



Book Review: *Man and Environment: The Ecological History of India*

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Man and Environment: The Ecological History of India

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This book briefly talks about the changing relationship of Homo sapiens and their ancestors with the environment, starting from the age of Pleistocene to 20th century AD. Even though the discussion starts from the period of evolution and diffusion of the human species, India is always at the centre of discussion. The book attempts to encompass an ecological history of India. The symbiosis of agriculture and pastoralism in the Indus Civilization, which was a radical thing that happened during this period, has been discussed in the book. The questions and debated opinions related to climate change and its effects on Indus Civilization are elaborated on as well. The history of animal domestication, forests and wildlife in Medieval India was made interesting through the simple narration of Habib. Again, the book addresses ancient concepts such as sacrifice, ahimsa and religion in relation to the environment. Medieval India and the Colonial period were marked by the exploitation of nature and the destruction of wildlife. It impacted the environment in a way that became impossible to undo. Again, during the period of colonial rule, under the influence of capitalism, the colonizers only thought of generating revenue, ignoring the environment. The environment also in the forms of famine, diseases and disasters took revenge on humans. Habib



addressed the major famines, diseases and disasters during Medieval and Colonial India and noted how they affected the human civilization of that time.

The book discusses how the global cooling or the ice age took place during the geological age of the Pleistocene. Habib asserts that during that time a massive Drift caused by the tectonic stresses changed the surface of the earth, which separated many continents from each other, and it was through that Continental Drift that India was separated from Australia, Africa, Antarctica and South America. However, the massive physical change of the earth during the Pleistocene age was not simply caused by the tectonic stresses; climate change had a very important role to play there. Habib argued that the distance of the sun from the earth and the tilt of the earth's axis played a vital role in the changing of the seasons. Habib stated that "there could thus be considerable climatic variations within each Ice Age and Interglacial ('warming phase'), with changes in orbit and tilt and precession exerting different kinds of influence at different times" (3). The Himalayas along with many other places on earth permanently got covered by ice in the Ice Ages. The sea level fell as "water turned into masses of snow" (4). However, the sea reclaimed its territory and advanced immensely when the warmer times began.

Vegetation and animal life were heavily affected by the climate changes in the Pleistocene age. As aridity grew there was no rain and "the rivers contained less and less water" (9), so naturally the territory of the deserts "expanded at the expense of forest" (9). However, when the earth began to warm up after the peak of the Ice Age, naturally the aridity declined, and after that, there was rain which flourished the plant species on earth. Again, Habib is of the opinion that many mammal species became extinct for not being able to adapt to climate changes. He pointed out that seventeen extinct elephant species have been found in different parts of India. Along with climate change, Habib opined, the slaughtering of animals by early humans was also one the causes behind the disappearance of many animal species in India, the hippopotamus, wild horses, spotted hyenas, and ostrich being a few of them.

Pointing out that human successors probably originated in Africa since their remains have been found there and the African Rift Valley provided an ideal environment for humans, Habib goes on to talk about the two important developments that changed the fate of humans forever, one is the discovery of fire and learning to use it and the ability to make 'hand-axes.' Gradually, humans developed their muscular abilities and learned to make complex tools for their daily use, and "secured through speech an efficient means of transmission of knowledge" (17). As humans learned to use the forces of nature, they established hegemony and became the dominant species.



Another important phase in the history of humankind was the Neolithic Revolution. It is in this phase that humans learned the art of cultivating plants and the domestication of farm animals. Habib wrote that “the earliest traces of agriculture and animal domestication belonged to an age subsequent to the passing away of the (last) Ice Age” (25). He assumed that as forests began to expand and flourish because aridity was replaced by heavy rainfall in the tropical and subtropical regions of the Ice Age, it eventually became a source of fruits and vegetables for humans. So, in every change and transformation, the environment has a very important role to play. While talking about the importance of the “pastoral sector in the human economy” (29) Habib stated that humans were responsible for the worldwide spread and protection of domestic animals. And, it changed everything because afterwards they were used for multiple purposes e.g. agriculture, food, clothes etc.

Plant cultivation and animal domestication reached their highest potential when their paths were combined by humans. But, this symbiosis between agriculture and cattle-rearing only happened when humans learned that male ox or bulls can be easily used for agricultural purposes after their castration. They become tractable enough to be controlled after the castration. This was indeed an important discovery that changed the history of the human race. “With the simple plough, the human capacity to cultivate the soil practically doubled” (32) and Habib argued that this “new incarnation contributed greatly to the transport of good bulk, and so brought about a radical change in the scale of transport” (33). An important thing Habib pointed out was that after the Neolithic Revolution, there was the availability of food, and thus humans concentrated in villages or towns, which led to an increase in population. Then, he goes on to talk about climate change and Indus Civilization. He addressed the speculations that a great flood might have washed the cities away or the water of a huge lake submerged Mohenjo Daro. He talked about various researchers and their conclusions who worked on Indus Civilization. He concluded with the Bryson team’s theory which suggested that “it was really the decline in the volume of river discharge, consequential upon a southward shift in the monsoon during the ‘Indus Event’ (2100-1500 BC) caused by volcanic dust, that destroyed the backbone of the flood-based agriculture of the region, and so put an end to the Indus Civilization” (38).

The Third Chapter entitled “Ancient Times” (c. 1500 BC-AD 700) starts from 1500 BC because from that time onwards literature (e.g. the earliest hymns of *Rigveda*) was written and that acted as a reliable source of information apart from archaeological evidence. Habib states that there is a reference to ploughs drawn by six or eight oxen in the *Atharvaveda*. “A change-over to lighter ploughs probably came with the diffusion of iron” (49). Apart from the use of cows and



ploughs in agriculture at that time, the Indians had a proper irrigation system. While talking about the systematically planted fruit trees in orchards, Habib asserted that there is a clear reference to these kinds of practices in the Buddhist texts. So, in the Vedic period, there was a proper two-harvest cycle system, the use of ploughs and cows in agriculture, proper irrigation and artificially planted fruit tree groves. Rainfall variations affect agriculture but not the trees of forest and “famines were a phenomenon largely specific to agriculture” (52).

There were a large number of animals domesticated and used in Ancient India. Their evidence can be found in the *Vedas*, *Ramayana*, *Manusmriti* and *Harshacharita*. The domesticated animals included horses, donkeys, camels, cows, elephants, pigs and dogs. In that period forest was perceived to be a sacred place. In the late Vedic times, the Brahmanical priests used to retire in the forest “to communicate spiritual speculations and secret rituals to their disciples in the seclusion thus provided to the” (60). With all the resources combined together, the forest greatly added to the national wealth. Then, Habib’s comment on the religion of Ancient India is simple, but true indeed. He argued that the human inability to control the forces of nature leads to superstition, and superstition eventually blossomed into a religion. While commenting on the religion of Rigveda, Habib stated that “its deities are superhuman in conception” (64) and definitely have a link with the environment, but not zoomorphic like the deities of the Indus Civilization. Then he talked about Vedic forms of religious practices, sacrifice being one of them. He concluded the chapter by commenting on the concept of ‘ahimsa’ and how it influenced Jainism and Buddhism.

Chapter Four of this book covers c. 700- c. 1750 AD, Medieval India. Habib starts the chapter by discussing the physical environment of India at that time. Hardly any physical changes took place during this period, apart from the minor noticeable changes caused by land erosion. And, “these simultaneous processes tended to alter the shoreline as well as river courses” (75). In the Medieval period, humans have already shifted to agriculture from hunting and cattle-rearing practices and settled in a particular place. So, in such a situation the coming of the monsoon at a proper time became the most important factor for humans. Considerable variation in rainfall leads to drought and eventually to famine. Habib mentions a few recorded famines during this period. And, “famines and scarcities were accompanied by epidemics” (84). While going through the epidemics, Habib made a very interesting point that our sources always give importance to fast-killing diseases and ignore slow-killing diseases. Habib considers this an “understandable bias” (84). He mentioned the slow-killing diseases like tuberculosis and malaria that killed millions during and before this period. Smallpox was a deadly disease during this period and inoculation



was practised as a measure of prevention against it. The infant mortality rate was high at that time and there was no proper medicine or treatment to prevent that.

In spite of famines and epidemics, there was a substantial growth of population in Medieval India. Better means of irrigation were invented such as sluices and canals, agriculture improved immensely. “Henna and opium were introduced from the Islamic world;” “fruits were improved by the use of grafting, both under the patronage of the Mughal court and by the agency of the Portuguese” (90). Habib asserted that in Medieval India the utility of the cows increased as they started to get used for various purposes apart from agriculture, e.g. transport, lifting water, threshing grain and turning oil and sugar mills. Apart from cows, buffalo, camels, horses and elephants were heavily used in India. The demand for horses increased after the establishment of the Mughal Empire. The decline in forests and the destruction of wildlife started in the medieval period. What Mughal hunters started, ended the British shikaris.

In the concluding chapter Habib talks about the ecology of the period of colonial rule. It was a period of exploitation and utilization of natural resources. All ecological circumstances had a political angle during the time of the colonial period. This is also true in the present context. And, Habib argues that this has to do with the exploiting classes. The British East India Company with a mindset of profit and loss wanted to generate maximum revenue from India through large exports of goods. However, after the industrial revolution, the tradition of taking Tribute continued or even intensified, but this added: “the objective of converting India into a source of raw materials and market for British products” (112).

From 1871 onwards census was held in India. Habib had clear data to talk about the population during that time. There was substantial growth in population from 1921 onwards. Habib holds two factors responsible for this, first, the arrival of monsoon at the proper time and “no serious failure of rainfall;” and second, “the development of more effective and simpler modes of vaccination” (114). While talking about famines Habib stated that high rainfall variability leads to the possibility of drought and eventually famine. Areas with low rainfall variability have a lesser possibility of drought. He provides a rainfall variability map of India which categorizes the areas with rainfall variability. “Yet practically no region in India has been able to escape its ravages at one time or another” (117). In spite of low rainfall variability, Bengal couldn’t escape from the grip of famine. According to W.W. Hunter, the 1770 famine of Bengal killed about 10 million people. Then Habib provides a chart that records all the major famines during the Nineteenth century. As in Medieval India, smallpox devoured millions during colonial times. As no prevention method or medicine was available, it became impossible to resist. During this period cholera emerged as a



deadly epidemic. Apart from that, malaria and tuberculosis killed many because of the unavailability of proper treatment. Again, Habib mentioned the natural disasters such as earthquakes and cyclones that became the cause of death of many.

Habib opined that there was a crisis in animal husbandry during this period. Though the cattle and buffaloes grew in numbers, the quality was compromised. It was because the professional cattle bearers started abandoning their professions. The areas of forest in India during this period have been greatly reduced. They cut forests for various purposes, but behind this huge reduction, railway construction was responsible. “Since 13,639 kilometres of railway track had been laid by 1879, one can imagine that for the initial track-laying alone 3.4 million trees must have been cut, with another 2 million cut for replacement of sleepers on tracks laid on earlier” (132). The British simply acted on their interests and did heavy damage to the forests. So, by these acts of railway construction, expanding the area of cultivation by cutting forests, they restricted the habitats of many wild mammals. This eventually became the cause of the extinction of many animals.

Human beings and the environment are intimately connected. So, ecological history is actually a part of human history. This book deals with the cause-effect relationship between human beings and the environment, where both influence each other. The author Irfan Habib gives proper evidence from the literature to justify his arguments. The reviewer, being a literature student, finds the relationships between ecology, history, literature and human beings fascinating. The reviewer couldn't stop praising Habib for his beautiful story-telling narration of the ecological history of India. Habib's explanation of religion, society and ecology seemed very simple but at the same time factual. Again, there are many other aspects related to religion and ecology such as rituals and sacrifice that, the reviewer thinks, need further enquiry. It can be done by following the methodology of Habib. The book addressed the major famines, epidemics and disasters during medieval India and Colonial Rule. The reviewer thinks that the book opens further possibilities for studying famines, epidemics and disasters at the state and district level. We all know that all the combined assaults on the environment lead to global warming. However, the reviewer finds that Habib didn't talk much about global warming in this book. Finally, the reviewer would suggest that if anyone wants to do an ecological survey on a district or state level in India, *Man and Environment: The Ecological History of India* (2015) should be the first book to open.