

THE ROLE OF DRAUGHT AND PACK ANIMALS DURING THE NEXT 100 YEARS

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Introduction

Man appeared on earth nearly two million years ago. Although animals and man appeared after plants, they have all evolved together and by the laws of nature they depend on one another. Animals cannot survive without vegetation and man cannot survive without plants and animals. The three groups, among other natural renewable resources, are the basis for the existence and functioning of the ecosystems.

However, because of the evolution of the human brain, man has been able to execute an arbitrary and direct power over other species. As a unique organism he constantly defies his own environment, to the point that he can, at will, alter it to satisfy his own personal needs.

In the course of his development he began the domestication of plants approximately 9000 years ago and that of animals from about 1000 years later.

The time and exact place where these marvellous events occurred may never be identified and we certainly cannot identify the individuals who performed such labour in primitive times. From the beginning of history, and over different ages (stone, bronze and iron) man adopted various natural habits and little by little he captured and domesticated certain animals with which he associated to obtain food, skin and wool for clothing, for company and to use for traction force and transport.

Latin America

Before discussing the role of draught and pack animals in the Latin-American region, I will briefly outline the characteristics of the region which comprises Mesoamerica, South America and parts of the Caribbean.

Latin America is geographically broad and heterogeneous. The countries differ considerably from each other politically, geographically, culturally, environmentally, socially and economically. Its territory extends from the Rio Bravo on the northern Mexican border through the southernmost part of the 'Land of Fire'. There are twenty-one countries in the tropical zones viz Belize, Bolivia, Brazil, Colombia, Cuba, Dominican Republic, Ecuador, Mexico, Paraguay, Peru, Venezuela, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Guyana, Haiti, Jamaica and Trinidad and Tobago, and three in temperate zones, Argentina, Chile and Uruguay.

The climate in the South-American countries is influenced by the Antarctic and by the Andean mountain range, which also determines the transport system. Antique cities built during the XVI and XVII centuries are found in the open plains, valleys and high plateaux. Many of these cities are surrounded by high mountain ranges with cold or temperate climates. They are located close to broad-leaf forests which generate sweet water, timber and exotic plants and the beautiful scenery typical of the region.

The majority of the towns were founded in areas where the soils were excellent for agriculture and animal husbandry. Unfortunately, these favourable conditions for agricultural development are disappearing due to the expansion of industrial cities, the demographic explosion and ecological human ignorance.

Population

According to the United Nations Economic and Social Department, the Latin-American population for this millennium is approximately 540 million on 7,861,867 square miles, equivalent to 20,258,980 square kilometres.

Prehistoric civilisations of Latin America

The Aztecs, Mayas and Incas dominated the geographic area. Many Indian cultures developed on this enormous geographic mosaic but when the Europeans discovered the New World, only two of the most advanced civilisations survived. The Aztecs mainly occupied the great Mexican plateau and the Incas were established on the Andean mountain range between the Amazon region and the Pacific Ocean.

The Mayan civilisation existed from approximately 2500 BC and lasted until 1697 AD. They were established in and dominated southern Mexico, the states of Chiapas, Tabasco, Campeche, Yucatan and Quintana Roo as well as all of Guatemala and Belize, western Honduras and the north eastern region of El Salvador. The political, social and cultural power of the Mayas had already declined when the European conquerors arrived.

Latin American autochthonous population

According to the book by George Stuart "Lost Empires and Living Tribes", in the mid 70s there were approximately 30 million Indians living in the area between Mexico and the 'Land of Fire'. However, as a proportion of the population their distribution is uneven; 50-75% in Bolivia, 46% in Peru, 41% in Guatemala, 40% in Ecuador, 30% in Mexico, 5% in Nicaragua, 3% in Chile, 2% in Brazil and Venezuela, 1% in Colombia and unknown percentages in the rest of Latin America.

Concerning languages and/or dialects spoken by the Indians, Mexico alone has more than 150 dialects. Of a total of some 2000 dialects, many are used by small groups of less than 100 persons. However, the main languages Quechua, Aymara and Guarani are each spoken by at least one million people. Quechua is the main language spoken on the Andean plateau (Ecuador, Peru and Bolivia), the second language spoken is Aymara. Guarani is the official language of Paraguay. It has incorporated many Spanish and Portuguese words which are used by the Indians and by the mestizos in an area between the Orinoco River in Venezuela and the Rio de la Plata in Argentina.

Unfortunately, these tribes are disappearing in the same way as the empires did. Some small groups, which have managed to survive, are weakening because of human indifference on the part of the governments and of the more advanced cultures.

Rural poverty

Traditionally, ethnic origin has determined the prevalence of rural poverty but ecological conditions are also important factors. Poverty is one of the greatest limitations for peasant farmers in providing the proper management for their working animals.

In many of the developing countries rural poverty seems to settle permanently in areas where natural resources are extremely low. Poor quality soils yield poor crops and in addition they often suffer considerable erosion. These severe problems exist mainly in hilly areas with marginal and degraded lands where rainfall is sporadic and irregular. Poverty also prevails in the highland and mountainous areas.

In general, the low income peasants living in the rural areas divide into two groups, those who own land and those who do not, with two sub-groups, the indigenous and rural women. Those who do not own land are most affected by poverty because in order to survive they must work for a salary.

Traditional use of animals for transport and traction in Latin America

Historic Backgrounds

The use of domestic species for the production of milk, meat, wool and work in Latin America, has its origins in the animals brought to the New World by the Spaniards after the conquest. The first animals to arrive in the New World with the Spanish were not selected breeds destined for meat and milk production. They were brought to the new-born colonies, established in the territories of the fallen empires, with no more economic importance than for immediate consumption or as labour force (preparing the soils which were to be farmed) or for pulling wagons for the transportation of the harvest.

The results

Because of their rustic origins in the Andalusian fields, the imported cattle and other species adjusted easily to the new environment, resulting in the production of strong criole livestock able to withstand long walks and even hunger and thirst. From the phenotypic point of view, these animals seemed better for farming than for fattening. They were slow developing and adapted to an extensive production system. They reproduced freely and promiscuously due to the fact that there was no adequate management.

Small farmers displaced to the hilly lands by the mechanisation of the flat lands during the 50s, discovered that where mechanisation was not feasible, oxen from these Spanish herds were the answer to their ploughing needs. In the areas where there are no adequate rural roads, mules, horses, donkeys, and in some southern areas, llamas, were used to transport agricultural products and additional necessities for farming and domestic use. All these animals have left their historical marks on the mountainous and volcanic profiles of most of the developing Latin-American countries.

Agricultural mechanisation

The arrival of modern heavy equipment during the middle of the past century boosted agricultural productivity, especially on the best flat land. This immediately displaced

traction animals to the mountainous areas where only oxen, mules and donkeys were capable of performing agricultural work.

The pike-plough and the mould-plough are the only equipment left to work the soils where the topography does not allow the alternatives. This agricultural technology, widely recognised by the peasants for many years, has become the answer to the rational exploitation of the soil on the hillsides. Oxen chosen for this kind of work should be healthy, well trained and adapted to work on irregular terrain.

Peasants who live in these mountainous regions are generally those with scarce resources and minimal agricultural knowledge and the use of traction animals in these isolated zones is therefore associated with backwardness and poverty.

Collateral effects of mechanisation

Agricultural mechanisation has proved a double-edged instrument. On the one hand it brought social and economic benefits for large scale producers who were in a position to change the agricultural infrastructure and at the same time expand their fields to increase productivity.

However, mechanisation reduced the local labour force. This induced migration of that labour force to the cities which in turn became a burden to the municipal infrastructure, for example in housing, water services, sanitary services, education, urban transportation and security. Unemployment increased due to the scarcity of jobs and the lack of appropriate skills required by manufacturing industries of the migrant workers.

At the same time agricultural machinery has contributed to the destruction and degradation of our natural renewable resources, favouring deforestation, erosion and over-exploitation of the lands and the expansion of agricultural frontiers. Furthermore, it has transformed the ecological balance of the zones, it has distorted the habitats and has favoured the displacement of the aboriginal and migrating wildlife.

As a consequence, some communities have suffered transformations; they are losing their culture, their traditions and the habit of using animals as a means of traction force, pack and transport (riding). This is causing a loss of the breeding and taming techniques used for working animals. It is no longer possible to find artisans able to make horseshoes, saddles for riding, labour tools (ploughs), yokes nor the technical assistance programmes to teach and train these techniques to new generations.

In addition, rural youths tend to migrate to the cities rather than stay in the area to continue family traditions. This situation contributes to the break-up of families.

Limitations

Rural poverty is one of the main factors which prevents peasants from acquiring and/or renting the necessary working animals, good selected seeds and from acquiring implements needed during the sowing season.

The inequality and poverty levels in most of the developing nations is due to the economic model chosen. This model has promoted intensive use of capital with a low utilisation of

manpower and irrational use of natural resources. It has promoted a dual participation of the agricultural sector. On one hand there are the highly modernised producers and on the other, the small-scale traditional agricultural producers.

Historically, the tenancy of the land in some developing Latin-American countries is characterised by a dual concept, the large tenants and the small tenants. The unequal capacity to acquire land is also a determining factor for rural poverty.

Poverty is the major limitation for the peasants to keep their working animals and implements (which in some cases they might sell to meet their immediate financial obligations) in optimal condition to achieve their full working capability.

The peasants may not be able to provide their working animals with:

- a) Adequate nutrition for their maintenance and for working;
- b) Correct manipulation and care due to the lack of training or knowledge while working with horses, donkeys or oxen;
- c) Adequate continuity of the preventive sanitary calendar to control endo and ecto parasites, as well as endemic diseases of the region;
- d) Adequate harnesses for traction, carrying and transport designed for the species and size of the animals;
- e) Balance the size of working oxen so they can develop their corporal condition correctly;
- f) Not to over-exploit old and young animals;
- g) Appropriate management of sanitary environment, living conditions, feeding, drinking and enough shade in their resting areas.

Essential historic and contemporary concepts

At the end of the XX century and the beginning of the new millennium, it is doubtful whether the latest technological innovations in the agro-industrial world will eradicate the use of traditional draught and pack animals.

Latin America has extensive flat lands, plains, riverbanks and areas for mechanised agriculture and for intensive and extensive livestock production. At the same time, it has a high percentage of rugged land close to the Andean and other mountain ranges, which, due to their irregular topography, are not suitable for cultivation with heavy mechanical equipment. Furthermore, the peasants living in these areas do not have the financial capacity to purchase, operate and maintain such expensive equipment. Many of the lands bordering the mountain ranges have slopes of more than 30 degrees. The only way to use these lands efficiently is by building terraces with stones or plants and the use of grass barriers to reduce the water runoff and resultant erosion. This work is possible only with the help of traction animals.

Previous to the arrival of European immigrants with the start of the colonial era, the Incas had already domesticated the llama as a carrier animal. However, they were unable to train the llama to allow a human to mount them and this was the only domesticated animal during the Inca empire. With the colonial era came horses, mules and oxen and all are now used in traction, transportation or as carriers.

In addition to implementing the policies and rules to consolidate the social order in the different regions under the Castilian Crown, it was the colony governors who created the mechanisms to distribute the lands among the different social groups.

In most of the developing countries of Latin America the availability of flat, arable lands with high agricultural potential is limited and the existing lands with these characteristics are owned by large farmers or agricultural enterprises specialised in export crops. A great percentage of the other lands are national property in areas with low agricultural potential in the surrounding hills, mountains and volcanic ranges.

A problem for most of the developing countries in Latin America is the demographic explosion. Without access to high potential lands, rural families are forced to establish in marginal lands where it is necessary for them to change their habits and traditional working customs.

Domestication

The term “domestication” is applied to the art of accustoming a wild animal to man’s company and to living under his control.

The process includes capturing the animal and holding it in restricted areas; adapting it to an artificial environment; acquiring its friendship and inducing it to learn its new ways of living and finally, harmonising the man-animal relationship. The process demands intelligence, great patience and the ability to transmit a conciliatory effect. The primitive man was self-confident, and had a special charisma that enabled him to approach wild animals. It is known that he devoted many years to domesticate the different species needed to improve his well-being. The transformation of man-animal relations constitutes a whole chapter in man’s history. Domesticated animals underwent evolutions which the cave man never imagined would greatly benefit posterity.

Today, domestication and taming procedures are carried out by following manuals and instructives as well as with the use of tranquillisers, harnesses and equipment to subdue the animals. Modern man has an unpayable moral debt toward his ancestors of the Stone Age, due to the great benefits achieved by domesticating productive animals to supply meat, milk, skins and wool for coats, and energy for transportation and traction.

In addition we must acknowledge that domestic animals often possess qualities that human beings have not been able to recognise.

The various canine breeds deserve special mention for they have been trained to serve man in many different ways. Their extraordinary qualities of sight, smell, hearing and of loyalty have been utilised by police, rescue and security services as well as in the service of the blind and of farmers.

The Water Buffalo

The domestication of the water buffalo of Asian origin, began 2500 years BC. The first to come to Latin America came from Indochina and were brought to the French Guyana in 1859, from where they were exported to Surinam and Brazil as working animals in the sugar cane fields. In the last 25 years, they have had great acceptance in Latin America,

especially Brazil, Venezuela and Trinidad and Tobago. Water buffalo have great potential because of their capability to produce meat, milk and traction force, especially in tropical and subtropical countries. They do not demand high quality care and rations and while oxen work on the hillsides, they can work in low, wet and swampy lands. In Colombia, Panama, Honduras and Brazil, water buffalo are considered as the species of choice to work in the palm, sugar cane and citrus plantations.

The beginnings of domestication and its time line

*	The dog, goat, sheep and reindeer First animals that were domesticated	14,000 years
*	First intent to domesticate the horse	12,000 years
*	The beginnings of agriculture	10,000 to 9,000 years
*	First effort to domesticate the pig	10,000 to 6,000 years
*	First intent to domesticate the turkey	
*	Domestication of the horse	6,000 to 4,000 years
*	Domestication of the cat in Egypt	6,000 to 4,000 years
*	Domestication of the water buffalo in India	6,000 to 4,000 years
*	Domestication of the Guanaco and its descendants, llamas and alpacas in South America	5,000 to 3,000 years
*	The wild donkey was domesticated in the River Nile probably in what is now Libya	3,000 to 2,000 years
*	Different races of cattle were crossbred in Europe	3,000 to 2,000 years
*	Ethiopia started the domestication and training of elephants	3,000 to 2,000 years
*	General Hannibal crossed the Alps on elephants	2218 BC
*	Chickens arrived in Britain, China, Greece & Rome	3,000 to 2,000 years
*	A new saddle was invented for the camel	2,000 to 1,000 years
*	Farms to reproduce fine breeds of horses	1494 years
*	The turkey is introduced in Europe	1524 years

Conclusion

The Latin-American countries have a considerable amount of hillside and marginal lands adjacent to the mountain and volcanic ranges where a great number of low income peasants have settled, as well as approximately 1500 aboriginal tribes who survive with the minimal agricultural production obtained from this low potential and marginal land. These lands can only be exploited with the aid of draught and pack animals such as horses, mules, donkeys, oxen and in the southern part of South America, llamas.

Furthermore, these animals are also being used by large agro-industrial enterprises, on flat lands, and by governments to replace expensive equipment whose maintenance and operating costs are extremely high due to the fuel crisis prevailing worldwide. Therefore, for these and other economical reasons, it is impossible to believe that animal force will be outmoded in this century.