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THE FICTION OF THE AMERICAN HORSE AND THE TRUTH ON THIS DISPUTED POINT.

BY DR. E. L. TROUESSART.

THE article of Mr. Robert C. Auld, published in *Science*, Sept. 2, 1892, brings before us the question of the introduction of the horse (*Equus domesticus*) into America. It is generally accepted that Europeans brought it to the New Continent, and that it was in La Plata that Mendoza, in 1530, introduced horses. Before that time, the natives were familiar with the llama only.

The only document which contradicts this historical fact, is a map published by Sebastian Cabot, on his return to Europe, that is after 1530, and which, moreover, had several editions. On this map, Cabot figured the horse as a production of the Rio de la Plata. It is difficult to attach any faith to this assertion of Cabot, since it depends very probably, upon the same doubtful grounds as the existence of the gold and silver mines in this country to which he gave, fortunately or unfortunately, the name of "La Plata." We know that all the objects of gold and silver which Cabot obtained from the natives were brought from Peru and from Chili, and that no metallic productions of any kind are to be found in this part of the Argentine Republic. But to Cabot—desirous above all things of dazzling the King of Spain, and later the King of England, in order to obtain the command of new expeditions for discovery—it was essential to make it appear that these lands abounded in riches and supported large herds of horses. It is quite likely, too, that Cabot knew that the horse, recently imported into the country, could survive there and multiply in a state of freedom.

Be that as it may, all navigators who visited Rio de la Plata, before and after Cabot, contradict his assertions and agree in affirming that the natives did not know the horse. Pigafetta, notably, the historian of the voyage of Magellan, who visited Rio de la Plata in 1519, and who enumerates with care all the productions of the animal and vegetable kingdoms of that country, says authoritatively that the natives knew no other beast of burden than the llama (*guanaco*).

It is time, therefore, to make an end of this fiction of the native American horse. It is certain that this animal was imported by Europeans into America and that the *Equidae*, which had formerly existed on that continent, were entirely unknown to the red men. We recall the terror of the Caribbeans, the Mexicans, and the Peruvians, at the sight of the Spanish cavaliers: they believed

themselves in the presence of a herd of centaurs. Geological and palæontological evidence in regard to the Argentine Republic abounds, also, to prove, in the most convincing manner, that there elapsed a period, between the extinction of the indigenous American horse and the appearance of the domestic horse imported from Europe, which was quite long enough to be appreciable geologically. This is the point which is now to be demonstrated.

We know that the horse of three toes (*Hipparion* or *Hippotherium*) existed in the north of the two continents at the end of the tertiary period (Pliocene and Quaternary). The genus *Protohippus*, considered the direct progenitor of *Equus*, differs very little from *Hipparion*, and may be regarded as a simple sub-genus of the latter. This genus, *Protohippus*, which numbers several species, lived in North America during the Pliocene epoch. The true genus, *Equus*, appeared soon after in the same country (from the Pliocene epoch), and several species (*Equus crenidens*, *E. barceni*, etc.) are contemporaneous with *Hipparion* and *Protohippus*.

A genus akin to *Equus*, the genus *Hippidium*, is found also in the Pliocene age of North America (*Hippidium spectans*, Cope). This genus is the only one (with the true *Equus*) which is found in the Quaternary epoch in South America. Indeed, *Hipparion* and *Protohippus* are not known there, and *Hippaphus* (Ameghino) is too little known to take up our attention here. There seems to be no doubt, therefore, that the South American horses of the Quaternary age spread gradually across the continent, from Mexico to Colombia, Brazil, and the Argentine Republic, for before this period *Macrauchenia*, the *Proterotheridae* and the *Tapiridae* were the only Perissodactyls living in the last-named country.

The South American horses (genus *Hippidium*) bear characteristics which forbid confusing them with the *Hipparions* and the horses of the North. Those of South America had thick, squat bodies, large heads, slender legs tapering to small hoofs; their molar teeth were of a shape more square than those of the true horse. These peculiarities are found again, in a measure at least, in horses of the same country which have been referred to the true genus *Equus*. In the same way, the *Equus lundii* of Boas, which lived in Colombia in the Quaternary period, has been compared to the zebra because of the thickness of its form. The other species which were found in the Argentine Republic are *Equus curvidens*, *E. argentinus*, and *E. rectidens*; this last is the one which lived longest in this country where it must have been hunted and eaten by prehistoric man. In the "étage plâien" (upper Quaternary) are found bones of this horse (*E. rectidens*) associated with chipped-stone implements, with pottery, fire refuse, etc., which are the evidences of the presence of man. The long bones of this horse are often split for the extraction of the marrow and the skull broken for the brains. The shape of the teeth enables one to distinguish at once between the *Equus rectidens* and *Equus caballus* of Europe.

If we study now the geological strata of the Argentine Republic we may form the following table whose elements we borrow from Mons. Fl. Ameghino:

ETAGES.	EQUIDÆ QUI S'Y TROUVENT.
Aérien (actuel).....	<i>Equus caballus domesticus</i> .
Aimara (récent).....	(Pas trace d' <i>Equidae</i>).
Plâien (post-pampéen lacustre).....	<i>Equus rectidens</i> .
Guerandien (post-pampéen marin). (Pas de Mammifères terrestres).	
Lujanien }.....	{ <i>Equus rectidens</i> .
Bonairien }.....	{ <i>Equus argentinus</i> .
Belgranien }.....	{ <i>Equus curvidens</i> .
Ensenadien }.....	{ <i>Hippidium</i> (5 sp.).
	{ <i>Hippaphus</i> (2 sp.).

This table, in which the "ensenadien" formation is the most ancient, and the layer "aérien," or actual, the most modern, shows, in the most evident manner, that the true horse of South America (*Equus rectidens*) was extinct a long time when *Equus caballus*, coming from Europe, made his first appearance in the Argentine Republic.

Indeed, the "Aimara" formation, where the bones of the llama (*Auchenia guanaco*) are abundant, presents no trace whatever of the genus *Equus*.