

# ORIGIN OF THE PANTANEIRO HORSE IN BRAZIL

## ORIGEN DEL CABALLO PANTANERO EN EL BRASIL

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### Palabras clave adicionales

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### SUMMARY

The first horses that arrived in the Pantanal, a flooded land of the states of Mato Grosso and Mato Grosso do Sul (Central Western region of Brazil), formed a breed - the Pantaneiro horse - a product of natural selection over the last three centuries, and adapted to the regional environmental conditions. Until recently, little or no human interference was imposed on this process. There is some information about dates when the first horses entered the region, but none of it is precise. The earliest origin appears to be related to such Spanish expeditions as those of Pedro de Mendoza, in 1534; Alvar Núñez Cabeza de Vaca, in 1540; and Ñuflo de Chávez, in 1543. The animals brought by these expeditions were, for the most part, Iberian horses. Some horses on these expeditions were lost in the Pantanal, proliferating and, consequently, populating the area. The *Guaicuru* Indians helped to spread horses in the Pantanal. They learned horse management from the Spanish and extended their range. Explorers arriving in the state of Mato Grosso, particularly in the 17<sup>th</sup> and 18<sup>th</sup> centuries, coming from the state of São Paulo, by way of the Tietê-Paraná-Paraguay rivers, and from Goiás by road, may have also contributed to the introduction of horses into the region. Since the formation of the Pantaneiro breed, this

horse has played an important role in the development of the Pantanal region.

### RESUMEN

Los primeros caballos que llegaron al pantanal, una planicie inundable de los Estados de Mato Grosso y Mato Grosso do Sul (región Centro Oeste de Brasil) dieron lugar a una raza - el caballo pantanero - producto de la selección natural por más de dos siglos, adaptada a las condiciones ambientales de la región. Hay algunas informaciones sobre las fechas de la entrada de los primeros caballos a la región, pero ninguna de ellas es precisa. El origen más remoto está relacionado con las expediciones españolas, tales como las de D. Pedro de Mendoza, en 1534; Alvar Núñez Cabeza de Vaca, en 1540, y Ñuflo de Chávez en 1543. Los animales traídos por estas expediciones fueron en su mayor parte, ibéricos. Algunos caballos de estas expediciones fueron abandonados en el pantanal, proliferando a continuación y poblando el área. Los indios *Guaicuru* ayudaron a diseminar los caballos en el Pantanal. Ellos aprendieron el manejo del caballo a través de los españoles y extendieron su dominio. Exploradores que llegaron al Estado de

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Mato Grosso, particularmente en el siglo XVII y XVIII, desde el Estado de São Paulo, por la vía fluvial Tietê-Paraná-Paraguay y, por caminos, desde Goiás, también pueden haber contribuido a la introducción de los caballos en la región. Desde la formación de la raza pantanera, este caballo representa un papel importante en el desarrollo económico y social de la región del Pantanal.

## INTRODUCCION

Horses introduced into the Pantanal by the conquerors during the colonization period found in this region good environmental conditions for their multiplication. As a consequence of the suitable processes and natural selection for more than two centuries with little or no human action, a type of animal adapted to the environment appeared. Through the development of cattle breeding in the Pantanal region, the Pantaneiro horse constituted an economically and socially important factor, becoming a must for the cattle industry and for regional transportation.

At the end of the 19<sup>th</sup> century, the breed started a population reduction process mainly caused by a disease called *Peste das cadeiras* (Trypanosomiasis). Later other menaces to survival appeared with indiscriminate crossbreeding and more recently Infectious Equine Anemia. However, conservation works with this *ecotype* were started with the creation of the Brazilian Pantaneiro Horse Breeders Association and afterwards with initiatives from other governmental institutions.

Seeking the conservation and encouragement of Pantaneiro horsebreeding, the Brazilian Agricultural Research Corporation (EMBRAPA) is carrying out studies on this breed e.g. bibliographic investigation on the history of Pantaneiro horse origins. It is known that its origin is linked to the history of Central and South American occupation. Several dates relating to the arrival of horses in the region exist, nevertheless, there is need for deeper studies on the origin of this *ecotype*.

## THE INTRODUCTION OF THE HORSE IN THE AMERICAS: BRAZIL

There were no horses in the New World before the discovery period and the first introduction was due to Christopher Columbus, in 1493, on the occasion of his second trip to the Santo Domingo island (Hermsdorff, 1956; Ensminger, 1978 and Dowdall, 1982). Explorers and settlers brought to America all the first equine breeds from the Ancient World mainly of Spanish origin. The ancient settlers from the east coast also brought horses of English, Berberian, Arabic and Turkish origins. The breeds of *cold blood* were not introduced into the Americas in significant number until the end of the 19<sup>th</sup> century. The horses brought by settlers adjusted quickly to the new environment and in a few years they spread to the surrounding lands, where they increased in number (Hermsdorff, 1956).

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The introduction of horses in Brazil occurred during the colonization period, immediately on the first trips, with the purpose of exploring the continent, because this was the main means of transportation during this period (Dowdall, 1982). The first horses and cattle were brought to three places along the Brazilian coast: Pernambuco, in 1535, São Vicente in 1543 and Bahia in 1549, by the donees Duarte Coelho, Martim Afonso e Tomé de Souza, respectively (Chieffi, 1950 and Torres and Jardim, 1977). These were the three original breeding centers from which they spread to almost all the coastland and a great number of animals to the hinterland (Hermsdorff, 1956). Those brought to Bahia and Pernambuco were dispersed in the direction of the center west, from the northeast to the north; and those of São Paulo, in the direction of the states of Paraná and Santa Catarina. The horses from the extreme south and center west originally animals proceeding from Spain were reproduced in Argentina and Uruguay (Goulart, 1964).

### THE PANTANAL

The Matogrossense Pantanal is situated in the centerwest region of Brazil, between 16 and 22° lat. South and 55 and 58° long. West. The Pantanal corresponds to 35% of the high Paraguay river basin, which is situated in the central part of South America (**figure 1**). The Paraguay river is a tributary of the Paraná and both form part of the Plata basin. The climate is of the type Aw according

to the Köppen classification, with average temperatures varying from 20 to 28°C and relative humidity from 60 to 80%. The annual rainfall oscilates between 1.000 and 1.400 mm. This region is a wide plain of alluvial accumulation, with average altitude 120 m above sea level, and it has marked rainy and dry seasons that vary in intensity and geographic extension, according to the annual climatic and hydrologic characteristics (Brasil, 1974).

### COLONIZATION AND ARRIVAL OF HORSES IN THE BRAZILIAN CENTER-WEST REGION

In the late 1500's, Spain and Portugal divided the discovered lands and those yet to be discovered, through a divisory line - the Tordesillas treaty (**figure 2**). However, the action of several pioneers advanced the divisory line and incorporated into Portuguese dominions territories that should belong to Spain. Some of the main areas of attrition were the Plata and Paraguay river basins. The Paraguay basin in the CenterWest constituted the route that facilitated the penetration of men in the region (Almeida *et al.*, 1959). The first immigrants that arrived in this region were the spanish jesuits who settled in the margins of the Aquidauana, Miranda and Guaporé rivers and other places, but they were dislodged by the colonial exploratory expeditions from S. Paulo and by force of the international treaties (Lucidio and Rondon, 1972).

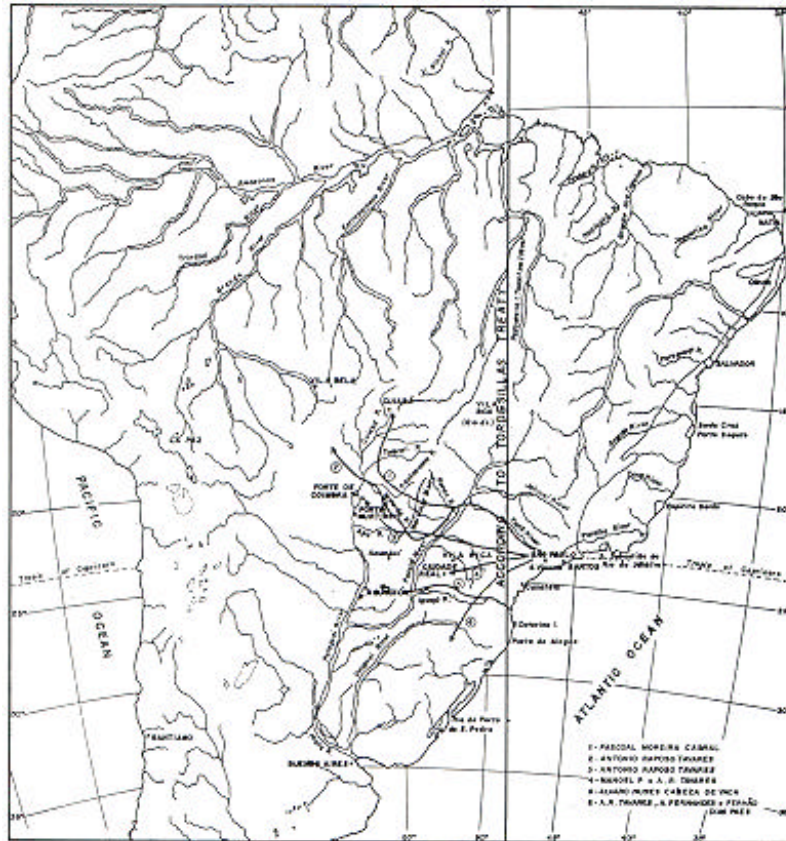
D. Pedro de Mendoza, born in Guadiz (Cádiz), Andalusia, was designated the first civil and military governor of the Plata river, by Carlos V in 1534. His mission was to conquer

and populate the lands and provinces of this region. The *armada* (fleet) left San Lucar of Barrameda, in 1535 (Araújo, 1990) with 100 horses destined for work and reproduction,



**Figure 1.** Map of Pantanal localization in South America. (Godoi Filho, 1986).  
(Mapa de la localización del Pantanal en la América del Sur. (Godoi Filho, 1986).

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**Figure 2.** Map indicating the divisory line in Brazil according to the Tordesillas Treaty. Some expeditions mentioned in the text are designated as follows: (5) Alvar Núñez Cabeza de Vaca in the 16<sup>th</sup> century; (1) Pascoal Moreira Cabral; (2) and (3) Antônio Raposo Tavares; (4) Manoel P. and (6) A.R. Tavares, André Fernandes and Fernão Dias Paes, the main expeditions (“bandeiras”) of the 17<sup>th</sup> and 18<sup>th</sup> centuries. (Based on Albuquerque, 1983). (Mapa indicando la línea divisoria en el Brasil de acuerdo con el tratado de Tordesillas. Algunas expediciones mencionadas en el texto son designadas como sigue: (5) Alvar Núñez Cabeza de Vaca en el siglo XVI; (1) Pascoal Moreira Cabral; (2) y (3) Antônio Raposo Tavares; (4) Manoel P. y (6) A.R. Tavares, André Fernandes y Fernão Dias Paes, las principales expediciones (“bandeiras”) de los siglos XVII y XVIII. (Albuquerque, 1983)).

besides men and officers. D. Pedro de Mendoza, in 1536, made the first tentative to found Buenos Aires city. There 72 horses were disembarked. The other 28 may have perished during the trip or remained aboard (Hermsdorff, 1956 and Araújo, 1990).

In 1541, D. Pedro de Mendoza chased by Pampa indians, was forced to leave the region suddenly, leaving behind several Andalusian horses which reproduced quickly and formed the great wild herd of the Pampas (Hermsdorff, 1956 and Bertelli, 1984).

Alvar Núñez Cabeza de Vaca was nominated second governor of the Plata river. The fleet left Cádiz in December 1540 transporting soldiers, seeds, 46 horses and some cows (Araújo, 1990). Cabeza de Vaca anchored in Cananéia, then navigated to Santa Catarina, where he lost 2 ships and 20 horses. This made him proceed by land, to Paraguay. In this expedition, some of the horses were probably lost in the Southern Brazilian states and Mato Grosso, where the species proliferated and populated the lands (Goulart, 1964 and Hermsdorff, 1956).

In search of a route to Peru looking for, Cabeza de Vaca departed from Asunción in 1542, going up the Paraguay river. Afterwards Cabeza de Vaca went through the swamps of *Xaraés* (present region of Pantanal) (Marques, 1923 and Souza, 1973). It was probably in 1543 that the indians of Paraguay an plains saw for the first time, surprised, the footprints of the first horses brought by Cabeza de Vaca. He may have reached the confluence of the Cuiabá and Paraguay

ivers, where he founded the *Puerto de los Reyes* (Goulart, 1964 and Araújo, 1990).

Other expeditions succeeded, like that of Ñuflo de Chávez, who made two attempts, but he did not reach Peru. In 1488, Ñuflo de Chávez, on the way back, brought a herd of sheep, goats and horses. He arrived in Asunción in 1549, distributing cattle and horses on the *Llanos* and *Xaraés* plains (Araújo, 1990).

Juan de Garay, governor of Plata river, congregated 1000 horses, 500 cattle, 500 sheep and goats. In June 1580 he founded the second Buenos Aires and became surprised with the quantity of wild horses living in the pampeanos plains, descendents of the Andalusian horses brought by Pedro de Mendoza. The spanish, as they penetrated the interior, found a great quantity of horses. The treasurer, Hernando de Montalvo, who had arrived at the Plata river on expedition with Zárate, estimated more at than 800 thousand horses (Goulart, 1964 and Araújo, 1990).

In the 17<sup>th</sup> century the decisive advance of numerous *bandeiras* (expeditions - inland explorers from the coastal regions) occurred in direction of Peru. Some *bandeiras* took a different route from that of Aleixo Garcia, across the hinterlands of Cuiabá, like Antônio Castanho da Silva, in 1622, and Antônio Raposo Tavares, in 1648 (**figure 2**) (Taunay, 1932 and Sodré, 1941). The first *bandeiras* aimed at the capture of native slaves for agriculture in S. Paulo state since local yields did not support expenses with the importation

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of african slaves (Marques, 1923).

In the middle of the 17<sup>th</sup> century the fight between *inacinos* and *paulistas* for the great conquest of the west occurred. The occupation of southern Mato Grosso and the consequent expulsion of the spanish and *inacinos*, jesuit followers, established in the region constituted the cycle of *Vacaria*. *Vacaria* was the name given to the region at that time and comprised the large meridional zone limited by the Paraná river, Maracaju Sierra, Amambaí and headwaters of the Pardo river (Taunay, 1932 and Sodré, 1941). In these lands a great number of cattle and horses were scattered many without owners.

At the end of the 17<sup>th</sup> century the settlers coming from São Paulo spread across the region of *Vacaria*, for example Antonio Raposo Tavares, André Fernandes, Antonio Pires Campos and others. In 1682, one of the most important expeditions, that of Braz Mendes Paes, occurred destroying the population of *Vacaria*.

Afterwards, several *bandeiras* arrived, Antônio Pires Campos and Pascoal Moreira Cabral in 1717 and 1719 respectively (**figure 2**) (Marques, 1923 and Taunay, 1932).

At this time, roads and routes were rough and the *bandeirantes* coming from S. Paulo did not have horses like to the spanish did. The contrasts between spanish and portuguese were so evident that they could be distinguished afar as being mounted or not (Corrêa Filho, 1924).

With the accidental discovery of gold in 1717, by the *bandeirantes*, the course of history in the region changed completely. Men started to settle and

to benefit from gold. Mining originated several villages later transformed to in such cities as Livramento and Poconé, officially constituted in 1781 (Almeida *et al.*, 1959).

The *bandeiras*, in search of indians or gold, were fragmented and discontinuous. The inevitable decadence of mining marked a pause in the human development of the west, which was interrupted by the slow start of a new activity, cattle raising. However, this activity was almost extinguished in 1850, due to the *Peste das cadeiras* (Trypanosomiasis) which affected all the horses on the farms, to such an extent that no animal was left to manage cattle.

Cattle purchasers did not return because they had to bring horses from their provinces to separate cattle. Long distances and heavy work led horses to their death, causing great economic losses to cattle purchases. This reduced cattle commerce and thus greater riches were seriously damaged.

Trips to Cuiabá by means of rivers were extremely trying. To make things easier, in 1736 authorities opened up a route from São Paulo to Cuiabá, through Goiás, shortening the trip. The first horses originating from Goiás were introduced into the Cuiabá province in 1737 (Mello, 1968).

### THE ROLE OF THE GUAICURU INDIANS IN THE DISSEMINATION OF THE HORSE

The *bandeiras*, as they penetrated the Centerwest were confronted by the spanish and indian peoples

(Almeida et al., 1959). These explorers were many times forced to face the bravery and the ferocity of the indians, especially from three nations, the Caiapó, Guaicuru and Paiaguá (Marques, 1923).

The Guaicuru indians, also known as *rider indians* lived on the right border of the Paraguay river, between the cities of Corumbá and Miranda, located in the South of Mato Grosso (Goulart, 1964).

These indians learned to tame the horse with the spanish, around the first decades of the 17<sup>th</sup> century. They started to use these animals with incomparable skill, which made it easy to spread their domination and territory all over the Pantanal region. Around 1672, the indians started to thieve horses from the spanish and before 1716, the Guaicuru kept their distance from the spanish and afterwards became more insolent with the horses they had robbed (Holanda, 1986).

These animals descended mainly from those introduced by the spanish settlers, from iberian horses (Goulart, 1964; Souza, 1973) and seen to be the only tribe to adopt the horse in the region, where it became an efficient means of locomotion on the plains (Martins, 1992). Indians and horses had a great deal in common (Souza, 1973).

As the spanish established new farms, they were attacked by the Guaicurus, thieving thousands of horses and cattle. In 1796, the spanish organized a *bandeira* (expedition) to destroy the indians (Proença, 1958).

In the extreme West, there was no direct influence of cattle over horses.

The initial dissemination of horses in Mato Grosso state is due to the Guaicuru indians, whose horses reached the proximities of Cuiabá, *mimoso* (*Paratheria prostrata*) grasslands, where the indians arrived in search of pastures (Goulart, 1964).

With the domination of the horse, the Guaicuru became nomadic warriors, feared by other indians and settlers. Around 1720, the presence of the Guaicuru was rare (Proença, 1958). In this period, when river explorers coming from the State of São Paulo passed through the State of Mato Grosso in search of recently discovered gold mines in Cuiabá, the Guaicuru joined with the Paiaguá indians against the invaders.

As soon as the dominion of the Guaicuru started to solidify in the South of Mato Grosso, the obstacle of the castilian penetrations were initiated, contributing directly to the incorporation of this area in to the Portuguese patrimony. The Guaicuru indians associated with the Paiaguas showed hostility towards the *bandeiras* for years until they were defeated. As early as in the 19<sup>th</sup> century, the Guaicuru indians showed the first sign of desintegration and decadence caused by civilization especially by their addiction to drink. To obtain alcoholic beverages, they negotiated even their most beautiful horses (Proença, 1958).

## THE FORMATION OF THE PANTANEIRO HORSE

The horses brought to the America suffered local influences, giving rise



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to several national breeds. The characteristic environment of each region, involving such a series of factors as climate, soil, pastures, and management have a great influence over the phenotype. This environment will permit or not, according to the circumstances that each individual express phenotypically its genotype (Dowdall, 1982). The pantaneiro horse is considered a naturalized breed derived from the breeds introduced in different periods in Brazil by the colonizers and settlers (Domingues, 1968).

The first horses that arrived in the Pantanal region acclimatized and multiplied easily, becoming a *type* adapted to the bioclimatic conditions, product of a natural selection for more than two centuries, with little or no human action (Balieiro, 1971). Natural selection is the differential propagation of genotypes. Satisfactory genotypes will be found in successive generations through competition between individuals. These properties are known as adaptable (Berger, 1986).

Domesticated animals can turn into non domesticated that is wild animals (*Feral* refers to a wild state of existence in domestic animals). These animals are called the *mustang* and *cayuse* in North America, *brumby* in Australia, and *cimarrón*, *bagual* or *monstrero* in South America (Berger 1986). In the Spanish Real Academic Dictionary the word *bagual* means ferocious, wild and indomitable (Hutchinson *et al.* 1977).

One of the difficulties in the evaluation of the origin of certain breeds is the identification of ancestral breeds (Hutchinson *et al.* 1977). It is

difficult to demonstrate the ethnic composition of the equine population of Spain in that period, the types of horses that predominated and which, for useful reasons, geographic discrimination and so on, could be those to come to the Americas (Dowdall, 1982). Many of the horses brought to the region were Andalusian which is an ancient horse breed from Spain, that came with moorish invasions in the 8<sup>th</sup> century A.D., when the barbs and arabian horses were interbreeding with local ponies and more recently with higher horses (Araújo, 1990).

Portugal and Spain had on that occasion, animals that had suffered blood infusion from horses introduced by the moors, during the years of mussulman domination in the Iberian peninsula. The improved action of these eastern animals in the region of Andalusia, contributed to the rise of the Spanish Andalusian breeds (Chieffi, 1950).

Some horses found around the world can be classified as founder breeds due to ancient origins and important contributions to the development of such recent breeds as the Arab (*Equus caballus asiaticus*) and the Barb (*Equus caballus orientalis*). A purebred does not exist because this is a relative term. According to Peloso (1981), pure breeds refer to an animal population totally uniform, in which all individuals would have the same genetic structure. On a zoological scale, this would invalidate the variation phenomenon and thus the genetic progress.

Balieiro (1971) considered the

following Pantaneiro counties as the place where the breed appeared: Santo Antônio de Leverger, Barão de Melgaço, Nossa Senhora do Livramento, Poconé, Cáceres, Corumbá and Aquidauana. The Pantaneiro horse received several names, according to place of origin: Poconeano (from Poconé), Mimoseano (from the *Mimoso* fields of Barão de Melgaço), Baiano (from the *baía* fields in Poconé) and Curraleiros (from the flooded plains of the Paraguay river) (Bertelli, 1984 and Goulart, 1964).

In summary, the present study demonstrates that the Pantaneiro horse had its probable origin from Iberian horses introduced by Spanish settlers, specially in the 16<sup>th</sup> and 17<sup>th</sup> centuries, stand up the importance of the Guaicuru Indians stand out in the dissemination of horses in the Pantanal. Only in the 18<sup>th</sup> century, with the opening of a route from São Paulo to Cuiabá, through Goiás, the horses were introduced in the Pantanal came from the Brazilian coast, a region of Portuguese colonization.

## REFERENCES

- Albuquerque, M.M., A.C.F. Reis, C.D. Carvalho, T. Castro. 1983.** Atlas Histórico Escolar. 8. ed. MEC. Rio de Janeiro. 187p.
- Almeida, F.F.M. and M.A. Lima. 1959.** Planalto Centro Ocidental e Pantanal Mato-grossense. Conselho Nacional de Geografia, Rio de Janeiro. 69p.
- Araújo, R.V. 1990.** Os jesuítas dos 7 povos. Editora La Salle. Canoas, RS, 467p.
- Balieiro, E. de S. 1971.** Subsídios ao estudo do cavalo Pantaneiro. São Paulo. Anuário, Comissão Coordenadora da Criação do Cavalo Nacional. Ministério da Agricultura. pp: 59-65.
- Berger, J. 1986.** Wild horses of the great basin. Social Competition and Population Size. The University of Chicago Press, Chicago and London. 326p. Wildlife Behaviour and Ecology Series.
- Bertelli, A.P. 1984.** O paraíso das espécies vivas. Pantanal de Mato Grosso. Cerifa Editora, São Paulo, 337p.
- Brasil.** Departamento Nacional de Obras de Saneamiento. 1974. Estudos hidrológicos da Bacia do Alto Paraguai; relatório técnica. s.l.v.i.
- Chieffi, A. 1950.** Criemos Bons Equídeos. 2. ed. Ministério da Agricultura. Serviço de Informação Agrícola. Rio de Janeiro. pp: 9-42.
- Corrêa-Filho, V. 1924.** Notas à margem. S. Paulo. Secção de Obras. "O Estado de S. Paulo", 183p.
- Domingues, O. 1968.** O gado nativo do Brasil: as supostas raças bovinas. *Revista da Agricultura*. 43: 71-72.
- Dowdall, R.C. 1982.** Criando Criollos. Hemisfério Sur. Buenos Aires. 409p.
- Ensminger, M.E. 1978.** Producción Equina.

## ORIGIN OF THE PANTANEIRO HORSE IN BRAZIL

- Edição El Ateneo, 39. Buenos Aires.
- Godoi Filho, J.O. 1984.** Aspectos geológicos do Pantanal Matogrossense e de sua área de influência. Anais do 1º Simpósio sobre Recursos Naturais e Sócio-Econômicos do Pantanal, Corumbá, MS. 265p.
- Goulart, J.A. 1964.** O cavalo na formação do Brasil. Editora Letras e Artes, Rio de Janeiro, 249p.
- Hermesdorff, G.E. 1956.** Zootecnia Especial. Tomo 1. Equídeos, Rio de Janeiro, 626p.
- Holanda, S.B. de H. 1986.** O extremo Oeste. Brasiliense, São Paulo. pp. 25-72.
- Hutchinson, J., J.G.G. Clark, E. Jope, M. and R. Riley. 1977.** The early history of agriculture. In: The British Academy by Oxford. University Press. 213p.
- Lucídio, J. y N. Rondon. 1972.** Tipos e aspectos do Pantanal: Mato Grosso. Nobel, São Paulo. 160p.
- Marques, A. 1923.** Matto Grosso. Seus recursos naturais. Seu futuro econômico. Papeleria Americana, Rio de Janeiro. 216p.
- Martins, G.R. 1992.** Breve Painel Etno-Histórico do Mato Grosso do Sul. Universidades Federal de Mato Grosso do Sul, Campo Grande, MS. 75p.
- Mello, R. S. de. 1968.** Para além dos bandeirantes. Biblioteca do Exército Editora, Rio de Janeiro, 309p. (Coleção General Benício, 67).
- Peloso, V.P.M. 1981.** Anuário, Comissão Coordenadora da Criação do Cavalo Nacional. Ministério da Agricultura. São Paulo. pp. 42-46.
- Proença, M.C. 1958.** No termo de Cuiabá. Ministério da Educação e Cultura. Instituto Nacional do Livro, Rio de Janeiro. (Série A. XVI). 179p.
- Sodré, N.W. 1941.** Oeste. Ensaio sobre a grande propriedade pastoril. José Olympio, Rio de Janeiro. 206p.
- Souza, Z.G. 1973.** História de uma região: Pantanal e Corumbá. Resenha Tributária. São Paulo, 237p.
- Taunay, V. de. 1932.** Entre os nossos índios. Editora Companhia Melhoramentos, São Paulo. 134p.
- Torres, A.P. and W.R. Jardim. 1977.** Criação do cavalo e de outros equinos. 3. ed. Nobel, São Paulo. 654p.