eaten directly by humans than when it is used to feed domesticated animals. Nonetheless, in India 20 million cows die every year and their meat is eaten by urban middle-class non-Hindus and by “untouchables.” India also has a large leather-craft industry. All the benefits of cattle come at a very low cost. Cows are scavengers; they convert items of little direct human value into useful products. Cow love has different implications for the rich and the poor. Forty-three percent of the total population of cattle is found on the poorest 62% of the farms. An effect of substituting costly machines for cheap animals is to reduce the number of people who can make a living from agriculture and to force an increase in the size of farms and migration to cities. Harris concludes that, “cow love is an active element in a complex, finely articulated material and cultural order. 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.”

The riddle of the pig, as a follow-up to the sacred cow, presents the challenge of explaining why certain people hate, while others love, the very same animal. According to Harris, “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.” Within the overall pattern of a mixed farming and pastoral complex, the divine prohibition against consuming pork constituted a “sound ecological strategy.” The main zones of pastoral nomadism correspond to arid plains and hills. Ruminants are the domestic animals best adapted to these zones. Cattle, sheep and goats are able to digest grass, leaves, and other foods consisting mainly of cellulose more efficiently than other mammals. The pig, however, is mainly a creature of forests and shaded riverbanks. Although it is omnivorous, its best weight gain is from food low in cellulose – nuts, fruit, tubers, and especially grains – making it a direct competitor of humans. It is not a practical source of milk and is difficult to herd over long distances. Most of all, the pig is thermodynamically ill adapted to hot, dry, arid climates. It must compensate for its lack of protective hair and its inability to sweat by dampening its skin with external moisture. Among the ancient mixed farming and pastoralist communities of the Middle East, domestic animals were valued primarily as sources of milk, cheese, hides, dung, fiber, and traction for plowing. Between 7000 B.C. and 2000 B.C., pork increasingly became a luxury. Population growth, and the damage created by large herds of sheep and goats, produced extensive deforestation. Shade and water, the natural conditions for pig raising, became scarcer. As in the case of the beef-eating taboo, “the greater the temptation, the greater the need for divine interdiction.”

As with other cultural riddles, the explanation of primitive war does not lie within the participants’ consciousness. Harris states that primitive war, despite its apparent irrationality, has a practical basis. Primitive warfare is neither capricious nor instinctive; it is one of the cutoff mechanisms that help to keep human populations in a state of ecological balance with their environments. It occurs as a response to population pressure, when nutritional deficiencies or

environmental degradation signal that the habitat has reached its “carrying capacity.” Primitive warfare does not achieve its regulating effects primarily through deaths in combat. Combat casualties do not substantially affect the population growth rate because most combatants and victims are men (and the fertility of a group is determined by the number of its adult women). In the case of the Maring of New Guinea, warfare preserves the ecosystem through two indirect consequences: groups are forced to abandon their prime gardens at a point below carrying capacity and the rate of female infant mortality increases. The Maring, like other cut-and-burn people, live by “eating the forest” – burning trees and planting seeds in the ashes. Their ritual cycle of war prevents them from eating too much forest too fast. Warfare is an effective means of population control because it places a premium upon raising male rather than female infants. The more numerous the adult males, the stronger the military force of a group dependent upon hand weapons. This is achieved through overt or covert female infanticide. In strictly biological terms, females are more valuable than males. Women can do every job that men can do. The alleged biological basis for a sexual division of labor is, in Harris’ view, “a lot of nonsense.” The only human activity, other than sex, for which male specialization is indispensable, is war involving hand weapons. Warfare inverts the relative value of the contribution made by males and females to a group’s prospects of survival.

Regarding human sexual hierarchies, Harris agrees with the feminist view that “anatomy is not destiny,” meaning that innate sexual differences cannot account for the unequal distribution of privileges and powers between men and women. The human species is unique for the lack of correspondence between its hereditary anatomical features and its means of subsistence and defense. “Our primary mode of biological adaptation is culture, not anatomy.” Harris’ analysis of the relationship between male chauvinism and warfare is centered in the Yanomamo of Venezuela, “one of the most aggressive, war-like, and male-oriented societies in the world.” According to the Yanomamo, most outbreaks of violence between villages are caused by disputes over women. There is a shortage of women that has been artificially created through female infanticide (there is a juvenile ratio of 154 males to 100 females; war kills 25 percent of the adult male population, reducing the ratio to 120-100). The Yanomamo depend on bananas and plantains as their staple food. This dependency is recent, since these fruits were brought to the New World by the Spanish and Portuguese. The Yanomamos were able to obtain greater amounts of calories per capita from the cultivation of banana and plantain gardens than their nomadic hunter-gatherer ancestors, who consumed forest animals. Their population increased. But plantains and bananas are deficient in proteins. The scarce resource villages compete for is not really women but protein. A higher ratio of men to women means more protein per capita (because men are hunters) and a slower rate of population growth. It also means more warfare, which is the price paid for raising sons instead of daughters. (Harris stresses the fact that his theory of primitive war as an ecological adaptation provides more grounds for optimism about ending modern warfare than aggressive instinct theories. He also suggests that, since the technology of war does not consist primarily of hand-held weapons anymore, feminists would be “correct in predicting the end of male chauvinist lifestyles”).

Harris moves on to consider the practice of “potlatch” among the Native Americans who formerly inhabited the coastal regions of Southern Alaska, British Columbia, and Washington. This practice appears to have been a particularly intense manifestation of a generalized need of approval or drive for prestige. Harris relates it to what Thorstein Veblen called, in the 1930’s, “conspicuous consumption” and “conspicuous waste,” and to contemporary Americans, “a nation of competitive status seekers.” The object of potlatch was to give away or destroy in a feast more wealth than one’s rivals. Harris attempts to show that it was not the result of maniacal whims, but of economic and ecological conditions. Potlatches were a way for chiefs to justify and validate their chiefly pretensions. The potlatch was a competitive feast, a nearly universal mechanism for assuring the production and redistribution of wealth among peoples who had not yet fully acquired a ruling class. Harris relates it to the institution of “big men” in Melanesia and New Guinea. Despite the overt competitive thrust of potlatch, its function was to transfer food from centers of high productivity to less fortunate villages. From the emic point of view, competitive feasting is a manifestation of the big man’s or potlatch chief’s craving for prestige. The etic perspective sees this craving for prestige as a manifestation of competitive feasting. Eventually, the replacement of economic relationships of reciprocity by redistribution through competitive status seeking lead to the emergence of ruling classes. This change occurred when it was possible to intensify production without inflicting irreversible damage to the environment – when plants and animals were domesticated. During the early years of capitalism in Western Europe, prestige was associated with competitive accumulation of wealth and an appearance of frugality. This led to conspicuous consumption and waste. As the growth of industrial capacity began to saturate the consumer market, the middle and lower classes were included. Advertising and mass media now induce people to buy, consume, and destroy large quantities of products and services.

Harris associates the phenomenon of cargo cults in New Guinea to redistributive exchange and the big-man system. Waiting for ships or planes to bring dead ancestors and cargo, the natives were waiting for a complete upgrading of their lives: cargo would mark the beginning of heaven on earth. Harris considers this phenomenon in the context of colonization. The invaders were considered arrogant big men – too powerful to be destroyed but perhaps not invulnerable to manipulation. They insisted that Europeans should act like big men and cargo should be redistributed. Europeans insisted that the secret of cargo lay in “hard work,” but they scarcely worked themselves. Instead of offering instruction in modern economy or technology, they taught about creation, prophets, angels, a messiah, supernatural redemption, resurrection, and paradise. In viewing the invaders as big men, the natives were expressing that they found their terms unacceptable (not necessarily ungraspable). According to Harris, “it is not easy to explain why some countries are poor and others rich, nor is it easy to say why there are such sharp differences in the distribution of wealth within modern nations. What I’m suggesting is that there is a cargo mystery, and the natives were justified in trying to solve it.” Since the natives’ work contributed to the wealth enjoyed by industrialized nations, they

were entitled to their products even though they couldn't pay for them. Cargo was their way of saying this.

There is a striking resemblance between cargo cults and early Christian beliefs. Belief in the coming of a saviour called a messiah – a god that would look like a man – was common at the time of Christ. In the Old Testament, there are several redemptive prophets – Isaiah, Jeremiah, Ezekiel, Micah, Zachariah, etc. – all urging the adoption of a military-messianic lifestyle. The prophecies that announced the beginning of a new world were made in conjunction with wars of liberation waged under the leadership of real-life messiahs. Like cargo, the cult of the vengeful messiah was born and continually recreated out of a struggle to overturn an exploitative colonial system. The Gospels fail to mention Jesus' relation to the Jewish liberation struggle, the fact that he spent most of his life in the context of a fierce guerrilla uprising. The dialectic of Yahweh's kingdom embraced the totality of human existence; as in the case of cargo, the secular and religious components were indivisible. The bandit-guerrillas believed that with the help of the messiah they would be able to topple the Roman Empire. Between 40 B.C. and 70 C.E., within the context of a series of bloody uprisings, a number of military-messianic contenders emerged. The war ended in 70 C.E. when Titus, the son of Emperor Vespasian, recaptured Jerusalem, which had been taken in 66 C.E. in an insurrection led by Jewish leader Manahem. History shows us that the Jewish military-messianic lifestyle was an adaptive failure. It resulted in the complete loss of territorial integrity by the Jewish state. The Jewish revolution against Rome was caused by the inequities of Roman colonialism, not by Jewish military messianism. We cannot regard the Romans as more practical or realistic simply because they were victors. The cult of the vengeful messiah was successful in mobilizing mass resistance in the absence of the means for raising an army. Like cargo, it was adapted to the practical exigencies of colonial struggle.

In this context, the early Christian cult of the peaceful messiah seems paradoxical. A practical solution is that Jesus was not as peaceful as commonly believed. The decisive break with the Jewish messianic tradition would have come about after the fall of Jerusalem (mentioned in the Gospels), when the original politico-military components in Jesus' teachings would have been purged by Jewish Christians living in Rome and other cities of the empire as an adaptive response to the Roman victory. The groundwork of this shift to the cult of a peaceful messiah was laid by Paul, who proselytised outside of Palestine and was willing to baptise non-Jews as Christians. After the fall of Jerusalem, the conditions were present for the spread of the new cult, whose primary source of converts were urban Jews scattered over the eastern Mediterranean. Christians, unlike Jews, appeared as harmless pacifists with no secular ambitions. The full-scale persecution of Christians by the empire would start later, after 150 C.E.

The cult of messiahs connects with the European witch craze of the 16th and 17th centuries, when 500,000 people were convicted of witchcraft and burned to death. There are two witchcraft riddles: why anyone should believe that witches fly through the air on broomsticks and why such a notion should have become so popular when it did. "Confessions" of alleged witches were obtained under

torture. People were tortured into confessing their own guilt and the identity of other victims. Torture was used this way in Europe only after 1480. In 1000 C.E. it was forbidden to believe that witch flights really took place (the sabbath was supposed to be a figment of the imagination); after 1480, it was forbidden to believe that they did not take place. The Church first authorized the use of torture in the 13th century as a means for the Inquisition to combat heresy. By the late 15th century, it became accepted that a new kind of witch had emerged that actually could fly to sabbaths. Harris supports the view that sabbath meetings involved hallucinogenic experiences, through the application of ointments that contained atropine, a powerful alkaloid that is absorbable through the skin. The people involved – the real “trippers” – would have hardly been touched by the Inquisition.

Harris' explanation of the witchcraft craze is that it was largely created and sustained by the governing classes as a means of suppressing the wave of Christian military-messianic uprisings that emerged in Europe between the 13th and the 17th centuries. Harris argues that the witch mania shifted responsibility for the crisis of late medieval society – which led to the Reformation – from both Church and state to imaginary demons: the poor came to believe that they were being victimized by witches and devils instead of princes and popes. The Church and state were not only exonerated, but also made indispensable. The witch mania was radical messianism in reverse. The military-messianic movements brought the poor and the dispossessed together, diminished social distances, and gave them a sense of a collective mission. The witchcraft craze, on the other hand, made people suspicious of each other, and dispersed and fragmented the latent energies of protest.

After being branded as superstition, witchcraft has returned as “a respectable source of titillation.” Harris' analysis of the “counter-culture” of the 1960s and 1970s, although insightful, seems less relevant than his account of other lifestyles mostly because of how dated the ideas of counter-culture seem today. Harris's criticism of Carlos Castaneda's counter-culture anthropology focuses on the unreliability of Castaneda's methods and in the moral ambiguity of his teacher, Don Juan, the “moral opacity of the shaman's superconsciousness.”

CANNIBALS AND KINGS

This book outlines a general view of cultural evolution. It describes how cultures have evolved along parallel and convergent paths following cycles of production, reproduction, intensification, and depletion. Harris emphasizes the fact that “free will and moral choice have had virtually no significant effect upon the directions taken thus far by evolving systems of social life.”

There is an intelligible process that governs the emergence and development of cultural forms. The heart of this process lies in the tendency to intensify production. Intensification – the investment of more soil, water, minerals, or energy per unit of time or area – is a response to the threat to current living standards. As living standards decline, successful cultures invent new and more efficient means of production, which lead to the depletion of the natural environment. Theoretically, the easiest way to achieve a high quality of life is

not to increase production but to reduce population. Since heterosexual activity is a genetically mandated drive upon which the survival of the species depends, it is not easy to thin out the human “crop.” The most widely used method of population control during human history has been female infanticide. Population regulation is very stressful to the individual. This stress – or reproductive pressure – accounts for the recurrent tendency in pre-state societies to intensify production as a means of protecting or enhancing living standards.

It is possible to question the traditional notion that life was extremely difficult for our Palaeolithic ancestors. According to the accepted explanation of the transition from band life to farming villages, hunter-gatherers spent all their time getting enough to eat, unable to produce a surplus above subsistence, living on the edge of extinction in chronic sickness and hunger until agriculture was developed. In Harris’s view, hunter-gatherers enjoyed both leisure and high-quality diets, as long as their population density was kept low. The practice of agriculture would have been forgone not for lack of knowledge but as a matter of convenience. How did they keep their population down? The traditional theory states that low rates of growth were caused by disease. But recent studies have shown that mortality rates were not higher under conditions of hunting than under those of sedentary life (agriculture). In addition to abortion, infanticide and geronticide, the best method of population control available to Stone Age hunter-gatherers was to prolong the span of years in which mothers nursed each infant. This practice – associated with a diet high in proteins and low in carbohydrates – would keep a woman’s body weight below a critical threshold, preventing ovulation.

The period from 30,000 to 12,000 years ago marked the climax of a slow technological evolution during which humans perfected the tools and techniques for hunting large land animals. Thirteen thousand years ago a global warming trend signalled the end of the last ice age. The loss of grazing lands in combination with the toll taken by human predators caused the extinction of the Pleistocene megafauna, both in Europe and in the New World. As in the case of hunting, intensification of farming gave rise to a series of technological advances. Horticulture, or rudimentary gardening, was followed by agriculture. The extinction of the Pleistocene megafauna triggered the shift to an agricultural mode of production in both the Old and the New Worlds. But the two sequences involve crucial differences. In America, villages were not built until several thousand years after the first plants were domesticated. The domestication of animals did not keep pace with plants (domesticable herd animals had become extinct); in order to eat meat, people had to move freely in response to the seasonal habit of their prey – hence their postponement of full village life. In the Old World, people built villages first and then, 2,000 years later, domesticated the wild plants whose seeds they had been collecting. In the Middle East, the combination of animals and plants (wild wheat, barley, peas, and lentils, as well as the precursors of domesticated sheep, goats, pigs, and cattle) was such that, by settling down in villages, the “broad spectrum” hunter-gatherers could increase their consumption of both meat and food plants. The first villages served as grain-storing and grain-processing facilities. The depletion of animal resources in the areas where New World agriculture developed had far-reaching consequences. It imparted different paces of development. Native

Americans invented the wheel, as a toy and perhaps for making pottery, but its further development was halted by the lack of animals suitable for hauling heavy loads. In the Middle East, improved standards of living and the abundance of both calories and proteins stimulated population expansion. This increase entailed renewed pressures on living standards, starting new cycles of intensification and depletion.

The majority of hunter-gatherers carry out some form of intergroup combat. Warfare is a very ancient practice, but its characteristics differed in successive epochs. Warfare probably became more frequent and deadly after the development of agriculture. Permanent houses, food-processing equipment, and crops growing in the fields sharpened the sense of territorial identity. The balance between people and resources lies behind band and village warfare; its origin stems from the inability of pre-industrial peoples to develop a less costly or more benign way of achieving low population densities and growth rates.

Warfare is responsible for a complex of male supremacist institutions among band and village societies. Culturally induced male supremacy is related to warfare and ultimately to ecological and reproductive pressures. The shift from patrilineal to matrilineal organizations exerted a moderating influence in the sexist hierarchy, but it did not annul it. Harris considers psychoanalysis as one of the theories that view war as part of human nature. He accepts the "widespread if not universal occurrence of psychodynamic patterns that resemble Oedipal strivings," but states that Freudians have inverted the causal arrow and derived warfare from male aggressiveness rather than male aggressiveness from warfare. The Oedipal situation, for them, would be caused by human nature rather than by human cultures. According to Harris, the fact that war and sexism have played and continue to play such prominent roles in human affairs does not mean that they must continue to do so. They will cease to be practiced when their productive, reproductive, and ecological functions are fulfilled by less costly alternatives.

In most band and village societies before the evolution of the state, the average human being enjoyed economic and political freedoms that only a privileged minority enjoys today. For the past 6,000 years, nine-tenths of all the people who ever lived were peasants or members of some other servile caste or class. The "rise of the state was the descent of the world from freedom to slavery." Harris adopts a distinction between pristine and secondary states. A pristine state is one in which no preexisting state stimulated the process of state formation. Pristine states arose in Mesopotamia (about 3300 B.C.), Egypt (3100 B.C.), the Indus Valley (shortly before 2000 B.C.), the Yellow River Basin (shortly after 2000 B.C.), Peru (about the time of Christ), and Mesoamerica (100 C.E.). The rise of pristine states can be understood as a consequence of the intensification of agricultural production. Agriculturalists in favored soil zones could intensify their efforts for a relatively long time without suffering sharp depletions. A key part in the development of a state's structure of subordination involves the emergence of institutions responsible for rewarding production-intensifiers in sedentary pre-state villages. Redistributor war chiefs slowly evolved into permanent rulers with coercive control over production and consumption. This process was made possible by a key factor: impactation. The

regions where pristine states emerged possess circumscribed zones of production: fertile cores surrounded by zones of sharply reduced agricultural potential. Once pristine states have formed in a given region, secondary states begin to develop. For example, low-density pastoral peoples –Turks, Mongols, Huns, Manchus, and Arabs – developed states by preying upon the preexisting Chinese, Hindu, Roman, and Byzantine empires. Harris comments: “What I find most remarkable about the evolution of pristine states is that it occurred as the result of an unconscious process: The participants in this enormous transformation seem not to have known what they were creating.”

Harris moves on to consider the consequences of the rise of the state in the context of different regional patterns of intensifications, depletions, and ecological rises. First, he considers Mesoamerica. He describes the Olmec (1200 to 800 B.C.), whose development was arrested at the level of incipient statehood, and the Maya, whose centers would have constituted secondary states. He ponders the mysterious disappearance, after 800 C.E., of the Mayan states and their entire populations, which could be explained by the depletion of the unusually vulnerable ecological base of soil and forest resources of the Yucatán. In the highlands of Mesoamerica – the Teotihuacán Valley and the Valley of Mexico – from 200 C.E. to 1200 C.E., Harris discerns three broad phases of agricultural intensifications followed by shifts in the modes of production: first, the intensification of hillside slash-and-burn farming; second, spring-fed canal irrigation; and third, “chinampa” (the “floating gardens” of the Aztec) construction. Each of these involved progressively greater start-up and construction outlays, and each sustained greater population densities and larger and more powerful states (Teotihuacán, the Toltec, the Aztec).

The author dedicates special attention to the violent culture of the Aztecs, and their practice of human sacrifice on a massive scale. Most victims were prisoners of war. But slaves, as well as certain youths and maidens who were chosen to impersonate gods, were also sacrificed. The Aztecs were not the first Mesoamericans to sacrifice human beings. This practice preceded the emergence of state-level religions. The Aztecs transformed it into a routine involving large amounts of victims. Why didn't they simply kill their enemies during battle as other imperial armies did? Harris' sensational hypothesis is that they ate the victims. The Aztec priests were 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. At the end of the ice age, Mesoamerica was left in a more depleted condition than other regions of the world. The growth of population and intensification of production virtually eliminated animal protein from the diet of ordinary people. The cannibal redistributions did not reach the average citizen, but selected groups – such as nobles and soldiers – at crucial periods. If this analysis is correct, the availability of domesticated animal species played an important role in the prohibition of cannibalism and the development of religions of love and mercy in the states and empires of the Old World. (The main reason that the Inca Empire followed the Mesopotamian and Chinese rather than the Aztec pattern was the domestication of the llama, which was completed between 2500 and 1750 B.C. – late by Old World standards but early enough to have played a role in the process of state formation in South America.)

Human beings were ritually sacrificed, but seldom eaten, within the cultures that immediately preceded the rise of states in Mesopotamia, Egypt, India, China, and Europe. It was animal, not human, flesh that was brought to the altars, ritually sacrificed, redistributed, and consumed in communal feasts. Early Christians maintained tokens of the original redistributive functions of animal sacrifice in their rites of “communion.” There is not a single society in a belt across North Africa and Eurasia in which domesticated animal sacrifice was not a part of state supported cults. As imperial systems in the Old World grew larger, they depleted resources on a continental scale. The “great providers” were increasingly unable to validate their majesty through popular displays of generosity and became “great believers,” and built temples where “nothing at all was served to eat” (redistribution was postponed to the afterlife). Cannibalism did not develop because: a) there was an availability of herbivore and ruminant domesticated species that thrive on foods which human beings cannot digest; b) it was more efficient to use POWs as producers of food rather than as meals themselves; c) cannibalism was a bad strategy for states that had imperial ambitions (and wanted to encourage submission). The “great provider” idea on which empires were built had as a natural outcome the great dispenser of justice and mercy and divine protector of the meek. Herein lies the origin of the Old World’s universalistic religions of love and mercy.

Harris moves on to describe the taboos of pork and beef eating in the Middle East and India as adaptive responses, along the lines followed in *Cows, Pigs, Wars, and Witches*: cultures tend to impose supernatural sanctions on the consumption of animal flesh when the ratio of communal benefits to costs associated with the use of a particular species deteriorates.

The ancient empires of China, India, Mesopotamia, and Egypt possessed similar systems of political economy. Each had a highly centralized class of bureaucrats and hereditary despotic overlords who claimed heavenly mandates. Networks of government-maintained roadways, rivers, and canals linked every hamlet and village to provincial and national administrative centers. Political lines of force ran from top to bottom. The “state was stronger than society”: intimidation, force, and terror were used to maintain law and order. These empires shared one feature: each was a “hydraulic society.” Each developed amid arid or semiarid plains and valleys fed by great rivers. Through dams, canals, flood control, and drainage projects, officials diverted water from these rivers and delivered it to the peasants’ fields. Water was the most important factor in production. Pre-industrial hydraulic agriculture led to the evolution of despotic agro-managerial bureaucracies because its expansion and intensification was dependent on massive construction projects that required armies of workers. The peculiar capacity of hydraulic societies to restore themselves despite frequent dynastic upheavals and barbarian invasions arises from the interplay between their political structures and their basic ecological adaptations. Dynasties frequently collapsed, only for new leaders to have no choice but to restore the hydraulic mode of production. Harris suggests, “the effective moment for conscious choice may exist only during the transition from one mode of production to another. After a society has made a commitment to a particular technological or ecological strategy . . . it may not be possible to do

anything about the consequences of an unintelligent choice for a long time to come.”

The hydraulic theory may help explain why capitalism and parliamentary democracy emerged in Europe before anywhere else in the world. North of the Alps, where winter snows and spring rains provided sufficient moisture for field crops and pastures, population remained relatively dispersed. The first states in Northern Europe were secondary states called into existence to cope with the military threat of the Mediterranean empires and to exploit the possibilities of trade and plunder they opened. Celtic kingdoms remained loose and disjointed, until the Romans consolidated them into provinces. The collapse of Rome gave birth to a new feudalism that was more rigid and formalized than its pre-Roman variety, but continued to contrast with the centralized organization of hydraulic empires. Europe's medieval kings could not furnish or withhold water from the fields. The aristocracies were thus able to resist attempts to establish national systems of government. Kings did not become despots, but remained “first among equals.” The development of blacksmithing led to the introduction of a new kind of plow and to an improved method of crop rotation that was well suited for the relations of production characteristic of the manor. The development of trade only came to threaten the feudal status quo as a result of a slow build-up of population density. As density rose, efficiency and profitability declined. Feudal lords were encouraged to seek alternate sources of income by raising sheep for wool, which restricted the amount of land available for food crops and contributed to the pauperization of the peasants and migrations to the towns. In the aftermath of the Black Death (14th c.) Europe entered a period of intense political and economic unrest. The manorial mode of production had reached its ecological limits and it was replaced by a system based on scientific technology, machine production, capitalism, and parliamentary democracy. Private industry and commerce preceded the emergence of the European parliamentary monarchies. The tyranny of the monarchs was limited by the power of capitalists. The emergence of bourgeois-parliamentary democracies in 17th- and 18th-century Europe was a “rare reversal of the descent from freedom to slavery which had been the main characteristic of the evolution of the state for 6,000 years.” Capitalism is a system that is committed to perpetual intensification of production in the name of an unbounded increase of profits, which means an equal commitment to perpetual technological change. Its ability to maintain living standards depends on the outcome of a race between technological advance and relentless deterioration of the conditions of production.

While the race between rapid technological change and intensification has been going on for 500 years, the rise in living standards began only 150 years ago. The periods of greatest technological innovation were those of greatest population increase, highest cost of living, and greatest suffering among the poor. The first three centuries of post-feudal mechanisation resulted in the widespread misery and suffering that ignited the French Revolution. Unlike all previous major shifts in modes of production, the industrial revolution of the 19th century resulted in an enormous spurt forward in labor efficiency accompanied by a decrease in population growth. A demographic transition occurred as a result of three interrelated cultural events: the fuel revolution, the contraceptive

revolution, and the job revolution. Productivity was increased exponentially by the application of steam, diesel, gasoline, electricity, and jet engines to agriculture, industry, mining, and transport. Safe and inexpensive means of reducing fertility through mechanical and chemical devices were developed. Work moved from family farms and businesses to offices, stores, or factories. The advantage of technology in the race against intensification, depletion, and declining efficiency can only be temporary, particularly in the context of machines that run on non-renewable fossil fuels.

Thought and cultural behavior of individuals are always channelled by cultural and ecological restraints and opportunities. The major transformations of social life have never corresponded to the consciously held objectives of the historical participants. They were unaware of the influence of modes of production and reproduction on their attitudes and values and ignorant of the long-term cumulative effect of decisions made to maximize short-term costs/benefits. "It is only through an awareness of the determined nature of the past that we can hope to make the future less dependent on unconscious and impersonal forces." Although cultural evolution is never free from systemic influence, some moments would be more "open" than others for conscious decisions. The most open moments would be those at which a mode of production reaches its limits of growth and a new mode must be adopted.

GOOD TO EAT

The subject of this book is the variety of food cultures. Why are human foodways so diverse? Its main thesis is that there are practical reasons for what people eat. Preferred foods have a more favorable balance of practical benefits over costs than foods that are avoided. Nutritional costs and benefits form a fundamental part of the balance, but there are other factors (ecological, economic) that may override the nutritional value of foods and make them good or bad to eat. The favorable balance may not be shared equally by all members of a society.

Why are so many cultures obsessed with meat consumption? It costs much more to raise animals for food than to raise plants for food. When the nutritional value of grain is converted into that of animal flesh, it takes nine extra calories to provide one calorie for human consumption, and it takes four grams of protein in grain to produce one gram of protein in meat. In order to support its current meat consumption habits, 80% of the grain grown in the U.S. is fed to animals. In agricultural societies, meat is good to eat and hard to produce. Its symbolic power results from this combination of utility and scarcity. In most cultures, the higher the income bracket, the greater the proportion of animal products in the diet. Less than 1% of the world population voluntarily spurns every type of flesh food, and less than 0.1% are vegans. People in less developed countries tend to be involuntary vegetarians or vegans. Harris argues that meat plays a special role in the nutritional physiology of our species (as suggested by the fact that most non-human primates are omnivorous). Both quantitatively and qualitatively animal foods are a better source of proteins than plant foods. The quality of protein is related to the ratio of essential amino acids, those amino acids (10 out of the 22 that build the body's proteins) that the body

cannot synthesize. Meat, fish, fowl, and dairy products are also a concentrated source of vitamins and minerals. The main deficiency of animal foods is fiber, which is not a nutrient but plays an important role in digestion. The evidence linking the overconsumption of cholesterol and saturated animal fats with heart disease has made animal foods unpopular as a source of dietary fats. But much of the worldwide hunger for meat is a craving for fatty meat. Lean meat needs to be supplemented by calorie-rich substances – such as carbohydrates – in order to prevent the meat's amino acids from being converted into energy rather than into bodybuilding proteins (protein-sparing effect). Human beings are genetically programmed to crave meat. It was only after the adoption of agricultural modes of production that grains became the staple foods of humankind. The basic reason why heart disease and cancer have become the major causes of death in affluent societies is that people are living longer (and this longevity is due to an increased consumption of animal foods). The continuing world hunger for meat is a rational preference and it arises from the interaction of human biology and the nutritional value of foods.

Harris returns to the riddles of the sacred cow and the abominable pig, stressing that the most important food aversions and preferences of four main religions – Hinduism, Buddhism, Judaism, and Islam – are on balance favorable to the nutritional and ecological welfare of their followers.

Why don't Americans eat horsemeat? Horsemeat eating has gone through a series of ups and downs in continental Europe, but it never caught in England and the U.S. The horse was domesticated by Asiatic pastoralists between 4000 and 3000 B.C. – very late compared with other animals. Horses feeding on natural pastures need 33% more grass than cattle or sheep just to maintain their body weight, and – being highly active animals – they burn more calories. The domestication of the horse presumed the prior domestication of more efficient grass-eating ruminant sources of meat and milk. The function of the horse was to serve as an engine of war. Taboos against hippophagy appear with the rise of ancient Middle Eastern empires. Romans abstained from eating horses. In the 8th century, horsemeat was banned for all Christians by papal decree. About the time of the French Revolution, it returned to acceptance in continental Europe. This trend was reversed once more after World War II. When horses were a rare and endangered species needed for war, and other sources of meat were abundant, the Church and state banned the consumption of its flesh; the ban was relaxed when horses were abundant and other sources of meat became scarce. As the earliest and most urbanized center of the Industrial Revolution, England ceased to be self-sufficient in food production during the 18th century. The English solved the problem of food supply by using their navy and army (and cavalry) to create a large overseas empire and by imposing terms of trade that permitted them to import foods at low prices relative to the value of their manufactured exports. The relative abundance of imported beef, pork, and mutton reduced the pressure to use horsemeat as a by-product of the other services the horses rendered. A similar phenomenon occurs in the U.S., due to the resistance of beef and pork interests and the aggressive tactics of horse lovers.

Americans consume 150 grams of “red meat” per capita per year (1985). Sixty percent by weight is beef or veal; 39% is pork; 1% is lamb or mutton; and the amount of goat consumed is almost too small to measure. The principal features of this hierarchy have rapidly adapted to novel combinations of nutritional, ecological, economic, and political conditions. The American aversion to mutton and lamb is linked to their popularity in Britain (where lamb and mutton were by-products of the raising of sheep for wool). English mercantile policy dictated that the American colonies should grow wool but should not manufacture woollen products for export. So raising sheep was less profitable than raising pork and beef. Gradually, the taste of lamb and mutton became unfamiliar to the majority of Americans except in New England. The ecological and demographic conditions that prevailed during colonial times made pigs and cattle the most efficient sources of meat. Since colonial times and up to the 1950s, “pork reigned supreme.” The American preference for beef originated in the Great Plains, an ideal habitat for raising cattle but not pigs. The buffalo – whose extinction was the result of a conscious policy by the railroads, the army, and the cattle ranchers as a means to “get rid of the Indians” – were replaced by herds of cattle. But the sea of grass on which the 19th-century beef bonanza was premised proved to be finite. Overgrazing and homesteading by farmers dispersed farming farther west to remote and arid regions. More feedlot finishing on corn was needed to bring range cattle up to market weight and beef lost its price advantage over pork. Pork remained on top due to its natural superiority as a converter of grains into flesh. Beef finally became king through new beef production and marketing systems that were suited to the emergent lifestyles of post-World War II North America. The changes in the way beef was produced (new breeds, planted pastures, and scientific management) matched the changes in consumption: the move to suburbia and the use of outdoor space for cooking and entertaining, and the entrance of women into the work force. Beef achieved its dominance over pork through the emergence of fast-food hamburgers. Hamburgers are a mixture of 70% ground meat and 30% fat. In the U.S., by law, a hamburger must be all-beef. Burgers are made of a combination of range-fed lean beef and feedlot waste fat. The relationship is symbiotic: “when you eat a steak you are making it possible for someone else to eat a hamburger,” and vice-versa. The exclusion of pork and pork fat from hamburgers suggests that beef producers had more influence in government circles than pork producers. “In America as never before in history, good to eat is what is good to sell.”

The loathing of milk by the Chinese and other Asian cultures poses an interesting riddle. Lactose, the sugar found in milk, is too complex a molecule to pass through the walls of the small intestines. The transformation of lactose into simple sugars depends on the chemical action of the enzyme lactase. Studies have shown that 75% of adult African Americans have a deficiency of this enzyme (which can cause uncomfortable gastro-intestinal symptoms when drinking milk) as compared with 20% of American whites. Mammals have to be able to drink milk in infancy. Why do they lose their ability to produce lactase as juveniles and adults? A possible explanation is that natural selection does not favor useless features. As the offspring of mammals grow into adults, the mothers can no longer produce enough milk to satisfy their nutritional needs. Only after the domestication of ruminants (10,000 years ago) did natural

selection in humans favor the spread of a gene for adult lactase sufficiency – today, a high-percentage of adult lactase-sufficiency is found only among populations that have had a long history of milking ruminants. Why was it necessary for anybody to drink milk? Milk is an important dietary source of calcium and of a substance that promotes its absorption in the intestines: lactose. The conversion of milk into cheese, yoghurt, or fermented milk means that lactose will not be available to facilitate the absorption of calcium. The ancestors of today's lactase-sufficient Europeans were at risk of calcium-deficiency diseases (rickets and osteomalacia) and depended on milk as a source of calcium. Their environment had little room for planting calcium-rich but energy-poor dark green, leafy vegetables. Among Northern Europeans, lactase sufficiency developed in tandem with fair skin, which also increases the absorption of calcium. It does so by permitting certain wavelengths of sunlight to penetrate the outer skin and convert a kind of cholesterol found in the epidermis into vitamin D3, which facilitates the absorption of calcium in the intestines. Fair skin is a relatively exceptional trait among humans due to the risk of skin cancer. The particular color of a human population's skin represents a trade-off between the hazards of too much versus too little solar radiation. Many populations with a long tradition of dairying and milk consumption such as Jews, Italians, Arabs, and people from southern India exhibit intermediate frequencies of lactose tolerance. Southern Indians, for instance, have been subjected to only mild selective pressure to obtain calcium from milk. Their agriculture provides dark green, leafy vegetables and legumes. Their skin is dark because their need to protect against skin cancer outweighs their need for vitamin D. The Chinese did not spurn milk because they are lactose intolerant; they are lactose intolerant because they spurn milk. In China, due to conditions of soil and climate and irrigation agriculture further advanced than in India, preparation of fields for planting can be achieved by manpower alone or with small numbers of animal drawn plows. The Chinese had no use for large ruminants and therefore never were motivated to use milk as a by-product of their use of animals for plowing. They made the pig – which is unsuitable for milking – an integral part of their agricultural system and they obtained calcium from vegetables and soybeans. Therefore, their belief that “the mammary secretions of animals are a loathsome abomination” is well founded. Harris stresses that the “co-evolution” of lactophilia with the genetic basis of lactase sufficiency is interesting precisely because of its exceptional character. There is no evidence that similar genetic changes accompanied the evolution of other foodways.

The reason why Americans and Europeans don't eat insects is not that they are dirty and loathsome; they are dirty and loathsome to us because we don't eat them. The aversion to eating insects and small invertebrates is not instinctive. Most living species of great apes and monkeys are insect eaters. Culturally, this aversion by Americans and Europeans is the exception, not the rule. From a nutritional standpoint, insect flesh is almost as nourishing as red meat or poultry. Their high-protein, high-fat content would make them a better food bargain than high-protein, low-fat arthropods such as shrimp, crabs, and lobsters (which are close relatives of insects) or low-protein, low-fat molluscs. The main rationalization by Euro-Americans for loathing insect flesh is that bugs are dirty and carry diseases (but so do animals that are good to eat, and the problem of contaminated flesh is easily resolved by cooking it). The European

pattern of rejecting insects as food was firmly established before disease was linked to dirt. Insect loathing is due to a matter of costs and benefits. While insects are abundant and a rich and wholesome source of protein and fat, they are inefficient sources of these nutrients. Harris applies what is known as “optimal foraging theory.” This theory predicts that hunters and gatherers will pursue or harvest only those species that maximize the rate of caloric return for the time they spend foraging (searching for food). If a habitat is rich in insect fauna – especially large and/or swarming species (like locusts) – and it is poor in large wild or domesticated vertebrates, diets will tend to be highly insectivorous. The reason that insects are so repulsive to Europeans and Americans is that they play no function if not eaten: they are a nuisance and lead a furtive existence in close proximity to humans.

Europeans and Americans think it self-evident that pets are not good to eat. Pets are animals that people feel friendly toward, feed and groom, and voluntarily live with. In many cultures, extremely pet-like relationships can exist between humans and animals that are good to eat (pigs, cattle, dogs). Why a species is not eaten and becomes a pet depends on how it fits within a culture’s overall system of production. Westerners don’t eat dogs not because dogs are their most beloved pets, but because dogs, being carnivorous, are an inefficient source of meat. Unlike the Chinese (for whom dog flesh eating is the rule), Westerners have a great abundance of alternate sources of meat. The greatest center of dog-meat eating in the world was pre-Columbian Mexico, where large huntable land animals were practically nonexistent. Pets are not useless. Dogs, cats, and horses would have not been domesticated were it not for the services they rendered in relation to hunting, protection of property, rodent control, transportation, and warfare. Pets have served as symbols of status, as entertainers, and in sports. Their most important service to humans is as companions. They act as proxy humans, helping us overcome the anonymity and lack of social community engendered by big-city life. Dogs, cats, horses, rats, mice, hamsters, and goldfish also have one thing in common: compared with cows, pigs, and chickens, they are inefficient sources of food.

There are two main forms of cannibalism: peaceful acquisition and consumption of the bodies or parts of bodies of relatives as part of mourning rituals, and the acquisition of bodies through violent means. The first kind was a logical extension of cremation among many band and village societies. The vestiges (ashes and bones) consumed were not a significant source of proteins or calories. The second kind, warfare cannibalism, was nutritionally significant. Strong sanctions everywhere prevent adult members of primary groups from killing and eating each other. The taboo against killing and eating one’s relatives is a basic precondition if people are to live together and cooperate on a daily basis. It also means that if cannibalism is to be practiced on forcibly acquired bodies, they must be obtained from socially distant individuals: strangers or enemies. According to Harris, warfare cannibals (such as the Tupinamba of Brazil, and the Iroquois and Huron of North America) were not hunters of human flesh. If we regard warfare as a form of hunting, the costs far exceed the benefits. Humans are large animals, but they are dangerous and very difficult to capture. Warfare cannibals did not go to war to obtain human flesh; they obtained human flesh as a by-product of going to war. Their consumption of the

flesh of the prisoners is quite rational from a cost/benefit perspective. It was nutritionally prudent not to let a good source of meat go to waste. The ritual torture of the prisoners also served the purpose of training the young for war. With the rise of state forms of political organization, warfare cannibalism ceased to be practiced. The costs and benefits changed. More efficient sources of animal foods became available. Since captives could produce a surplus, it was better to consume the products of their labor than the flesh of their bodies. The abandonment of warfare cannibalism was also functional to the interest of creating imperial states. It was part of the general evolution of ethical systems of imperialistic states that ultimately led to the rise of universalistic religions of love and kindness. The great exception to this rule was the Aztecs (already discussed in *Cannibals and Kings*).

To say that a foodway represents an optimisation of costs and benefits is not to say that it is an optimal foodway. Attention to practical circumstances shows that those circumstances (and not the minds of ignorant people) are what need to be changed. Harris considers two final riddles that illustrate the dangers of explanations that attribute apparently harmful foodways to arbitrary cultural values and beliefs: customs that seem aimed at lowering rather than raising the nutritional status of pregnant and lactating women throughout the Third World; and the link between food preferences in parts of Asia to a disease called xerophthalmia that leads to blindness in children. The first riddle is resolved in terms of the “breadwinner effect.” “One of the reasons why Westerners ascribe ignorance and irrational religious beliefs to others is that they are not forced to make the difficult choices that extreme poverty obliges others to make.” Pregnancy and lactation lead to a reduction in a woman’s contribution to the earning powers of the family. The more family income depends on hard physical labor, the more important it is that the principal wage earner gets fed well enough to go to work. Xerophthalmia is due to a lack of vitamin A. Harris questions the view that an arbitrary food preference (the preference of rice over dark green, leafy vegetables that contain vitamin A) is the cause of xerophthalmia, which he attributes to general malnutrition. In developed countries, on the other hand, restraints come in the form of foods that are dangerous because there is too much to eat rather than too little. The “on” switches of the human appetite are far more sensitive than the “off” switches. This genetic trait allows the food industry to overfeed its customers.

CULTURAL MATERIALISM

Cultural Materialism (CM) is an anthropological theory that seeks to describe how the institutions and beliefs of a society ultimately derive from practical circumstances relating to the basic biological needs of its population. Although CM is championed by several prominent anthropologists – including Maxine Margolis, Michael Murphy, Brian Fergusson, and Allen Johnson – it remains associated mostly with its formulator and leading figure, Marvin Harris.

CM emerged in the late 1960s as a reaction against the cultural relativism that dominated anthropological thought at the time. CM placed a key emphasis on empirical science, focusing on observable and quantifiable phenomena rather than on subjective thoughts and behaviors. It introduced a distinction between

“emic” (insider) and “etic” (outsider) approaches to anthropological inquiry. “Emic” denotes an approach where the observer attempts to learn the features of a culture in order to be able to think and act “like a native.” The “etic” mode introduces categories and rules that are alien to the subjects studied, measurable data such as fertility rates or average rainfall. According to Harris, CM “asserts the strategic priority of etic and behavioural conditions and processes over emic and mental conditions and processes.” The purpose of cultural materialist analysis is to show how emic (insider) thoughts and behaviors are a result of practical, material considerations and it often involves measurement and comparison of facts that might seem trivial or meaningless to native populations.

CM adopts and expands the Marxist model of three levels of culture: infrastructure, structure, and superstructure.

1. Within the cultural materialist approach, the infrastructure consists of modes of production and reproduction. The mode of production involves the actions of a society that accomplish the task of satisfying the minimal requirements of subsistence (e.g. hunting, agriculture, industry). The mode of reproduction involves the actions a society takes in order to regulate population growth. The modes of production and reproduction are seen (from an etic point of view, that is, regardless of their “meaning” to the members of a society) as attempts to strike a balance between the need to draw energy from a finite environment and population pressures.
2. The structure corresponds to the organizational aspects of a society. It consists of a domestic economy (the organization of production, reproduction, exchange, and consumption within a domestic setting) and a political economy (groups and organizations that exercise control over production, reproduction, exchange, and consumption beyond the domestic household).
3. The superstructure is the ideological dimension of society. There is a behavioral superstructure (activities, art, sports, science, folklore) and a mental superstructure (symbols, beliefs, values, rituals, taboos, superstitions).

According to CM, society is ruled by a principle of infrastructural determinism. Everything at the structural level (institutions) and the superstructural level (ideas) is determined by the infrastructure, by practical conditions relating to subsistence. This determinism is not rigid – it does not exclude free will completely – but probabilistic. According to Harris: “By a deterministic relationship among cultural phenomena, I mean merely that similar variables under similar conditions tend to give rise to similar consequences.” The modes of production and reproduction probabilistically determine (strongly influence) the domestic and political economy, which in turn probabilistically determine the behavioral and mental superstructure. Infrastructural innovations will be selected within a society if they are functional to productive and reproductive needs even if they conflict with the structural and superstructural dimensions. Change can originate in the structure (e.g. political change) or in the superstructure (“It is always cheaper to produce obedience through mystification than through police-military coercion . . .”), but it will only be selected if it is functional to the basic needs of a society. The driving forces of social phenomena, regardless of the subjective perception of their protagonists (emic perspective), are the basic needs of production and reproduction.

All individuals share four bio-psychological needs: “humans need to eat, they prefer to minimize the amount of work they have to do, they enjoy sexual intercourse, and they seek to increase the love and affection that others offer them.” These needs are universal; the way in which a society meets them is determined by culture. Culture is the “learned repertoire of thoughts and actions exhibited by members of social groups – repertoires transmissible independently of genetic heredity from one generation to the next.” The sociocultural system rests on how a society exploits its environment in order to satisfy the basic bio-psychological of its population. This process does not operate through a simple calculation of what is best for the greatest number of people. Many changes are more beneficial to some members of society than others. Elites play a crucial role in social change and/or stability. Harris’ view of world religions illustrates the prominent role he assigns to elites while describing social processes: “The demystification of the world religions begins with this simple fact: Confucianism, Taoism, Buddhism, Hinduism, Christianity, and Islam prospered because the ruling elites who invented or co-opted them benefited materially from them. By spiritualising the plight of the poor, these world religions unburdened the ruling class of the obligations of providing material remedies for poverty.”

Harris’ formulation borrowed from Marxist materialism. However, unlike Marxist theory, CM privileges both productive (economic) and reproductive (demographic) forces as key components of the infrastructure. Cultural materialists view the infrastructure-structure relationship as being mostly unidirectional, while some Marxists see it as reciprocal. In spite of the emphasis CM places on the role of the elites in social change, it differs from Marxism in its lack of class theory. CM views social change as potentially beneficial for both upper and lower classes, and it does not envision a final utopian state.

Proponents of alternative anthropological theories have criticized CM for various reasons. Marxists have accused cultural materialists of relying too heavily on a simplistic unidirectional infrastructure-structure-superstructure model to explain social phenomena, ignoring the influence of the superstructure upon the infrastructure. Idealists such as structuralists consider that emic thoughts and behaviors provide the key to understanding cultural differences. They argue that there is no need for the emic/etic distinction. To structuralists, culture is grounded on a universal pattern or structure that is embedded in the mind, and cultural differences are the result of how each society fills that structure. Postmodernists focus their criticism of CM on its reliance on the scientific method. The application of science – itself a culturally determined phenomenon – to the study of culture would be unreliable. CM has also been criticised for an insufficient scientific rigor. The dismissal of Marvin Harris’ by some academic circles coincided with the great popularity of his books written for a general audience.

CM made several important contributions to anthropology, which include: a) its research strategies that challenged anthropology to become more grounded on a scientific foundation; b) its response to competitive approaches based on irrationality or pseudo-science; c) its holistic view of anthropology, which

integrates the methods and findings of all the sub-fields of anthropology; d) the use of a clear and intelligible language and the aim to communicate anthropological knowledge beyond academic circles; e) its optimism in believing that culture can be studied across geographic and temporal boundaries, and its aim to develop broad theories of culture.