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

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Abstract: Human race is a member of Mammalian class and Primate Order. So, human is also an animal. But what differs with other animal species is human wisdom. It is only human who can domesticate other animals and use them to fulfill different needs. In hunting/gathering hominid society animals were rich sources of meat, skin, and bone. But artistic and curious human mind kept records of his relationship with animal world through rock paintings from upper Paleolithic era. From different centers of human habitats through Indian Sub-Continent huge amount of animal remains have been discovered by Archeologists. Apart from kitchen waste which highlights on-veg food habit of nomadic people, terracotta animal figurines, day to day bone tools, ivory and shell ornaments, artifacts etc. pointed out 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 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 was originated from red jungle fowl. Seals of Indus civilization were decorated with humped and hump -less bulls, goat, sheep, elephant, fowl. Vedic Aryans husbanded horse, dog, sheep, goat, fowl, elephant, cow-bull etc. During Mauryan era, buffalo was included in the category of dairy cattle.

Domestication of animals is not a new thing in human history. Novelty lies in Indian people's attention and urge for wellbeing of the domesticated animals. Ancient Indian literatures like Vedas, CharakSamhita, SushrutSamhita, HaritaSamhita, Agni Purana, Mastya purana, Artha-Shastra etc. Provide proper guidance on orientation, construction, 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, Lichabi kingdoms issued humped bull/cow inscribed coins.

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During the Indian invasion of Alexander, the Great [326 B.C] a Prince from Punjab presented Cock engraved silver coins as a form of tribute. Arthashastra mentioned King's duty of ensuring enough pasture land near every village. Gopa was accountable for keeping record of this land. Horse and Elephant were two main war animals of the Mauryan army. Proper care was given to them. Hurting/killing of any of these species resulted death penalty. The third Mauryan Monarch Asoka, after his conversion to Buddhism established vetenary 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, different infections besides psychological stress still in the Twenty First Century. Besides terrestrial animals' ancient Indian people were aware of the existence of fish, shell, and turtle.

It is my aim in this essay to analyze customs, technologies and history of domestication of animals by ancient Indian people and its socio-economic-scientific applicability in the scenario of Twenty First Century. I will utilize both primary and secondary sources to endure this goal.

Keywords: Atharva Veda, Shalihotra, Aghnya, Gopa, Artha-Shastra.

Introduction

According to Encyclopedia Britannica, domestication is process of hereditary reorganization of wild animals and plants into domestic and cultivated forms in accordance with human necessity. The fundamental differences between domesticated versions of animals, plants with their wild ancestors is they were modified, created by human interference into their natural environment for fulfilling some needs and are maintained by active human care. Domestication process originated from different environmental, climatic changes which made collection of food for survival difficult to 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 Neolithic, Proto-historic, historic era along with growth of agricultural economy and foundation of villages, cities, civilizations and empires across the globe.

Animals under 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 in their various purposes, but also took proper care in their wellbeing through using both surgical and non-surgical medical practices. Though Indus/Harappa Civilization's script cannot be authentically deciphered by any scholar till date, but Indus seals contain images of different varieties of animals belonged to both domesticated and undomesticated sub-sections. Ancient Indian literatures like Vedas, Puranas, Smritis, Arthashastra, Charak Samhita, Sushrut Samhita are bearing numerous references

about cultural-religious importance of domesticated animals besides, prescribing different protective measures against natural or human created calamities. In this study I will discuss history of animal domestication by ancient Indians from pre-historical to classical age. I will analyze veterinary medicinal technologies and customs practiced by ancient Indians and its cultural, socio-economic, scientific applicability's in 21st Century.

Methods

For writing this article I have undergone several manuscripts related with 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, BHAIRABI 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 custom 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.Shamasastry, " 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 examples.

The English word "Anthropology" was derived from Latin word "Anthropologia" which consisted of two Greek words "Anthropos" and "Logos". Anthropology is scientific study of biology, behavior, culture, society, languages of both past and present human species. The English word "History" was derived from Greek word

"Historia" which means enquiry, research, investigation of past events. Historical research is a systematic enquiry of paste 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.

Discussion and Result

The English word "Domestication" was derived from Latin word "Domesticus" means "Belonging to the household" (www.etymonline.com, n.d.). Animal domestication is a form of mutual relationship that develops between human race/culture/civilizations and targeted wild animal species. Human association help to increase genetic fitness of domesticated animals enabling them to grow in quantities, adjust with new/hostile environments, 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 Paleolithic, Mesolithic ages like Altamira cave paintings from Spain, Bhimbetka cave paintings from India are bearing its testimonies from immemorial time (Wikipedia Contributors, 2019). These animals were major source of animal protein in our ancestor's diet besides leather, bone and other day to day necessary materials. During Neolithic age some major changes took place which reshaped human history. These were manufacture of clay pottery using potter's wheel, intentional cultivation of wheat, barley, rice,millet, cotton, invention of smaller and more effective stone tools like axe , sickles, production of fur/ cotton/leather/silk textiles ,construction of permanent/semi-permanent villages. These changes have been classified by Gordon. Child as "Neolithic revolution" (Encyclopedia Britannica, n.d.).

With these changes, hunter-gatherer human communities became self-food producers. They also realized importance of wild animal domestications with purpose of using them not only as sources of meat, but also milk and other nutritious foods, power house in plaguing agricultural lands, source of fertilizers, transport and military helping hands (Randhawa et al., 1969). However there is an ongoing debate about exact time line and chronology of animal domestication among scholars. Modern Archeologists use accelerator mass spectrometer, radio-carbon dating of pre historic

animal remains to decide their age. They considered existence particular animal species in huge quantities beyond their natural habitats, sex ratio of animal debris, hoof print and artifacts found in human settlements, as early signs of domestication process. Modern Nuclear, Mitochondrial D.N.A. and Phylogenetic analysis has identified some genetic changes like reducing aggression, dietary change, coat color, heart size, increasing growth hormones as signs of domestication process. Besides that, modern Genetics pointed out that domestication process was carried into more than one stage and time era, geographical location and human groups through all over the world (Zeder et al., 2006).

Practice of animal domestication was continued during Proto-Historic phase of Indian civilization. More than 1 thousand Indus/ Harappa civilization cites located in North Western India provided bones of Jackal, Indian Rhinoceros, Chital, Hare, Ass, Swamp-Dear and Elephants as old as 17th Century B.C. These constitute around one/ fifth of total animal remains of this civilization. Though some animals belonged to wild category, the Indus people domesticated Zebu cattle, Water buffalos, Elephants from their wild ancestors. Harappa seals, potteries, toys contain accurate representation of humped/hump less bulls, antelopes, elephants, indicating deep economic-social-emotional attachment of humans towards their non-human friends (Mahesh Rangarajan and Ranthambhore Foundation, 2017). There are ample literatures belonging to Rig Vedic, Later Vedic and epic ages mentioning different varieties of animals. "Rig Veda", "Atharva Veda", "Brahmans", "Aranyakas", "Upanishads", "Agni purana", "Ramayana" can be mentioned as example (Mahesh Rangarajan and Ranthambhore Foundation, 2017). Vedic texts categorized contemporary fauna on 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 whole universe is created by Purusha/Prajapati (Smith, 1991). Prajapati rules over both 2 footed and 4 footed animals. Horse, ass, sheep, goat, bull can be domesticated and sacrificed in fire alters. Reptiles, monkey, bear, lion, buffalo, wild boar, elephant, ape should not be sacrificed but can be hunted. These unsacrifisable animals should not be domesticated as well. B. K. Smith argued that Vedic Cosmology categorized not only animal but also human society on basis of same divine creation from different body parts of Prajapati. Besides literary sources, Archeological excavations discovered various animal remains from different Indian cites belonged to Aryan cultural sphere. Among cattle cow was given special preference. Large quantities of cows considered assign of owner's economic prosperity. From cow people could get beef, milk, hide, fertilizers, and fuels. Mature bulls provided necessary animal force in agricultural and transport sectors.

Sheep, goat, pig were also mentionable (SAHU, 1987). A protective prayer towards celestial powers for protection of all "Four footed" cattle in "Atharva-Veda" highlights that Vedic Aryans were attached with their domestic animals culturally/religiously (Bloomfield, 2017). Besides cow, horse was second most important animal to Vedic Aryans. Horse was used in warfare besides, transport and agricultural sectors. In later Vedic era, Aryans domesticated elephants. Elephants were used as battle mount, siege weapon, emblem of social/economic status, carrier of heavy load etc.

From 6th Century B.C. with rise of 16th Mahajan padas and expansion of Magadha Empire under different dynasties importance of military animals increased rapidly besides cattle, Contemporary literatures like "Arthashastra" by Chanakya/ Kautilya's, "Hitopodesha" by Vishnu Sharma, "Jataka", "Tipitaka"," Manu Samhita", "Nitisar" by kamandak, Sangam literatures, 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/Goddess for protection of their domestic animals from enemies and diseases but also used surgical, Ayurveda veterinary medical sciences for keeping them fit and healthy. Ancient Vedic priests were oldest veterinarians in ancient India. Salihotra was specialist in curing different Horse diseases. He wrote "Salihotra Samhita". It provides detail guidelines about good and bad qualities of horses according to their body color, shape, eye, hair. It also suggests how to tame newly captured horses. It prescribed medical remedies for dysentery, cough, diarrhea, fever, blood-urine, swelling limbs, jaw/tongue/ cheekbone paralysis, ulcer, throat, skin, parasite infection, plethora of blood, constipation of bowel, quick decay of hoof, respiratory diseases suffered by horses (Agni Puranam, 1987). Koutilya mentioned a separate department under an Adhyakha and sub-ordinate cook, stall guard, hair trimmer, physician for taking proper care of horses. He also provided ideal diet chart and proper guideline regarding new born horses up to gaining full maturity. "Arthashastra" categorized horses into 7 sections-a] Panyagarikam, b] Krayopagatym, c] Ahavalabdham,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 training procedures of war horses. Horses unfit for military purpose due to age, war wound; disease also received same care and protection (Kautilya, 1956).

Palakapya was specialist in curing elephant diseases. He wrote "Hasty-Ayurveda". This treaty prescribed medicines of jaundice, constipation of bowel, fainting/swoon, headache, dysentery, paralysis, utkarna, inflammation, skin disease, colic pain, intestinal

tumor of domesticated elephants. It also suggests ideal meals for them during normal/war/famine times (Agni Puranam, 1987). "Matanga-Lila" authored by Nil kantha, suggests some medicinal herbs, body paste for controlling must-maddened elephants (Brown and Edgerton, 1932). "Arthashastra" of Chanakya/Koutilya mentioned a separate Gov. Dept. under Superintendent of elephant and sub-ordinate physicians, cooks, stall guards, trainers. Drivers, sweepers for taking proper care of elephants during the Mauryan era. It also provides diet chart, time table, training system. This book categorized elephants into 4 sections on basis of training-a] Damya, b] Sannahya, c] Aupavahya, d] Vayla (Kautilya, 1956). Mauryan State set up at least 8 elephant reserves across empire. Large and better-quality elephants for military use were collected from Eastern Indian reserves (Mahesh Rangarajan and Ranthambhore Foundation, 2017).

Dhanvantari prescribed medicines for different horn, ear, mouth, throat, rheumatic problems, dysentery, cough, asthma, fractured bones of bovine species. He also provided ideal diet chart of new born calf, drugs for increasing milk quantities (Agni Puranam, 1987). Kautilya's Arthashastra mentioned proper management of cow, bull, buffalo, goat, sheep, camel herds besides (Kautilya, 1956). It also mentioned King's duty to provide sufficient pasture ground during all seasons (Kautilya, 1956).

Besides literary sources, archeological sources also documented proper medical system aimed for 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 for protection 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 slaughter houses who used to collect certain number of fines for killing of fish, birds, calves, milk giving cows, bulls (Kautilya, 1956). If any person intentionally tortured/killed elephants, horses, under State protection, he/she will receive capital punishment (Kautilya, 1956). Manu imposed financial fines for intentionally hurting/torturing of small animals, cattle, birds. He announced that killers of cows, donkeys, camels, dears, elephants will be degraded in the existing social hierarchy (Muller and Buhler, 2014). "Vishnu Samhita" ordinance for cutting of one hand and one foot of any person who killed elephants/horses/camels (Vishnu Samhita, 1908). It also prescribed different kinds of fines for cutting animal organs. From fasting to gifting Brahmins as methods of penances for getting rid of sins regarding animal slayers had been prescribed by this text (Vishnu

Samhita, 1908). From "Agni Puranam" we can know that cutter of animal genitals will be received "Madhya masahasm" as punishment. Owners of these animals would receive Compensation (Shastri and N. Gangadharan, 2013). Kamandak discouraged hunting habit of both royals and common people alike (Kamandaka, 1924).

Ancient Indian veterenians were aware with science of animal husbandry also. "Krishi- Parashar" deals with ideal animal sheds building guide-lines (Mazumdar and Banerjee, 1961). "Agni-Purana" prescribed fumigation of cow house with vapors of Viosha, Dedaru, hing, mustard seed, and guggul mixtures to prevent spread of contiguous disease. Priyanka tree should be planted for increasing sanitizatization (Agni Puranam, 1987). Arthashastra described size, orientation, sanitization system of royal horse and elephant sheds (Kautilya, 1956).

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

Conclusion

In this article, I have tried to analyses history, science, medical knowledge of animal domestication and husbandry in ancient India and its applicability in 21st Century A.D. Human- animal relationship is very close from pre- historic to historical period. However globalization, extensive urbanization, environmental changes, destruction of natural eco-system, many animal species have been eliminated from earth. Humans are killing rhinoceros for horn, rain-deer for antler, elephant for tusk, tiger for skin and bone, peacock for feather, musk-deer for musk all over the globe. International Union for Conservation of Nature and Natural Resources has labeled many species as endangered and included in Red Data book. It is my personal opinion that ancient Indian medical science can cure different diseases of humans and animals alike without destroying ecological balance.

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