

PRIMITIVE ANDALUSIAN LIVESTOCK AND THEIR IMPLICATIONS IN THE DISCOVERY OF AMERICA

EL GANADO ANDALUZ PRIMITIVO Y SUS IMPLICACIONES EN EL DESCUBRIMIENTO DE AMERICA

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SUMMARY

First a brief review of the primitive origins of the diverse Andalusian domestic livestock breeds is done. The Spanish Pure Breed Horse and Merino Sheep are considered the oldest breeds classically characterized, followed by the Granadina Goat and the Fighting Bull. The remaining Andalusian Breeds were not organized and defined until the end of the past century.

From historical beginning there existed in the Betic region a predominance of animal farming over agriculture. The geographical characteristics of the land and the depopulation occasioned by the continuous fighting, throughout eight centuries, against the Arabs produced the conditions to reach a good development of andalusian farming and, the isolation of certain populations produced the creation and maintenance of several local breeds.

With respect to the introduction of the domestic european livestock breeds to the american continent, three questions are presented:

- What type of livestock went there?
- Where did they come from?
- How spread it on the new continent?

We answer these questions taking into

account the three phases of american colonization: the exploration, the conquest and the colonization itself.

Of course, we have emphasized those breeds that came from Andalusia, that crossed the Atlantic Ocean via the Canary Islands and the Antilles. At the same time we have sketched the diverse means of distribution of these breeds on the american continent, mentioning those responsible and the date of the voyages when they were introduced.

RESUMEN

Se revisa el origen de las antiguas razas de animales domésticos andaluzes. El caballo Pura Raza Español y el Ovino Merino Español se consideran las razas más antiguas clásicamente caracterizadas, seguidas por la Cabra Granadina y el Toro de Lidia. Las restantes no fueron organizadas ni definidas hasta fin del pasado siglo.

Desde los comienzos históricos en la región bética la ganadería preponderaba sobre la agricultura. Las características geográficas de la tierra y la despoblación ocasionada por las luchas

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continuas contra los árabes a través de ocho siglos produjeron las condiciones para alcanzar un buen desarrollo de la ganadería andaluza y el aislamiento de ciertas poblaciones que determinaron la creación y el mantenimiento de varias razas locales.

Con respecto a la introducción de las razas de ganado doméstico europeo en el continente americano se presentan 3 cuestiones:

- ¿Qué tipo de ganado fue allí?
- ¿De donde venían?
- ¿Cómo se expandieron en el nuevo mundo?

Se contesta a estas cuestiones tomando en cuenta las fases de la colonización americana: La exploración, la conquista y la colonización *per se*.

Por supuesto, se enfatiza sobre aquellas razas que procedían de Andalucía y cruzaron el Océano Atlántico a través de las Islas Canarias y las Antillas. Asimismo se esquematizan las vías de distribución de estas razas en el continente americano, mencionando los responsables y las fechas de los viajes en que fueron introducidas.

INTRODUCTION

The specific study of the history of the andalusian livestock is very hard because of the lack or scarcity of references found on this subject. This is due, in part, to the fact that these livestock were distributed on local farms, as is mentioned by Argente (1991). For these reasons much information did not exist in the publications edited by centralized institutions, such as the *Honrado Consejo de la Mesta*, which produced a notable dispersion of information. In spite of this, we have attempted in this paper to consider, from the zootechnist point of view, the little information existing about the *status* of the andalusian livestock before

and during the America conquest and colonization (XVI century).

THE EARLY ORIGINS OF THE ANDALUSIAN LIVESTOCKS

To begin this study we considered it necessary to understand both the origins of the andalusian breeds as a *substratum* of most of the population movements produced after the discovery of America, and the present andalusian breeds.

Up to the end of the past century, we accepted the Spanish Pure Breed Horse, the Spanish Merino Sheep, the Granadina Breed Goat and the Fighting Bull as defined, and perfectly differentiated, breeds. The remainder may be considered as *traditional* populations, following the Bougler (1989) definition. The first two mentioned come from times long ago, from the roman epoch or before, while the Granadina Goat and the Fighting Bull are more recently formed.

From the data collected in the literature we deduce that in old Spain existed a predominance of animal farming over agriculture at least in certain regions such as the Bética (Guadalquivir Valley). Estrabón (cited for García Bellido, 1989), talking about Turdetania (which corresponds presently to West of Andalusia), mentioned: *... even though this region exports wheat, many wines and oil, wax, honey, pitch, cochineal and minium, the abundance of farm animals belonging to all species is enormous.*

It was favoured by the fact that most of the Iberic Peninsula was sparsely inhabited. The farm animals

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were one of the principal sources of wealth in old Hispania, and the food base for almost all the Spanish human populations.

The arrival of the Romans did not suppose any substantial change in the existing animals, but they brought important changes in the methods of breeding and production.

We understand that the situation described up to now in the diverse species was maintained thorough out the centuries, only being modified by the wars between Arabs and Christians (From 711, until 1517), when the habitants of Andalusia decided to break the grounds, the woods, heathes and uncultivated lands. These places were then cultivated with wheat and other cereals. It produced a rapid diminution of the stocks of animals until reaching the minimum indispensable, and sometimes even less of this minimum necessary for the war, for land work, for carriage, and for meat production (Casas, 1884).

THE ANDALUSIAN LIVESTOCKS DURING THE MIDDLE AGES

The arrival of the Arabs to Spain (8th century) did not suppose important changes in the Spanish livestock, or in the equine species, because the stocks of horses taken on by them in their successive expeditions were not sufficient to produce any significant change in the indigenous populations. Contrary to this, they organized their army with fast horse-troops, formed exclusively by Andalusian horses, that surprised the Arabs by both their docility and resistance.

There exist such few references

about the role played by animal farming in the *Al Andalus* economy (Andalusia under Arabs' domination). In Córdoba's region only *Cora de Fahs Al-Ballut* (North of the Province) had a farming economy with the presence principally of cattle. It probably had goats, horses and mules as well. The farm production could subsist also in the mountains of Córdoba, while in Medinat Al-Zahra (Presently Córdoba city), they counted with dams and colts brought from Sevilla.

Thus the Andalusian breeds had a local development until the reign of Felipe II (1556-1598) when the unsteady herds appeared.

During Low Middle Age the specialization obtained at Moslem period increased with the fame of Córdoba horse and of gaditanian cows (Cuenca, 1984).

Andalusian animal farming reached a certain importance because of the following reasons:

- The characteristics of the land, especially the eastern zone of the Guadalquivir valley, where there was a predominance of mountains, difficult for agriculture.

- The inhabitants of these lands showed a tendency for animal farming because of the proximity to the border with the zone occupied by the Arabs. Domestic animals constituted an easily portable wealth in times of danger.

- These lands were depopulated because of the continuous wars, and after the Christian conquest, extensive farming offered good profits using few hands.

For these reasons the *reconquest* (the so-called Christian reconquest) was a key factor in the development

and modification of farming in Andalusia throughout the middle ages.

The breaking process was made thorough out the XIV century and in a stronger way during the XV century and the beginning of the XVI. It produced the creation of paddocks dedicated to cereal and wine production.

The municipalities began to reserve spaces. They were the so called *ejidos* or cattle paddocks, later horse paddocks and finally paddocks for meat animals. The remaining lands (extreme or uncultured), were destined to other animals of the landed people or for farmers coming from outside.

The cattle and horse breeds stayed very isolated.

At the same time as the human population increases, there was a development of the local breeds.

Animal farming had a notable development in Córdoba during the lower middle ages. Livestock came from Extremadura, populated during the XIII century Baena, Espiel, Belmez, Tolote, Onego, Trassierra and also Córdoba city, Aguilar, Priego, Cabra, Ecija and Palma del Río. The most abundant was the ovine species, followed by porcine and bovine, and also the equine. The mountains had more richness in livestock with respect to the rest of the Kingdom of Córdoba. For example the prices of the wool of all the Kingdom, were fixed in Fuenteovejuna (Córdoba) because of this was the principal sheep center during the XIV and XV centuries.

The livestock coming from Extremadura demonstrated the influence of outside animals over the Andalusian breeds at this time.

All of this in spite of the movements

of livestock inside Andalusia in those times, whether looking for better pastures or for their products.

As an example of the first point we can mention the movements of mountain livestock towards the high and middle Guadalquivir, especially to the pastures of Sierra Morena, to the wide paddocks of the countryside of Córdoba and Jaén, and the good pastures of the first lands of the mountains of Cazorla and Segura, also going into the Granada Kingdom, after the catholic monarchs reconquered the lands.

Contrary to the inhabitants' opinion, the authorities permitted the passage of moving herds of livestock towards the Penibetic Region, because the dangerous borders were so far away, and thus they no longer had a reason to farm in these regions (Argente, 1991).

From the point of view of livestock products, we have to stand out the movement of dairy livestock to some places for the cheese production, the only way to transport milk under good conditions at this time. As well, some cattle and goats were transported to Jaén's slaughter-house to be sacrificed. The skin of these animals were used in the furrier industry.

Nevertheless, two facts changed the mentioned isolation. On one hand the apparition of the organized and institutionalized movements of animals (*transhumancia*), not only with respect to the Merino Sheep coming from the north (Castilla and León) of the provinces of Córdoba and Jaén, but also for livestock taken out for these shepherds, bought in Andalusia. The latter was called *chamorro* and

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they was famous for their meat but not for their wool, very basting, they correspond to the present Lebrijano Churro Sheep.

We have to mention the livestock trade between christians and arabs thorought out the centuries. The Earl of Cabra did it, and for this reason Juan II created laws for this trade with the arabs. In the first half of the XV century there existed an authorization for the exportation to the Granada Kingdom of 933 sheep and goats and 1333 cattle, every year.

THE ANDALUSIAN LIVESTOCK DURING THE CONQUEST OF AMERICA

With respect to the introduction of Spanish farm animals to America we found three questions:

- What type of livestock went there?

- Where did they come from?

- How spread it on the new world?

To answer these questions we must keep in mind that the so-called *Conquest Process of the New World* can be separated into three different phases: The exploration, the conquest and the colonization.

The domestic animals played different roles in each of these phases.

As a final result we can affirm that spanish America was created historically between the years 1550 and 1750 (Céspedes del Castillo, 1990). In a peaceful region there appeared several revolutionary changes, such as the diffusion of european flora and fauna, the diffusion of american flora and fauna by the Old Continent, the discovery of wealthy mines of

silver and the industrial exploitation of some tropical monocultures destined to Europe, which produced a great transformation in the world economy.

We can suppose that in the exploration phase was not necessary to use farm animals. In the phase of conquest horses and pigs were indispensable, and during the colonization there was a predominance of cattle and sheep.

As Tudela (1987) mentioned, the American People did not know the farming at all. With the arrival of the spaniards everything changed: the domestic animals newly arrived were quickly dispersed, firstly on the Antilles, and after on the continent, what was transformed from a virgin place of farm animals into a miscellaneous place of species and breeds, and sometimes a *plague*. Pigs, cattle and goats transported at a high cost in a long trip, and by may of transport with little space, increased on the virgin pastures, free of the infection that affected the livestock in Europe. Sheep, horses, poultry and dogs prospered, but not as spectacularly as other species. This was the beginning of enormous changes in the New World's fauna, that soon gave a richer protein food to the americans. (Céspedes del Castillo, 1990).

ANDALUSIAN LIVESTOCKS IN AMERICA: WAYS OF DISPLACEMENTS

Generally, thorought out time, spanish products, such as the farm animals followed two main routes. The first, directly from the ports of the South of Spain towards their final destination, making a stop on the Ca-

nary Islands, and the second, similar, but including a stop on the Antilles.

Seville and other ports (Cádiz, Sanlúcar, Puerto de Santa María, etc.) monopolized legally the navigation and the trade of Castilla with America.

The origin of almost all the atlantic explorations during the XV century were the coastal areas between the San Vicente cape in Portugal and the bay of Cádiz in Castilla; the explorers were principally fishermen, sailors and tradesmen from the coastal towns.

After the discovery, in the XVI century, Castilla's trade with America was centered in Seville. The King sent an agent to create the House of Contractation of the West Indies.

The King's order of 1529 authorizing several castilian ports to trade with America was soon abolished. Only when this trade was absolutely developed, the northern ports came into the play.

All that allows to think that most of the exported animals belonged to the same areas as the explorers, and for this reason they were nearest to the mentioned andalusian ports joint to sevillan livestock that grazed in the islands or the harshes.

It is admitted that animals belonging to other areas of Castilla were also exported. They occupied rest areas waiting for the moment of shipment. Today we found in Doñana the Mostrenca Cattle, a miscellaneous population probably formed from those heterogeneous animals that used Doñana's marshes as a zone of concentration and repose because of its proximity to the main ports.

In the same way that the people of Andalusia and Extremadura predo-

minated among the explorers during the first age of the Conquest, and their morals also predominated in a homogeneous way over the new colonies (Céspedes del Castillo 1990), we can assume that something similar occurred in everything related to the farms breeds.

THE SIGNIFICANCE OF THE CANARY ISLANDS IN THE EXPORTATION OF ANDALUSIAN LIVESTOCK TO AMERICA

The Canary Islands were a necessary stop on the way to America. In 1404 Castilla occupied it permanently. It was the beginning of their colonization and europeatization.

The spaniards found the Canaries inhabited by a mythic people called the *Guanches*, coming from the vicinal Africa as was shown by their racial characteristic (Mediterranean) and their language (similar to the Bereber language), at though with the precedence of other ethnic groups in a lesser degree (Nordics, Negroids and Cromagnon), all of them with a difficultly explicable origin. The *Guanches* were principally farmers, and the waitings there mentioned the presence of goats, pigs, sheep, and a high abundance of dogs; the last probably gave the name to these Islands: *Canarias*, from the latin *Canis*.

The characteristics of these livestock showed a clear african roots.

The location of the archipelago as a crossroad between continents and the demand of products from the new colonies brought good commercial profits to the Islands, after the Discovery of America.

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Generally, the boats coming from Andalusia were supplied on Tenerife or La Gomera, taking as point of departure the Antilles on the Island of Hierro. According to Morales Padrón (1974) from the Canary Islands, they shipped sugar cane, pigs and bananas. Legumes, vegetables, oranges, melons, saffron, figs, apricots, olives, horses, goats, dogs and sheep. All were shipped in the stowage of the ships to take root on the other atlantic coast.

At this time the Castillian State started to take decisions, such as the creation of the House of Contractations (1503) and the Council of the Indias (1511) (Tuñón de Lara, 1990).

The sending of products from the Canary Islands to America with the obligation of present certificates to the Contractation House as a unique requeriment started very soon, around 1508. Juan de Aviñez, Conqueror and Greater Writer of the Chapter was named for these purposes.

A Royal Provision dated in 1511 permitted the boats in transit supply themselves at La Española on Gran Canaria (Morales Padrón, 1968).

The Indias Council required that shipped products be produced only on the islands. For this reason andalusian trademen became interested in the development of business on the Canaries, with a view to avoid the control and vigilance of the Council. So, many Andalusian products were exported illegally by mixed (andalusian-canarian) commercial enterprises from the Canaries. In this way several andalusian products were distinguished as canarian ones (Lobo, 1991).

In the same way, excepting pigs and goats, most of the livestock taken

to America at time came from Andalusia, even though sometimes they figured as coming from the Canaries.

It is clear, because of in the archipelago there did not exist cattle, horses, asses or camels before the conquest and the prehispanic canary sheep had special characteristics (they present hair, not wool), not mentioned in America's farming at this time. With respect to pigs (swine), Morales Padrón (1977) says: *the pigs soon were transformed into a wild state. Cortés was accompanied to La Hibuera by a porcine theory that wandered with that typical and irritating indifference of the pig, also, Gonzalo Pizarro made them follow him on entering. La Canela and Belalcázar... these pigs came from the Antilles where they arrived from the Canaries and established a crabbed red, black and white porcine note in the indian lot that offered tasty maize.*

ANDALUSIAN LIVESTOCK IN AMERICA: THE ARRIVAL TO THE NEW WORLD

From Columbus's first trip, the Antilles were the point of arrival. Approximately during twenty years these Island were specifically profitable; but later on they occupied strategic missions, evolving the point of departures and the meeting of boats, explorers, material and victuals for the giant enterprise that occurred on the continent. They were also the point of introduction for Andalusian farm animals, where they were reproduced and increased for the first time in America. The explorers in transit to the continent supplied these

livestock to these isles.

It is known that Columbus in his second trip to America took domestic animals from Cádiz. This expedition was formed by 17 boats that went out on the 25th of September of 1493.

Undoubtedly, he took horses. Thus in the show made for Columbus in Sevilla as a presentation to the citizens and authorities of the material carried out on this 2nd trip, there figured 25 excellent horses belonging to the Holy Brotherhood of Granada.

It is supposed that these animals were changed by their keepers, because in the list of complaints sent by Columbus to the Catholic Monarchs he wrote: *“...you will tell their Highnesses that as the keepers of horses came from Granada in the show made in Sevilla they rode good horses and after shipping I could not see them because I was a little ill and they gave us such animals that the best of them did not seem to cost more than 2000 Maravedies; they sold the good ones and bought these...”*. Then Columbus took in the place of vigorous corsels from Granada, only jade plug horses from Sevilla; however they played a good role in America (Tudela, 1987).

For others (de Alba, 1987), Columbus in this trip was supplied of cattle, sheep, goats, poultry and pigeons on the Isle of La Gomera (Canaries). These livestock were placed on the isle of La Española (already discovered). Later they were distributed on Dominica, Guadalupe, the Virgin Isles and Puerto Rico, discovered afterwards. Morales Padrón (1968) also shows this when he says, during the 2nd voyage of Columbus, they made a stop in La Gomera where they sta-

yed two days, rapidly taking on provisions of calves, goats, sheep, fine-wood, water, hens and 8 pigs which cost 560 maravedies. He always preferred to take the animals from Canarias and alive to avoid the bad conditions that characterised the navigation Cádiz-Canarias-Gulf of Yegues.

According to Primo (1990) the aforementioned cattle had their origins in Andalucía, even though they came from the Canary Islands. This is supported by two facts: there were no prehispanic cattle on the Canaries; and the present Canary Cattle breeds show clear roots in the cattle of the north of Spain such as Gallega or Asturiana Cattle Breeds, introduced much later than the Discovery of America.

Nevertheless, Gratacos (1943) mentioning the words of Pereira who considered that this 2nd expedition of Columbus was formed by laborers and plowmen, and the first group of European domestic animals: horses, mares, sheep, moutons, cows, and bulls departing from Spain. To these animals were added according to Las Casas, 8 pigs taken from The Canary Islands. Gomara also mentioned on this trip several mares, cows, sheep, goats, pigs and asses.

Anyway on this expedition as in others a few animals must have arrived to the destination. Firstly because of the limited space of the boats; it did not permit the shipment of many animals. Secondly, the dead animals must have been many because of the long trip (around two months). Finally, at times the expeditioners had to use these animals as food because of the problems of the trip.

Cunningham (1946) says: *“... in*

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these days a good trip from Spain to Mexico needed around two months and the losses among the horses frequently were up of to half of the shipped animals. The boats were small and the animals had to stay on the principal bridge under little guard; and at calm times when the boat would stay for months near the Ecuador and the water became limited, and they had to throw the animals to the sea because they could not continue giving water to the horses.

In spite of this, eggs, chickens and other fresh meat did not in the food of the mariners, supplied by the quantity and variety of animals transported to the Indias for the adaptation there of these species...”.

In the times of Carlos V there still persisted the politic begun with Columbus's trips, from the Castillian Kingdom there went out an expedition of 50-300 people, increasing the spanish inhabitants of America; they took seeds, plants and all kinds of livestock. This presence of domestic livestock is continually mentioned the old documents.

Soon all the diverse species were distributed throught out the Indias with such abundance that the first chronicals pointed out their wonderful reproductive efficacy.

The adaptation of the domestic animals to the New World constitutes one of the immediate colonial successes. It gave a wealth of fauna to those lands (Carande 1965).

Even though the colonization progressed on the far side of America, on the Pacific Coast, which was a region not good for farming, the rapid adaptation and extension affected all

species but in different ways, depending on the intensity and moment.

For many years from the beginning of the conquest there was a big demand for horses in continental America. These were supplied from the Antilles and from the Metropolis.

Pigs, because of their fertility, were easily bred and soon reached a high production.

Cattle were also favoured with rapid extension throughout the american continent, except in the tropical regions, in the andean region, in the western deserts and in the subartic lands.

Sheep needed more to establish themselves in the new world, which the got through the spaniard conquest of the mexican tableland.

The goats achieved a good and quick dispersion as well as cattle and horses, and, like them they easily became wild.

Goats and sheep especially destroyed the vegetation coverage of the land in arid and semiarid regions, producing an intense erosion and, concurrently, the extension of moorlands, adding this areas to those already produced by agriculture.

According to Pérez de Oliva (1965) the adaptation of all the species to the new world produced an increase in the size of the animals with respect to the original andalusian breeds.

Vargas Machuca in 1891 described in the regulations for soldiers in the Indias: *”... among all that, it is said, they must take dairy cows, which must go, in a single herd; even though they belong to several owners with their brands they must take bulls for breeding, and for cows found in the*

places, they must procur that the cow be tame and brought for security, that they will not fight and will do less work. They must not take pigs and sheep untill the colony be populated because this livestock produces works and problems...”.

Nevertheless, at the beginning of the conquest, these species accompanied the explorers. Diego Méndez, in his testament of 1536, described the return of Columbus's fourth trip (1503-1504): “... *they saw three boats from Castilla. Among them, I bought the first and I supplied her with foods of bread and wine and meat and pigs and muttons and roots and I sent her to where the Admiral was so that they came with all their people, to Santo Domingo, and from there to Castilla...*”.

Concerning the routes of distribution of the andalusian livestock destined to America, we have considered it interesting to show them in the **table I**. This show the points of departure in Spain, their routes and expeditions on the american continent as well as their intermediate stops, the dates of the expeditions and those responsible for the expeditions.

THE ANDALUSIAN BREEDS OF LIVESTOCK ARRIVED TO AMERICA

We think that with the data summarized in this paper we can add some theories on the racial origins of the livestock brought to America during the beginning of the discovery and throughout its conquest. From Columbus 3rd voyage until 1503 the *Casa de Contratación de Sevilla* there took place what are called the andalusian voyages, since they were planned

and directed by mostly andalusians and they departed in andalusian boats from Cádiz and Huelva. They were (Morales Padrón, 1990):

1° Ojeda, Vespucio y La Cosa (1499-1500).

2° Pedro Alonso Niño y Cristóbal Guerra (1499-1500).

3° Vicente Yáñez Pinzón (1499).

4° Diego de Lepe (1499-1500).

The andalusians signified a high proportion of the total emigrant population. At the initial period (1492-1520) of each three colonists one is andalusian; the same behave in the posterior years (1520-1599), when the south men can up the 32 p.100.

With the exception done on the breeds considered as definitely andalusian, in those years, the rest of animals were not defined as a racial group with the same significance that we have nowadays.

Another fact to take into account is that the definition and identification of the secondary animal populations were made according to their geographical location or, exceptionally, from the color of their coats. This is understood when Wilkings (1984) mentioned that the imported breeds presented several colors and type, because the concepts on coat color and the morphological conformation did not exits in Europe until the second half of the XVIII century, and, as we have cited before, this fact did not occur in Andalusia until a century later.

At the beginning of the conquest many animals from Spain were brought to the Antilles in several trips for their later distribution on the American Continent, but the rapid adaptation

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Table I. Spread of livestock from Andalusia to America. (Expansión de ganado desde Andalucía hasta América).

Date (year)	Place of departure	Chief of expedition	Species	Number of animals	Site of destiny	Site of provision	Later destiny
1492	Palos (Huelva)	Columbus (1st trip)	sheep		Antillas		
1493	Cádiz	Columbus (2nd trip)	goat cattle hen horse		Antillas	La Gomera (Canarias)	
1494	Sanlúcar (Cádiz)	Columbus (3rd Trip)	pig horse	8	Antillas and Orinoco		
1499	Tinto Odíel	Yañez de Pinzón	pig sheep goat horse		Amazonia and Puerto Rico	La Española (Sto. Domingo)	
1502	Sevilla	Columbus (4th Trip)	cattle horse pig sheep		Antillas and Honduras	Cádiz	
1510	La Española	Bacñiller Enciso	goat		Panamá		
1518	Santiago de Cuba	Cortés	pig pig lamp cock horse mare	16	México		
1518	Cuba	Cortés*	horse	2	México		
1518	Jamaica	Cortés*	horse	37	México		
1518	España	Cortés*	horse	3	México		

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Date (year)	Place of departure	Chief of expedition	Species	Number of animals	Site of destiny	Site of provision	Later destiny
1521	Jamaica		pig	1000	Panamá		
1522	Sto. Domingo	Niño Dávila and Gil González	mare ox		Nicaragua		
1523	México	Alvarado	horse	100	Guatemala		Perú
1523	México	Niño de Guzman	horse	120	Nort of México		
1525	Canarias	Bastidas	pig horse		Colombia (Nuevo Reino de Granada) Yucatán		
1526	México	Montego	horse				
1526	Panamá	Pizarro and Almagro	pig horse	62 223*	Perú	Guatemala	Perú (1531)
1526	Panamá	F. Pizarro	pig hen		Tumbes (Perú)		
1527	Panamá	Pizarro and Almagro	horse	37	Perú		
1527	Sanlúcar de Barrameda	Narváez and Núñez	horse	80	Cuba		Florida and Texas
1530	Panamá	Pizarro and Almagro	horse	25	Perú		
	España		cow		Perú		
			goat				
1531	Tumbes	F. Pizarro	pig hen		Perú		
1531	Nicaragua	Belalcázar and Hernández de Soto	horse		Perú		
1532	Canarias	Heredia	horse	200	Colombia	La Española	
1535	Sevilla	Mendoza and Ayolas	horse bull	72	Argentina	Canarias	Paraguay (1540)
			pig hen sheep				

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1535	La Española Coro	Federman and Espira	horse	80	Venezuela		
1535	Nicaragua	Belalcazar			Ecuador (Quito)		Colombia (1539)
1536	Canarias	Fdez. de Lugo and Giménez de Quesada	horse	200	Colombia	Venezuela	
1538	Perú	Gonzalo Pizarro			Bolivia		Nort of Amazonas (1540)
1538	Sanlucar de Barrameda	Hernández de Soto	horse	350	Florida	Cuba	Georgia Alabama and Mississippi
1539	Ecuador (Quito)	Belalcazar	Extremenian pig, dog, "bestias"		Colombia		
1539	Venezuela	Federman	dog hen		Colombia		
1540	Bolivia	Gonzalo de Pizarro	horse dog Extremenian pig	4000 1000	Nort of Amazonas		
1540	Perú	Valdivia	horse	10	Chile		
1540	Argentina	Irala	horse		Paraguay		
1540	Cádiz	Núñez de Cabezas Hernandarias de Saavedra	horse cow horse	50	Brasil and Uruguay Uruguay and Brasil		
1548	Perú	Ñufló de Chávez	sheep and goat		Argentina	Bolivia	
1552	Perú	Felipe de Cáceres	cow		Paraguay	Sta Cruz de la Sierra	
1576	La Asunción (Paraguay)	Juan de Garay	cow	500	Argentina (Buenos Aires)		

to the new ecosystems and their growth in tropical areas determined that, in a few years, cattle, pigs, horses and sheep abounded in several american countries; in this way, from Cortés's first expedition, during Mexico's conquest only occasionally were horses shipped from Spain to the New World. When it occurred, only stallions were selected for reproduction.

Thus, P. Cappa said that at the end of the XVI century there were in the Andean Valley only 3700 mares, and Alonso Zuazo speaking of the Antilles in the year 1518 said: "... we have found there herds of cows lost in the number of 30 or 40 with their brands, and three or four years after there appeared in the mountains 300 or 400. The same occurred with pigs, sheep, mares and other livestock..."

Of course, it can be probable that some years later when the expeditions to America began their departures from other ports of Spain, other breeds, not andalusian, were probably introduced to this continent.

It is clear that the first horses taken to America came from Andalusia and they must have belonged to the present Spanish Pure Breed Horse, but with the characteristics presented by this population at that times they were modified because of the mode and necessity.

According to Cunningham (1946) the horses exported to the Antilles, for distribution on the American Continent from the famous Caste of Córdoba, extinct long ago.

Related to the ovine livestock the exportation of two different racial branches to America is probable:

- On one hand, the Merino Breed,

with stocks belonging to the so-called *Stand Merino*, or to the *Movable Merino* coming from interior regions. It is contrasted because in the first years of the XVI century when the Association of Sheepmen reached their maximum importance in Castilla, the application of their laws in Santo Domingo were designed with a total downfall, because this island didn't have wide pastures in regions with opposite weather. For Klein (1979) the same occurred in Mexico when Cortés and its successors, most of them familiarized with the movements of sheep herds in Spain, and because they came from Extremadura and Andalusia, they tried to apply the laws of the Association of Sheepmen. Nevertheless, on the 31st of July of 1537 there was created in Mexico a Council for the Association of Sheepmen and, in 1538 their chiefs were named. Also it is known that the Bishop-Viceroy of Mexico asked for, and received, merino sheep. For Serrera (1977) the Mexican Mesta was only an overseas transplant of the same peninsular institution, with, however specific characteristics. Among them are:

The Mexican Mesta, as Bishko (1978) noted, offers more similarity with the municipal Mesta of the Andalusian type than with the institution of the Real and honorable council of the Mesta, which refutes the *transhumancia* of the sheep in Castilla.

The Mesta, in fact, only took root in the *Virreinato* of New Spain although theoretically it was implanted in all the American provinces.

The Mexican Mesta not only regulated the sheep breeding, as

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occurred, in fact, in the Peninsula on account of the diverse state economies, but it also regulated the activity in general of all animal species rooted in the *virreinato*.

- As well as, the Churro Breed, probably belonging to the Lebrijano Churro type, today near extinction. Boezio (1990) considered that the Criollo Sheep from Uruguay before 1794 descended from either the Churro Sheep or from the Pirenaica Breed, both belonging to the descendants of *Ovis aries studery*, while the Merino was introduced soon after.

It is possible that these two branches were introduced to America at the same time, but each of them occupied different ecosystems; the Merinos were located on table lands and valleys with long displacements, and the Churros occupied the mountains in wet and cold areas.

In the expeditions from Belalcázar to Perú and Gonzalo Pizarro to Bolivia or to the North of the Amazonia, pigs were included from Extremadura and Andalucía, black and red. In the catalogue of the National Show of Livestocks celebrated in Madrid in 1913, both types (Black and Red) of the Iberian Pig are still differentiated. These animals only differ in their color but at that time they tried to place the black type in Extremadura and the red type in Andalusia. To these animals were added a large number of other autochthonous stocks from the Canary Islands, belonging to the Canary Pig Breed still alive.

The origins of the american cattle are more debateable. According Wilkins (1984) the fact that Columbus shipped cows to Canary Islands, like

other explorers after, justified the influence of Asturiano or Gallego Cattle, because the present Canary Cattle is highly related to these breeds. But, as in the prehispanic period bovines did not exist on these islands (the conquest of the Canary Island finished a few years before the discovery of America), we think the cattle population of the Islands was constituted following two periods: firstly, in the years after their colonization they received stocks from Andalusia, probably Retinto, most of them destined for America. And secondly, when the exportation to America from the spanish northern ports was opened these regions contributed with Asturiano and Gallego stocks.

The andalusian breeds were adapted to extensive systems and specialized to beef production and work. The northern breeds were adapted to intensive systems and produced milk, beef, work and manure.

The economical structures of the Canary Islands demanded animals adapted to the intensive systems and for this reason the andalusian stocks were displaced by the northern stock, so the local selection has produced the present Canary (Criollo) and Palmera Cattle.

Furthermore, we have mentioned in an other chapter the organized contraband of trades and livestock between the Canaries and Andalusia throughout the first centuries after the discovery. It explained that some animals shipped from the Canary Islands really came from Andalusia.

Nevertheless, the introduction of livestock from other points of Spain

it is obvious after the end of the XVII Century. For this reason, we admit that the Criollo Cattle is not a Breed, even though has a common origin in Spain and Portugal although lacking a very heterogenous pool of genes. According to Serrera (1977) a great part of the criolla breeds of cattle that originated in Mexico during the colonial period in a greater or lesser degree formed a part of a primitive common trunk of cattle, the Retinto breed or the Guadalquivir breed, brought over by the spanish in the first decades of the colonization of the territory.

We are in accordance with Primo (1990) in his opinion that the ancestors of the New World cattle were andalusian animals shipped from the Canary Islands and with De Alba

(1987) who thinks that the Tropical Criollo have their origins in animals from Andalusia and the Canaries. The similarities found by Rouse (1977) are known between the Criollo Cows and the Andalusian Retinta and Berrendas breeds.

Finally, we coincide with Tudela (1987) in his opinion about the caprine livestock in the New World; they had a wonderful adaptation and dispersion on this continent, populating hot and cold areas, and sometimes becoming wild. All of them must have come from the Canaries, from Andalusia, and other populations from Cabo Verde and Guinea. The similarities between the present american breeds and the occidental population is still evident at the present time.

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