
| RESEARCH ARTICLE

History of Animal Keeping in Ancient India and its Socio-Economic, Scientific Applicability in 21st Century

Swarnendu Chakraborty

Assistant Professor in History, D.H.M College, Burdwan, WB, India

Corresponding Author: Swarnendu Chakraborty, **E-mail:** swarnenduc@aol.com

| ABSTRACT

The human race is a member of the Mammalian class and the Primate Order. So, a human is also an animal. But what differs from other animal species is human wisdom. It is only humans who can domesticate other animals and use them to fulfill different needs. In hunting/gathering hominid societies, animals were rich sources of meat, skin, and bone. But the artistic and curious human mind kept records of his relationship with the animal world through rock paintings from the Upper Paleolithic era. From different centres of human habitats throughout the Indian Sub-Continent, a huge amount of animal remains have been discovered by Archeologists. Apart from kitchen waste which highlights the on-veg food habit of nomadic people, terracotta animal figurines, day-to-day bone tools, ivory and shell ornaments, artifacts etc., pointed out the importance and use of domesticated animals in human life. Animal domestication and husbandry became synonymous with Indian Proto-Historic and Historic civilizations not only economically / militarily but also with religious and cultural traditions. Sheep and goats were first domesticated by South Indian Neolithic men around 2 thousand and five hundred B.C. as sources of milk, wool, meat, leather and other commodities. Today's Indian domestic fowl originated from red jungle fowl. Seals of Indus civilization were decorated with humped and hump-less bulls, goats, sheep, elephants, and fowl. Vedic Aryans husbanded horses, dogs, sheep, goats, fowl, elephants, cow-bull etc. During the Mauryan era, buffalo was included in the category of dairy cattle. Domestication of animals is not a new thing in human history. The novelty lies in Indian people's attention and urge for the wellbeing of domesticated animals. Ancient Indian literature like Vedas, CharakSamhita, SushrutSamhita, HaritaSamhita, Agni Purana, Mastya Purana, Artha-Shastra etc. Provide proper guidance on orientation, construction, and purification of animal houses, besides veterinary Ayurvedic and surgical treatment of numerous diseases. In Vedic literature, Cow was considered as the measuring unit of wealth. Cow received the status of "Aghnya" [Not to be killed]. Priests were the first veterinarians of ancient India. Prominent among them were Shalihotra [Earliest expert in Horse medicine and author of "Haya Ayurveda"], Palakapya [Author of "Hasty- Ayurveda"] etc. 6th Century B.C. Indian rulers of Sravasti, Kousambi, and Lichabi kingdoms issued humped bull/cow inscribed coins. During the Indian invasion of Alexander the Great [326 B.C.], a Prince from Punjab presented Cock with engraved silver coins as a form of tribute. Arthashastra mentioned the King's duty of ensuring enough pasture land near every village. Gopa was accountable for keeping a record of this land. Horses and Elephants were the two main war animals of the Mauryan army. Proper care was given to them. Hurting/killing of any of these species resulted in the death penalty. The third Mauryan Monarch, Asoka, after his conversion to Buddhism, established veterinary hospitals throughout his domain. Ancient Indians were aware of the technique of animal husbandry as well. In short ancient Indian Veterinary Ayurvedic and surgical treatments are effective in curing dysentery, cough, wound, infertility, and different infections besides psychological stress still in the Twenty-First Century. Besides terrestrial animals' ancient Indian people were aware of the existence of fish, shells, and turtles. It is my aim in this essay to analyze customs, technologies and history of the domestication of animals by ancient Indian people and its socio-economic-scientific applicability in the scenario of the Twenty-First Century. I will utilize both primary and secondary sources to endure this goal.

| KEYWORDS

"Atharva Veda", "Shalihotra", "Aghnya", "Gopa", "Artha-Shastra"

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1. Introduction

According to Encyclopedia Britannica, domestication is the process of hereditary reorganization of wild animals and plants into domestic and cultivated forms in accordance with human necessity. The fundamental difference between domesticated versions of animals and plants with their wild ancestors is they were modified, created by human interference in their natural environment

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for fulfilling some needs and are maintained by active human care. The domestication process originated from different environments and climatic changes, which made the collection of food for survival difficult for pre-historic hunter-gatherer human groups. Charles Darwin theorized behavioral and genetic differences between domesticated and undomesticated wild animals in his "The Variation of Animals and Plants under Domestication" in 1868. From these beginner hunter-gatherer human groups, large-scale domestication took place during the Neolithic, Proto-historic, and historical eras, along with the growth of the agricultural economy and foundation of villages, cities, civilizations and empires across the globe. Animals under the domestication system and their by-products had been used heavily in transport, war, hunting, agriculture, commerce and amusement purposes from ancient to Twenty-First Century human history. Humans not only used domesticated animals for their various purposes but also took proper care of their wellbeing through using both surgical and non-surgical medical practices. Though Indus/Harappa Civilization's script cannot be authentically deciphered by any scholar to date, Indus seals contain images of different varieties of animals belonging to both domesticated and undomesticated sub-sections. Ancient Indian literature like Vedas, Puranas, Smritis, Arthashastra, CharakSamhita, and SushrutSamhita are bearing numerous references about the cultural-religious importance of domesticated animals besides prescribing different protective measures against natural or human-created calamities. In this study, I will discuss the history of animal domestication by ancient Indians from the pre-historical to the classical age. I will analyze veterinary medicinal technologies and customs practised by ancient Indians and their cultural, socio-economic, and scientific applicabilitys in the 21st Century.

2. Literature Review

For writing this article, I have gone through several manuscripts related to my concerning topic. Important among are "Evolution of Life" edited by M.S. Randhawa, Singh, A.K. Dey, V. Mittre, "India's Wild Life History an Introduction" by M. Rangarajan, "Asoka and His Inscriptions Pt. 1 & Pt. 2" by B.M. Barua etc. I have cultured several scholarly articles from different databases, like "Rastogi, Sanjeev, and Krishna Kaphle. "Sustainable Traditional Medicine: Taking the Inspirations from Ancient Veterinary Science." *Evidence-Based Complementary and Alternative Medicine* 2011 (2011): 1–6. <https://doi.org/10.1093/ecam/nen071>, Smith, Brian K. "Classifying Animals and Humans in Ancient India." *Man* 26, no. 3 (1991): 527–48. <https://doi.org/10.2307/2803881>, SAHU, BHAI RABI PRASAD. "Patterns of Animal Use in Ancient India." *Proceedings of the Indian History Congress* 48 (1987): 66–75. <https://www.jstor.org/stable/44141651>, Kumar, Aruna T., Rajbir Singh, and Charan Singh. "Ancient Indian Literature on Animal Housing and Health Corroborated by Modern Literature," 2015, Zeder, M., E. Eschweiler, Bruce D. Smith, and D. Bradley. "Documenting Domestication: The Intersection of Genetics and Archaeology." *Trends in Genetics: TIG*, 2006. <https://doi.org/10.1016/J.TIG.2006.01.007>. I have collected some hybrid sources on ancient Indian customs of animal domestication and veterinary science. "Hymns of the Atharva Veda" translated by Maurice, " The Agni Puranamvol4" translated by M.N.Dutta, "Kamandakiya-Nitisar" translated by G.Sarkar"Manu Samhita" translated by M.N.Dutta, " Kautilya's Arthashastra" translated by R.Shamasastri, " Vishnu Samhita" translated by M.N.Dutta, "Matanga-Lila" translated by Edgerton," The Agni Purana Part 3" translated by Shastri.J.L.&Gangadhara, "Krishi Parashar" edited by Mazumdar. Banerjee. S.C. Can be cited as an example.

3. Methodology

The English word "Anthropology" was derived from the Latin word "Anthropologia", which consisted of two Greek words "Anthropos" and "Logos". Anthropology is the scientific study of biology, behavior, culture, society, and languages of both past and present human species. The English word "History" was derived from the Greek word "Historia", which means enquiry, research, and investigation of past events. Historical research is a systematic enquiry of past events/objects with the aim to reconstruct the past partially/totally as nearly as it was. So History and Anthropology are very closely tied disciplines. Historical research can be divided into three main activities. A] Exploration of new data. B] New interpretation of known data. C] Subordination of data to unifying principles. Historical sources can be classified into 3 categories as well- primary, Secondary and Hybrid. In this study, I have tried to answer my research objectives using both primary and secondary sources following blended descriptive and analytical methodology.

4. Results and Discussion

The English word "Domestication" was derived from the Latin word "Domesticus", which means "Belonging to the household (*Domestication | Etymology, Origin and Meaning of Domestication by Etymonline, n.d.*). Animal domestication is a form of mutual relationship that develops between the human race/culture/civilizations and targeted wild animal species. Human association help to increase the genetic fitness of domesticated animals enabling them to grow in quantities and adjust to new/hostile environments and habitats more than their wild co-species (Zeder et al., 2006).

Pre-historic hominids were fully aware of their wild animal neighbors. Their Curious minds tried to keep records of contemporary fauna. Rock-art cave paintings of the Paleolithic, and Mesolithic ages, like Altamira cave paintings from Spain and Bhimbetka cave paintings from India, are bearing testimonies from immemorial time (Wikipedia Contributors, 2019).

These animals were major sources of animal protein in our ancestor's diet besides leather, bone and other day-to-day necessary materials. During the Neolithic age, some major changes took place, which reshaped human history. These were the manufacture of clay pottery using the potter's wheel, the intentional cultivation of wheat, barley, rice, millet, and cotton, the invention of smaller and more effective stone tools like axe, and sickles, the production of fur/cotton/leather/silk textiles, construction of permanent/semi-permanent villages. These changes have been classified by Gordon. Child as "Neolithic revolution" (V. Gordon Childe | *British Historian and Archaeologist*, n.d.).

With these changes, hunter-gatherer human communities became self-food producers. They also realized the importance of wild animal domestication with the purpose of using them not only as sources of meat but also as milk and other nutritious foods, a powerhouse in ploughing agricultural lands, a source of fertilizers, transport and military helping hands (1969). However, there is an ongoing debate about the exact timeline and chronology of animal domestication among scholars. Modern Archeologists use accelerator mass spectrometers and radio-carbon dating of pre-historic animal remains to decide their age. They considered the existence of particular animal species in huge quantities beyond their natural habitats, the sex ratio of animal debris, hoof print and artifacts found in human settlements as early signs of the domestication process. Modern Nuclear, Mitochondrial D.N.A. and Phylogenetic analysis have identified some genetic changes like reducing aggression, dietary change, coat color, heart size, and increasing growth hormones as signs of the domestication process. Besides that, modern Genetics pointed out that the domestication process was carried into more than one stage and time era, geographical location and human groups all over the world (Zeder et al., 2006).

The practice of animal domestication continued during the Proto-Historic phase of Indian civilization. More than 1 thousand Indus/Harappa civilization sites located in North Western India provided bones of Jackal, Indian Rhinoceros, Chital, Hare, Ass, Swamp-Deer and Elephants as old as 17th Century B.C. These constitute around one/a fifth of the total animal remains of this civilization. Though some animals belonged to a wild category, the Indus people domesticated Zebu cattle, Water buffalos, and Elephants from their wild ancestors. Harappa seals, potteries, and toys contain accurate representations of humped/humpless bulls, antelopes, and elephants, indicating deep economic-social-emotional attachment of humans towards their non-human friends (Mahesh Rangarajan & Ranthambhore Foundation, 2017). There is ample literature belonging to Rig Vedic, Later Vedic and epic ages mentioning different varieties of animals. "Rig Veda", "Atharva Veda", "Brahmans", "Aranyakas", "Upanishads", "Agni Purana", and "Ramayana" can be mentioned as examples (Mahesh Rangarajan & Ranthambhore Foundation, 2017). Vedic texts categorized contemporary fauna on the basis of 4 scales. A] Anatomical characteristics. B] Domestic/wild. C] Suitability of being religiously sacrificed through Vedic fire alters. D] Connubiality. According to Vedic cosmology, the whole universe is created by Purusha/Prajapati (Smith, 1991). Prajapati rules over both 2-footed and 4 footed animals. Horses, asses, sheep, goats, and bulls can be domesticated and sacrificed in fire alters. Reptiles, monkeys, bears, lions, buffalo, wild boar, elephants, and apes should not be sacrificed but can be hunted. These unsacrificable animals should not be domesticated as well. B. K. Smith argued that Vedic Cosmology categorized not only animal but also human society on the basis of the same divine creation from different body parts of Prajapati. Besides literary sources, Archeological excavations discovered various animal remains from different Indian cities that belonged to the Aryan cultural sphere. Among cattle, the cow was given special preference. Large quantities of cows are considered assigned to the owner's economic prosperity. From cows, people could get beef, milk, hide, fertilizers, and fuels. Mature bulls provided necessary animal force in the agricultural and transport sectors. Sheep, goats, and pigs were also mentionable (SAHU, 1987). A protective prayer towards celestial powers for the protection of all "Four footed" cattle in "Atharva-Veda" highlights that Vedic Aryans were attached to their domestic animals culturally/religiously (Bloomfield, 2017). Besides the cow, the horse was the second most important animal to Vedic Aryans. The horse was used in warfare besides transport and agricultural sectors. In the later Vedic era, Aryans domesticated elephants. Elephants were used as battle mounts, siege weapons, emblems of social/economic status, carriers of heavy loads etc.

From the 6th Century B.C., with the rise of 16th Mahajan padas and expansion of the Magadha Empire under different dynasties importance of military animals increased rapidly besides cattle. Contemporary literature like "Arthashastra" by Chanakya/Kautilya's, "Hitopodesha" by Vishnu Sharma, "Jataka", "Tipitaka", "Manu Samhita", "Nitisar" by kamandak, Sangam literature, humped bulls and cows inscribed coins issued by Indian rulers of Kosala, Kousambi, Kolchuri, Lichabi, Satbahan kingdoms, inscriptions of 3rd Mauryan king Asoka can be mentioned as examples.

Ancient Indians not only prayed to Gods/Goddesses for the protection of their domestic animals from enemies and diseases but also used surgical, Ayurveda, and veterinary medical sciences to keep them fit and healthy. Ancient Vedic priests were the oldest veterinarians in ancient India. Salihotra was a specialist in curing different Horse diseases. He wrote "Salihotra Samhita". It provides detailed guidelines about the good and bad qualities of horses according to their body color, shape, eye, and hair. It also suggests how to tame newly captured horses. It prescribed medical remedies for dysentery, cough, diarrhoea, fever, blood-urine, swelling limbs, jaw/tongue/cheekbone paralysis, ulcer, throat, skin, parasite infection, a plethora of blood, constipation of bowel, quick decay of hoof, respiratory diseases suffered by horses (1987). Koutilya mentioned a separate department under an Adhyakha and

sub-ordinate cook, stall guard, hair trimmer, and physician for taking proper care of horses. He also provided an ideal diet chart and proper guidelines regarding newborn horses up to gain full maturity. "Arthashastra" categorized horses into 7 sections-a] Panyagarikam, b] Krayopagatym, c]Ahavalabdhm,d] Ajatam, e] Sahayyakagatam,f]Panasthitam,g]Yavatkalikam Adhyakha had to keep records horse's quantities, age, color, identifying body marks, breeds and gender. Koutilya also narrated the training procedures of war horses. Horses unfit for military purposes due to age, war wounds, and disease also received the same care and protection (Kautilya, 1956).

Palakapya was a specialist in curing elephant diseases. He wrote "Hasty-Ayurveda". This treaty prescribed medicines for jaundice, constipation of the bowel, fainting/swooning, headache, dysentery, paralysis, utkarna, inflammation, skin disease, colic pain, and intestinal tumor of domesticated elephants. It also suggests ideal meals for them during normal/war/famine times (1987).

"Matanga-Lila", authored by Nil kantha, suggests some medicinal herbs and body paste for controlling must-maddened elephants (Brown & Edgerton, 1932). "Arthashastra" of Chanakya/Koutilya mentioned a separate Gov. Dept. under the Superintendent of Elephant and sub-ordinate physicians, cooks, stall guards, and trainers. Drivers and sweepers for taking proper care of elephants during the Mauryan era. It also provides a diet chart, timetable, and training system. This book categorized elephants into 4 sections on the basis of training-a] Damya, b] Sannahya, c] Aupavahya, d] Vayla (Kautilya, 1956). Mauryan State set up at least 8 elephant reserves across the empire. Large and better-quality elephants for military use were collected from Eastern Indian reserves (Mahesh Rangarajan & Ranthambhore Foundation, 2017).

Dhanvantari prescribed medicines for different horns, ears, mouth, throat, rheumatic problems, dysentery, cough, asthma, and fractured bones of bovine species. He also provided an ideal diet chart for newborn calves and drugs for increasing milk quantities (1987). Kautilya's Arthashastra mentioned proper management of the cow, bull, buffalo, goat, sheep, and camel herds (Kautilya, 1956). It also mentioned King's duty to provide sufficient pasture ground during all seasons (Kautilya, 1956).

Besides literary sources, archaeological sources also documented proper medical systems aimed at animals. Third, Mauryan Monarch Asoka vowed to provide proper medical treatment for both humans and animals parallel, not only in his domain but also neighboring kingdoms also (Barua, 1946).

Ancient Indians not only undertook necessary steps to protect their domestic animals from various diseases but also strived to grow awareness against unnecessary man-made violence/killing of these creatures among mass people through modes of social degradation, economic fines, and in some cases, severe punishments. "Arthashastra" mentioned an Adhyakha in charge of slaughterhouses who used to collect a certain number of fines for killing fish, birds, calves, milk-giving cows, and bulls (Kautilya, 1956). If any person intentionally tortured/killed elephants or horses under State protection, he/she will receive capital punishment (Kautilya, 1956). Manu imposed financial fines for intentionally hurting/torturing small animals, cattle, and birds. He announced that killers of cows, donkeys, camels, dears, and elephants would be degraded in the existing social hierarchy (Muller & Buhler, 2014). "Vishnu Samhita" ordinance for cutting off one hand and one foot of any person who killed elephants/horses/camels (1908). It also prescribed different kinds of fines for cutting animal organs. From fasting to gifting Brahmins, methods of penance for getting rid of sins regarding animal slayers had been prescribed by this text (1908). From "Agni Puranam", we can know that the cutter of animal genitals will be received "Madhya masahasm" as punishment. Owners of these animals would receive Compensation (Shastri & N. Gangadharan, 2013). Kamandak discouraged the hunting habit of both royals and common people alike (Kamandaka, 1924).

Ancient Indian veterinarians were aware of the science of animal husbandry also. "Krishi- Parashar" deals with ideal animal sheds building guidelines (1961). "Agni-Purana" prescribed fumigation of cow houses with vapours of Viosha, Dedaru, hing, mustard seed, and guggul mixtures to prevent the spread of contiguous disease. Priyanka trees should be planted to increase sanitization (1987). Arthashastra described the size, orientation, and sanitization system of the royal horse and elephant sheds (Kautilya, 1956).

The late 20th and early 21st Century world witnessed a rapid revival of interest in indigenous medical systems as comparatively cheaper, easily available and with fewer side effects than their Western counterparts. Medical treatments suggested by ancient Indian literary canons can be very useful for animal keepers in remote rural parts of our country (Rastogi & Kaphle, 2011). Surveys carried out all over India on two groups, once following ancient Indian traditions of animal keeping and other Western, pointed out the effectiveness of the Indian veterinary medical system in curing different varieties of diseases (Kumar et al., 2015).

5. Conclusion

In this article, I have tried to analyse the history, science and medical knowledge of animal domestication and husbandry in ancient India and its applicability in the 21st Century A.D. It is a well-known but almost time-forgotten fact that nature can heal itself if humankind does not destroy the natural balance. Ancient India's heritage of maintaining this balance was solid proof that indigenous medical processes could solve many ailments of domesticated animals. And this indigenous medical process can be

widely utilized if the present society and Govts. Can follow these same processes and create public awareness about it. My study has some limitations in analyzing more primary sources. Future scholars culturing in this respective field can be able to further investigate and extend knowledge.

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ORCID ID - <https://orcid.org/0000-0002-5074-2374>

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