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*This book is dedicated
to my mother, Sylvia,
with love,
appreciation, and
admiration for her
strength and courage;*

*and to my father,
Clifton, whose
kindness and love of
learning were an
inspiration to all who
were fortunate enough
to know him.*

—P.W.

*To Elaine and Lisa—
flowers in the desert.*

—D.E.K.H.

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India's Sacred Cow

By Marvin Harris

News photographs that came out of India during the famine of the late 1960s showed starving people stretching out bony hands to beg for food while sacred cattle strolled behind them undisturbed. The Hindu, it seems, would rather starve to death than eat his cow or even deprive it of food. The cattle appear to browse unhindered through urban markets eating an orange here, a mango there, competing with people for meager supplies of food.

By Western standards, spiritual values seem more important to Indians than life itself. Specialists in food habits around the world like Fred Simoons at the University of California at Davis consider Hinduism an irrational ideology that compels people to overlook abundant, nutritious foods for scarcer, less healthful foods.

What seems to be an absurd devotion to the mother cow pervades Indian life. Indian wall calendars portray beautiful young women with bodies of fat white cows, often with milk jetting from their teats into sacred shrines.

Cow worship even carries over into politics. In 1966 a crowd of 120,000 people, led by holy men, demonstrated in front of the Indian House of Parliament in support of the All-Party Cow Protection Campaign Committee. In Nepal, the only contemporary Hindu kingdom, cow slaughter is severely punished. As one story goes, the car driven by an official of a United States agency struck and killed a cow. In order to avoid the international incident that would have occurred when the official was arrested for murder, the

Nepalese magistrate concluded that the cow had committed suicide.

Many Indians agree with Western assessments of the Hindu reverence for their cattle, the zebu, or *Bos indicus*, a large-humped species prevalent in Asia and Africa. M. N. Srinivas, an Indian anthropologist states: "Orthodox Hindu opinion regards the killing of cattle with abhorrence, even though the refusal to kill the vast number of useless cattle which exists in India today is detrimental to the nation." Even the Indian Ministry of Information formerly maintained that "the large animal population is more a liability than an asset in view of our land resources." Accounts from many different sources point to the same conclusion: India, one of the world's great civilizations, is being strangled by its love for the cow.

The easy explanation for India's devotion to the cow, the one most Westerners and Indians would offer, is that cow worship is an integral part of Hinduism. Religion is somehow good for the soul, even if it sometimes fails the body. Religion orders the cosmos and explains our place in the universe. Religious beliefs, many would claim, have existed for thousands of years and have a life of their own. They are not understandable in scientific terms.

But all this ignores history. There is more to be said for cow worship than is immediately apparent. The earliest Vedas, the Hindu sacred texts from the Second Millennium B.C., do not prohibit the slaughter of cattle. Instead, they ordain it as a part of sacrificial rites. The

early Hindus did not avoid the flesh of cows and bulls; they ate it at ceremonial feasts presided over by Brahman priests. Cow worship is a relatively recent development in India; it evolved as the Hindu religion developed and changed.

This evolution is recorded in royal edicts and religious texts written during the last 3,000 years of Indian history. The Vedas from the First Millennium B.C. contain contradictory passages, some referring to ritual slaughter and others to a strict taboo on beef consumption. A. N. Bose, in *Social and Rural Economy of Northern India, 600 B.C.—200 A.D.*, concludes that many of the sacred-cow passages were incorporated into the texts by priests of a later period.

By 200 A.D. the status of Indian cattle had undergone a spiritual transformation. The Brahman priesthood exhorted the population to venerate the cow and forbade them to abuse it or to feed on it. Religious feasts involving the ritual slaughter and consumption of livestock were eliminated and meat eating was restricted to the nobility.

By 1000 A.D., all Hindus were forbidden to eat beef. Ahimsa, the Hindu belief in the unity of all life, was the spiritual justification for this restriction. But it is difficult to ascertain exactly when this change occurred. An important event that helped to shape the modern complex was the Islamic invasion, which took place in the Eighth Century A.D. Hindus may have found it politically expedient to set themselves off from the invaders, who were beefeaters, by emphasizing the need to prevent the slaughter

of their sacred animals. Thereafter, the cow taboo assumed its modern form and began to function much as it does today.

The place of the cow in modern India is every place—on posters, in the movies, in brass figures, in stone and wood carvings, on the streets, in the fields. The cow is a symbol of health and abundance. It provides the milk that Indians consume in the form of yogurt and ghee (clarified butter), which contribute subtle flavors to much spicy Indian food.

This, perhaps, is the practical role of the cow, but cows provide less than half the milk produced in India. Most cows in India are not dairy breeds. In most regions, when an Indian farmer wants a steady, high-quality source of milk he usually invests in a female water buffalo. In India the water buffalo is the specialized dairy breed because its milk has a higher butterfat content than zebu milk. Although the farmer milks his zebu cows, the milk is merely a by-product.

More vital than zebu milk to South Asian farmers are zebu calves. Male calves are especially valued because from bulls come oxen, which are the mainstay of the Indian agricultural system.

Small, fast oxen drag wooden plows through late-spring fields when monsoons have dampened the dry, cracked earth. After harvest, the oxen break the grain from the stalk by stomping through mounds of cut wheat and rice. For rice cultivation in irrigated fields, the male water buffalo is preferred (it pulls better in deep mud), but for most other crops, including rainfall rice, wheat, sorghum, and millet, and for transporting goods and people to and from town, a team of oxen is preferred. The ox is the Indian peasant's tractor, thresher and family car combined; the cow is the factory that produces the ox.

If draft animals instead of cows are counted, India appears to have too few domesticated ruminants, not too many. Since each of the 70 million farms in India requires a draft team, it follows that Indian peasants should use 140 million animals in the fields. But there are only

83 million oxen and male water buffalo on the subcontinent, a shortage of 30 million draft teams.

In other regions of the world, joint ownership of draft animals might overcome a shortage, but Indian agriculture is closely tied to the monsoon rains of late spring and summer. Field preparation and planting must coincide with the rain, and a farmer must have his animals ready to plow when the weather is right. When the farmer without a draft team needs bullocks most, his neighbors are all using theirs. Any delay in turning the soil drastically lowers production.

Because of this dependence on draft animals, loss of the family oxen is devastating. If a beast dies, the farmer must borrow money to buy or rent an ox at interest rates so high that he ultimately loses his land. Every year foreclosures force thousands of poverty-stricken peasants to abandon the countryside for the overcrowded cities.

If a family is fortunate enough to own a fertile cow, it will be able to rear replacements for a lost team and thus survive until life returns to normal. If, as sometimes happens, famine leads a family to sell its cow and ox team, all ties to agriculture are cut. Even if the family survives, it has no way to farm the land, no oxen to work the land, and no cows to produce oxen.

The prohibition against eating meat applies to the flesh of cows, bulls, and oxen, but the cow is the most sacred because it can produce the other two. The peasant whose cow dies is not only crying over a spiritual loss but over the loss of his farm as well.

Religious laws that forbid the slaughter of cattle promote the recovery of the agricultural system from the dry Indian winter and from periods of drought. The monsoon, on which all agriculture depends, is erratic. Sometimes it arrives early, sometimes late, sometimes not at all. Drought has struck large portions of India time and again in this century, and Indian farmers and the zebus are accustomed to these natural disasters. Zebus can pass weeks

on end with little or no food and water. Like camels, they store both in their humps and recuperate quickly with only a little nourishment.

During droughts the cows often stop lactating and become barren. In some cases the condition is permanent but often it is only temporary. If barren animals were summarily eliminated, as Western experts in animal husbandry have suggested, cows capable of recovery would be lost along with those entirely debilitated. By keeping alive the cows that can later produce oxen, religious laws against cow slaughter assure the recovery of the agricultural system from the greatest challenge it faces—the failure of the monsoon.

The local Indian governments aid the process of recovery by maintaining homes for barren cows. Farmers reclaim any animal that calves or begins to lactate. One police station in Madras collects strays and pastures them in a field adjacent to the station. After a small fine is paid, a cow is returned to its rightful owner when the owner thinks the cow shows signs of being able to reproduce.

During the hot, dry spring months most of India is like a desert. Indian farmers often complain they cannot feed their livestock during this period. They maintain the cattle by letting them scavenge on the sparse grass along the roads. In the cities cattle are encouraged to scavenge near food stalls to supplement their scant diet. These are the wandering cattle tourists report seeing throughout India.

Westerners expect shopkeepers to respond to these intrusions with the deference due a sacred animal; instead, their response is a string of curses and the crack of a long bamboo pole across the beast's back or a poke at its genitals. Mahatma Gandhi was well aware of the treatment sacred cows (and bulls and oxen) received in India. "How we bleed her to take the last drop of milk from her. How we starve her to emaciation, how we ill-treat the calves, how we deprive them of their portion of milk, how cruelly we treat the oxen, how we cas-

trate them, how we beat them, how we overload them."

Oxen generally receive better treatment than cows. When food is in short supply, thrifty Indian peasants feed their working bullocks and ignore their cows, but rarely do they abandon the cows to die. When cows are sick, farmers worry over them as they would over members of the family and nurse them as if they were children. When the rains return and when the fields are harvested, the farmers again feed their cows regularly and reclaim their abandoned animals. The prohibition against beef consumption is a form of disaster insurance for all India.

Western agronomists and economists are quick to protest that all the functions of the zebu cattle can be improved with organized breeding programs, cultivated pastures, and silage. Because stronger oxen would pull the plow faster, they could work multiple plots of land, allowing farmers to share their animals. Fewer healthy, well-fed cows could provide Indians with more milk. But pastures and silage require arable land, land needed to produce wheat and rice.

A look at Western cattle farming makes plain the cost of adopting advanced technology in Indian agriculture. In a study of livestock production in the United States, David Pimentel of the College of Agriculture and Life Sciences at Cornell University found that 91 percent of the cereal, legume, and vegetable protein suitable for human consumption is consumed by livestock. Approximately three quarters of the arable land in the United States is devoted to growing food for livestock. In the production of meat and milk, American ranchers use enough fossil fuel to equal more than 82 million barrels of oil annually.

Indian cattle do not drain the system in the same way. In a 1971 study of livestock in West Bengal, Stewart Odend'hal of the University of Missouri found that Bengalese cattle ate only the inedible remains of subsistence crops—rice straw, rice hulls, the tops of sugar cane, and mustard-oil cake. Cattle graze

in the fields after harvest and eat the remains of crops left on the ground; they forage for grass and weeds on the roadsides. The food for zebu cattle costs the human population virtually nothing. "Basically," Odend'hal says, "the cattle convert items of little direct human value into products of immediate utility."

In addition to plowing the fields and producing milk, the zebus produce dung, which fires the hearths and fertilizes the fields of India. Much of the estimated 800 million tons of manure produced annually is collected by the farmers' children as they follow the family cows and bullocks from place to place. And when the children see the droppings of another farmer's cattle along the road, they pick those up also. Odend'hal reports that the system operates with such high efficiency that the children of West Bengal recover nearly 100 percent of the dung produced by their livestock.

From 40 to 70 percent of all manure produced by Indian cattle is used as fuel for cooking; the rest is returned to the fields as fertilizer. Dried dung burns slowly, cleanly, and with low heat—characteristics that satisfy the household needs of Indian women. Staples like curry and rice can simmer for hours. While the meal slowly cooks over an unattended fire, the women of the household can do other chores. Cow chips, unlike firewood, do not scorch as they burn.

It is estimated that the dung used for cooking fuel provides the energy-equivalent of 43 million tons of coal. At current prices, it would cost India an extra 1.5 billion dollars in foreign exchange to replace the dung with coal. And if the 350 million tons of manure that are being used as fertilizer were replaced with commercial fertilizers, the expense would be even greater. Roger Revelle of the University of California at San Diego has calculated that 89 percent of the energy used in Indian agriculture (the equivalent of about 140 million tons of coal) is provided by local sources. Even if foreign loans were to provide the

money, the capital outlay necessary to replace the Indian cow with tractors and fertilizers for the fields, coal for the fires, and transportation for the family would probably warp international financial institutions for years.

Instead of asking the Indians to learn from the American model of industrial agriculture, American farmers might learn energy conservation from the Indians. Every step in an energy cycle results in a loss of energy to the system. Like a pendulum that slows a bit with each swing, each transfer of energy from sun to plants, plants to animals, and animals to human beings involves energy losses. Some systems are more efficient than others; they provide a higher percentage of the energy inputs in a final, useful form. Seventeen percent of all energy zebus consume is returned in the form of milk, traction and dung. American cattle raised on Western range land return only 4 percent of the energy they consume.

But the American system is improving. Based on techniques pioneered by Indian scientists, at least one commercial firm in the United States is reported to be building plants that will turn manure from cattle feedlots into combustible gas. When organic matter is broken down by anaerobic bacteria, methane gas and carbon dioxide are produced. After the methane is cleansed of the carbon dioxide, it is available for the same purposes as natural gas—cooking, heating, electricity generation. The company constructing the biogasification plant plans to sell its product to a gas-supply company, to be piped through the existing distribution system. Schemes similar to this one could make cattle ranches almost independent of utility and gasoline companies, for methane can be used to run trucks, tractors, and cars as well as to supply heat and electricity. The relative energy self-sufficiency that the Indian peasant has achieved is a goal American farmers and industry are now striving for.

Studies like Odend'hal's understate

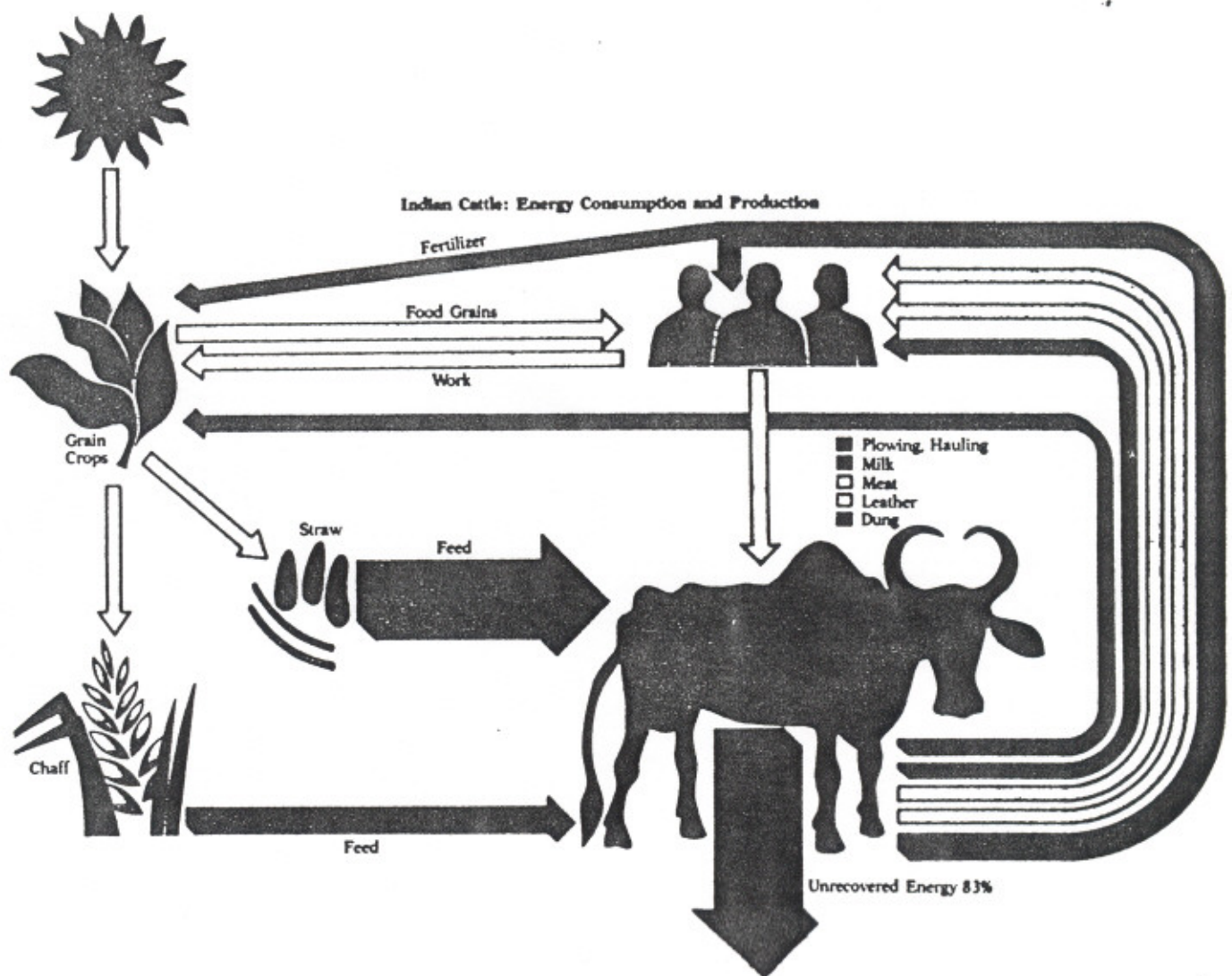
Cattle, like other living organisms, consume energy in one form and produce it in another. The diagrams below trace the consumption and production of energy by Indian and American cattle. The size of the colored arrows reflects the proportion of energy flow; the gray arrows indicate unmeasured quantities. Indian cattle transform 17 percent of

the efficiency of the Indian cow, because dead cows are used for purposes that Hindus prefer not to acknowledge. When a cow dies, an Untouchable, a member of one of the lowest ranking castes in India, is summoned to haul away the carcass. Higher castes consider

the body of the dead cow polluting; if they do handle it, they must go through a rite of purification.

Untouchables first skin the dead animal and either tan the skin themselves or sell it to a leather factory. In the privacy of their homes, contrary to the

teachings of Hinduism, untouchable castes cook the meat and eat it. Indians of all castes rarely acknowledge the existence of these practices to non-Hindus, but most are aware that beefeating takes place. The prohibition against beefeating restricts consumption by the higher castes and helps distribute animal pro-



the food they eat into useful goods. American cattle transform only 4 percent of the energy used in their production into useful forms. Indian cattle eat agricultural waste products unfit for human consumption. In America, cattle eat grain that could feed people, and beef and dairy farming require fossil fuels that could be put to more efficient use.

tein to the poorest sectors of the population that otherwise would have no source of these vital nutrients.

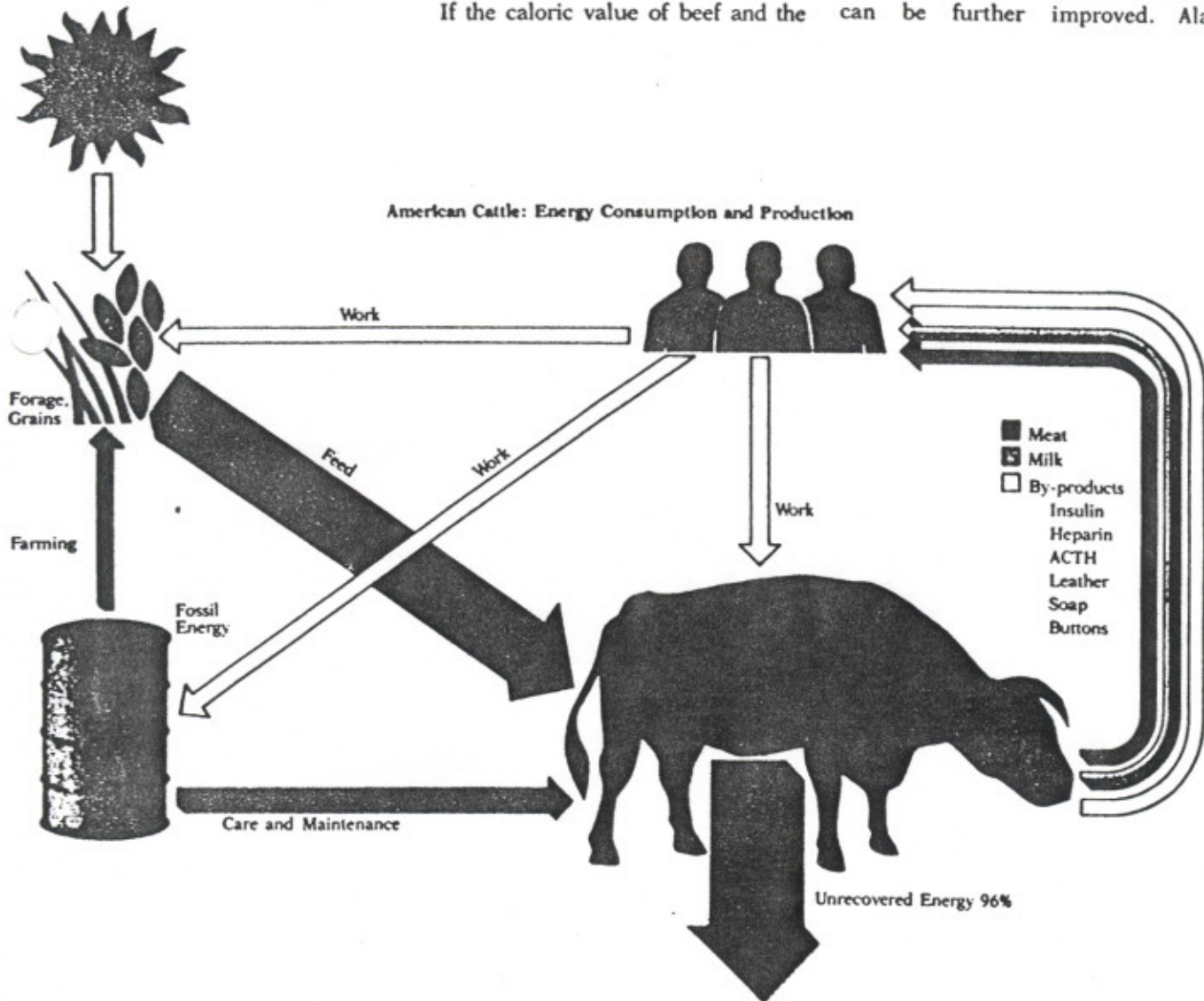
Untouchables are not the only Indians who consume beef. Indian Muslims and Christians are under no restriction that forbids them beef, and its consumption is

legal in many places. The Indian ban on cow slaughter is state, not national, law and not all states restrict it. In many cities, such as New Delhi, Calcutta, and Bombay, legal slaughterhouses sell beef to retail customers and to the restaurants that serve steak.

If the caloric value of beef and the

energy costs involved in the manufacture of synthetic leather were included in the estimates of energy, the calculated efficiency of Indian livestock would rise considerably.

As well as the system works, experts often claim that its efficiency can be further improved. Alan





Heston, an economist at the University of Pennsylvania, believes that Indians suffer from an overabundance of cows simply because they refuse to slaughter the excess cattle. India could produce at least the same number of oxen and the same quantities of milk and manure with 30 million fewer cows. Heston calculates that only 40 cows are necessary to maintain a population of 100 bulls and oxen. Since India averages 70 cows for every 100 bullocks, the difference, 30 million cows, is expendable.

What Heston fails to note is that sex ratios among cattle in different regions of India vary tremendously, indicating that adjustments in the cow population do take place. Along the Ganges River, one of the holiest shrines of Hinduism, the ratio drops to 47 cows for every 100 male animals. This ratio reflects the preference for dairy buffalo in the irrigated sectors of the Gangetic Plains. In nearby Pakistan, in contrast, where cow slaughter is permitted, the sex ratio is 60 cows to 100 oxen.

Since the sex ratios among cattle differ greatly from region to region and do not even approximate the balance that would be expected if no females were killed, we can assume that some culling of herds does take place; Indians do adjust their religious restrictions to accommodate ecological realities.

They cannot kill a cow but they can tether an old or unhealthy animal until it has starved to death. They cannot slaughter a calf but they can yoke it with a large wooden triangle so that when it nurses it irritates the mother's udder and gets kicked to death. They cannot ship their animals to the slaughterhouse but they can sell them to Muslims, closing their eyes to the fact that the Muslims will take the cattle to the slaughterhouse.

These violations of the prohibition against cattle slaughter strengthen the premise that cow worship is a vital part of Indian culture. The practice arose to prevent the population from consuming the animal on which Indian agriculture depends. During the First Millennium B.C., the Ganges Valley became one of the most densely populated regions of the world.

Where previously there had been only scattered villages, many towns and cities arose and peasants farmed every available acre of land. Kingsley Davis, a population expert at the University of California at Berkeley, estimates that by 300 B.C. between 50 million and 100 million people were living in India. The forested Ganges Valley became a windswept semidesert and signs of ecological collapse appeared; droughts and floods became commonplace, erosion took away the rich topsoil, farms shrank as population increased, and domesticated animals became harder and harder to maintain.

It is probable that the elimination of meat eating came about in a slow, practical manner. The farmers who decided not to eat their cows, who saved them for procreation to produce oxen, were the ones who survived the natural disasters. Those who ate beef lost the tools with which to farm. Over a period of centuries, more and more farmers probably avoided beef until an unwritten taboo came into existence.

Only later was the practice codified by the priesthood. While Indian peasants were probably aware of the role of cattle in their society, strong sanctions were necessary to protect zebus from a population faced with starvation. To remove temptation, the flesh of cattle became taboo and the cow became sacred.

The sacredness of the cow is not just

an ignorant belief that stands in the way of progress. Like all concepts of the sacred and the profane, this one affects the physical world; it defines the relationships that are important for the maintenance of Indian society.

Indians have the sacred cow; we have the "sacred" car and the "sacred" dog. It would not occur to us to propose the elimination of automobiles and dogs from our society without carefully considering the consequences, and we should not propose the elimination of zebu cattle without first understanding their place in the social order of India.

Human society is neither random nor capricious. The regularities of thought and behavior called culture are the principal mechanisms by which we human beings adapt to the world around us. Practices and beliefs can be rational or irrational, but a society that fails to adapt to its environment is doomed to extinction. Only those societies that draw the necessities of life from their surroundings without destroying those surroundings, inherit the earth. The West has much to learn from the great antiquity of Indian civilization, and the sacred cow is an important part of that lesson.

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