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## Thomas Jefferson Versus Count Buffon: The Theory of New World Degeneracy

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LEE ALAN DUGATKIN

THOMAS JEFFERSON VERSUS COUNT BUFFON: THE THEORY OF NEW WORLD DEGENERACY

On June 30, 1803, Thomas Jefferson presented Meriwether Lewis the orders for his mission with William Clark. The orders were written by Jefferson himself, and included instructions to measure:

...the soil & face of the country, its growth & vegetable productions... the mineral productions of every kind... metals, limestone, pit coal, & saltpeter; salines & mineral waters... volcanic appearances... climate, as characterized by... the proportion of rainy, cloudy, & clear days, by lightning, hail, snow, ice, by the access & recess of frost, by the winds prevailing at different seasons, the dates at which particular plants put forth or lose their flower, or leaf, times of appearance of particular birds, reptiles or insects.<sup>1</sup>

Today, it is almost inconceivable that a politician, let alone the President of the United States, would be so versed in natural history that he or she would pen such orders. But Thomas Jefferson was more than interested in natural history—he was obsessed by it. He would often daydream of shedding the ball and chain of politics that weighed him down. Many days, he wanted nothing more than to escape “the boisterous ocean of political passions,”<sup>2</sup> and return to his home at Monticello and do what he loved to do best: science, including natural history. “Nature,” Jefferson wrote a colleague, “intended me for the tranquil pursuits of science, rendering them my supreme delight.”<sup>3</sup>

In this essay, I will focus on an amazing argument that Jefferson had with Georges-Louis LeClerc. LeClerc, better known by his title, The Comte de Buffon (Count Buffon), was the world’s preeminent natural historian, and in the most sweeping encyclopedia of natural history ever written, he had claimed that all life in the colonies/fledgling United States was small, weak, and feeble—that life in America was

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<sup>1</sup> Dated June 20, 1803; presented to Lewis, June 30, 1803.

<sup>2</sup> Jefferson to Pierre-Samuel DuPont, March 2, 1809.

<sup>3</sup> Ibid.

degenerate. As we shall see, Jefferson led the charge to show the world how and why Buffon's degeneracy hypothesis was misguided. The longest chapter of the only book Jefferson ever wrote is focused on this issue, and Jefferson even spent years trying to snag the perfect American animal specimen to send to Buffon to show him just how wrong he was. But we are getting ahead of our story.

### *Buffon's Theory*

Georges-Louis LeClerc was an ambitious fellow. When he was only nineteen, he graduated law school in France and promptly decided against a profession in law, as his passion had turned to mathematics. In 1733, at age 26, he was inducted into The French Royal Academy of Sciences for his work on probability theory.<sup>4</sup> Seven years later, in 1739, he covertly campaigned for,<sup>5</sup> and received, the plum position for a natural philosopher/scientist in Europe. Largely based on his reputation as a thinker, his election to the Royal Society of London, and some botanical work he had done at the huge forest his family owned, Georges-Louis LeClerc was appointed Curator of the King's Cabinet of Natural History.

Buffon had assorted tasks he wanted to accomplish as curator, but one took precedence over all others. He would, he decided, write *the* definitive encyclopedia of natural history: what became known as *Histoire Naturelle: Générale et Particulière*—in English, *Natural History: General and Particular* (Figure 1). From 1749 until his death in 1788, Buffon would publish 36 volumes of *Natural History: General and Particular*.<sup>6</sup> Spread out over about 6000 pages, and interspersed with stunningly beautiful sketches of the animals he described,<sup>7</sup> the *Natural History: General and Particular* was a huge

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<sup>4</sup> For his work on a game of chance called *Franc-carreau*.

<sup>5</sup> His covert campaign included such comments to his colleagues as: "Even though I would have more reasons to claim it than another, I would not dare ask for it... I will pray my friends to speak for me... one might realize that the intendency of the Royal Botanical Gardens needs a young, active man who can brave the sun, who knows the plants and the way to multiply them, who is somewhat knowledgeable in all areas that are asked of him... it appears to be thus that I am what they are looking for." From *Buffon's Correspondence* by Henri Nadult de Buffon, Volume I, 41-2.

<sup>6</sup> Buffon was in charge of these 36 volumes (including seven "Supplements"). Eight volumes on fish and cetaceans were the written by Bernard Germain de Lacépède, but they are usually counted as part of *Natural History: General and Particular*.

<sup>7</sup> The art was drawn by Louis-Jean-Marie Daubenton.

success, and was translated into English, Dutch and German. It was the talk of the salons of Paris. Buffon became a national hero, and his popularity matched that of Voltaire and Rousseau; so much so that Louis XVI had a statue of Buffon cast and placed in front of the Royal Gardens.<sup>8</sup>



Figure 1. The cover page from an early volume of *Histoire Naturelle*.

It is in Volumes 9 and 14 of *Natural History: General and Particular* that Buffon lays out the theory of American degeneracy.<sup>9</sup> Compared to the Old World, animal life, the Count argued, was “shriveled and diminished”<sup>10</sup> in the New World (especially America). Evidence for this was everywhere, argued Buffon. Here are just a few of the many, many examples that the Count provides:

Elephants belong to the Old World... it is unknown in America, nor is there any animal there that can be compared to it in size or figure. The same remark applies to the Rhinoceros... we have seen that the lion

<sup>8</sup> The statue is there to this day.

<sup>9</sup> Volume 9 contains “Dissertation on animals peculiar to the Old World,” “Dissertation on animals peculiar to the New World,” and “Dissertation on animals common to both continents.” Volume 14 contains “Treatise of degeneration of animals.”

<sup>10</sup> *Natural History*, IX, 103-104.

exists not in America, ...and we shall now find that the tiger and panther belong also to the old continent.<sup>11</sup>

Animated nature, therefore is less active, less varied, and even less vigorous, for by the enumeration of the American animals we shall perceive, that not only the number of species is smaller, but that in general, they are inferior in size to those of the old continent.<sup>12</sup>

The wolf and fox are common to both continents... but all of them are smaller than those of Europe, which is the case with every animal, whether native or transported.<sup>13</sup>

...all the animals which have been transported from Europe having become less, and also those common to both continents being much smaller in America than those of Europe.<sup>14</sup>

Across Volumes 9 and 14 Buffon makes four sweeping claims about the degenerate nature of American life. First, animals found in both the New World and the Old World were smaller and feebler—degenerate—in the New World. Second, animals found *only* in the New World were degenerate compared to those found *only* in the Old World. Third, there were fewer species in the New World; and fourth, any attempt to domesticate animals (e.g., sheep, cows, dogs) in the New World would lead to degeneration of that species.

Buffon also had a theory for why degeneration occurred in New World animals. He argued that the New World was colder and more humid, and that this combination led to degeneracy. This is not as outrageous as it might appear. Cold weather *might* have led to smaller creatures. And the leading theory for disease in Buffon's day was that it was sometimes created and spread through the vapors that rose off still, tepid bodies of water (these vapors were part of the "miasma" that rose off water bodies and caused disease).

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<sup>11</sup> *Natural History*, IX, 56-59.

<sup>12</sup> *Natural History*, IX, 86

<sup>13</sup> *Natural History*, IX, 100.

<sup>14</sup> *Natural History*, IX, 101-102; Barr 1792, VII, 38.

It was no coincidence that Buffon believed that cold and humidity were prevalent in the New World. Much of the information he had on America was from French travelers who had been there and then returned to Paris. These travelers tended to spend their time trapping furs in Canada (and what would become the Northern United States), where it was quite cold during the winter, or in the humid French-owned province that would one day be known as Louisiana.

Degeneracy, Buffon claimed, was not a problem unique to animals of the New World: its effects extended to Native Americans as well. They, too, were degenerate, Buffon pronounced:

...a kind of weak automaton, incapable of improving or seconding her [Nature's] intentions. She treated them rather like a stepmother than a parent, by refusing them the invigorating sentiment of love, and the strong desire of multiplying their species. For, though the American savage be nearly of the same stature with men in polished societies; yet this is not a sufficient exception to the general contraction of animated Nature throughout the whole Continent. In the savage, the organs of generation are small and feeble. He has no hair, no beard, no ardour for the female... He has no vivacity, no activity of mind... He remains in stupid repose, on his limbs or couch, for whole days... They have been refused the most precious spark of Nature's fire: They have no ardour for women, and, of course, no love to mankind... Their love to parents and children is extremely weak. The bonds of the most intimate of all societies, that of the same family, are feeble; and one family has no attachment to another... Their heart is frozen, their society cold, and their empire cruel. They regard their females as servants destined to labour, or as beasts of burden, whom they load unmercifully with the produce of their hunting, and oblige, without pity or gratitude, to perform labours which often exceed their strength. They have few children, and pay little attention to them. They are indifferent, because they are weak...<sup>15</sup>

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<sup>15</sup> *Natural History*, IX, 104-106.

What's more, Native Americans were not only degenerate, they were also in part responsible for New World degeneracy. Animals could do nothing to stop the pernicious effects of cold and humidity, Buffon argued, but Native Americans could have. They could have worked to drain the swamps, and made degeneracy a weaker force. But they didn't, and Buffon damned them for that. Still there was hope—at least for the future: “In several centuries,” Buffon noted, “when the earth has been tilled, the forests cut down, the rivers controlled, and the waters contained, this same land will become the most fruitful, healthy, and rich of all, as it is seen to be already in the parts that man has cultivated...”<sup>16</sup>

The next volley in the degeneracy assault came from those who wanted to *extend* Buffon's theory. Yes, Abbé Cornelius de Pauw and Abbé Guillaume-Thomas Raynal agreed,<sup>17</sup> Buffon was correct that animals and Native Americans in the New World were degenerate, but it didn't stop there. Europeans who migrated to the New World would also degenerate, as would their offspring. And for the same reason that animals and Native Americans degenerate: cold and humidity. Raynal and de Pauw spared no punches. De Pauw's rants were first:

The Europeans who pass into America degenerate, as do the animals: a proof that the climate is unfavorable to the improvement of either man or animal. The Creoles, descended from Europeans and born in America... have never produced a single book. This degradation of humanity must be imputed to the vitiated qualities of the air stagnated in their immense forests, and corrupted by noxious vapours from standing waters and uncultivated grounds.<sup>18</sup>

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<sup>16</sup> *Natural History*, XV, 455-456.

<sup>17</sup> De Pauw 1768, *Recherches philosophiques sur les Américains, ou Mémoires intéressants. pour servir à l'Histoire de l'Espèce Humaine. Avec une Dissertation sur l'Amérique & les Américains*, Berlin; Raynal 1770, *Histoire philosophique et politique des établissements des Européens dans les Deux Indes*, Amsterdam.

<sup>18</sup> De Pauw 1806, *A General History of the American, or their Customs, Manners and Colour*, Rochdale: T. Wood, 17-18.

And that was tepid compared to Raynal (Figure 2), who claimed that degeneracy was so pernicious, and its effects so damning, that Americans must be “happy... with mediocrity,” and that “one should not be surprised that America has yet to produce a good poet, a clever mathematician, a genius in even one art or science.”<sup>19</sup>



Figure 2. Abbé Guillaume-Thomas Raynal, who extended the theory of degeneracy to Europeans who traveled to the New World.

### *The Response from North America*

As might be expected, when the theory of New World degeneracy reached the shores of the Colonies/early United States, it was not well received. In a moment, we shall learn how Jefferson took the mantle and led the charge against this theory. But other Founding Fathers weighed in as well, albeit not nearly as deeply as Jefferson. John Adams thought the idea of New World degeneracy was no more than “despicable dreams.”<sup>20</sup> James Madison noted that measurements which he himself had taken on American weasels (and which he then compared to the weasel’s Old World counterparts) showed how misguided Buffon was. This data, Madison wrote to Jefferson, “certainly contradicts [Buffon’s] assertion that of the animals common to the two continents, those of the new are in every

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<sup>19</sup> Raynal 1770, VI, 376.

<sup>20</sup> Adams 1787, *A Defence of the Constitutions of Government of the United States of America*. London: C. Dilly.



instance smaller than those of the old.”<sup>21</sup> Alexander Hamilton commented on degeneracy in the *Federalist Papers* (Number 11),<sup>22</sup> when he wrote that:

Men admired as profound philosophers have, in direct terms, attributed to her inhabitants a physical superiority, and have gravely asserted that all animals, and with them the human species, degenerate in America—that even dogs cease to bark after having breathed a while in our atmosphere.<sup>23</sup>

Hamilton’s reply to such “profound philosophers” was that New World degeneracy ideas were “arrogant pretensions,” and that “it belongs to us to vindicate the honor of the human race, and to teach that assuming brother, moderation.”<sup>24</sup>

Benjamin Franklin also weighed in on degeneracy theory. He invited the Abbé Raynal—of “America has yet to produce a good poet, a clever mathematician” infamy—to a party he held in Passy one day while he was in France:

...one half [of the guests] were Americans, the other half French, and among the last was the Abbé. During the dinner he got on his favorite theory of the degeneracy of animals, and even of man, in America, and urged it with his usual eloquence. The Doctor at length noticing the accidental stature and position of his guests, at table, “Come,” says he, “M. Abbé, let us try this question by the fact before us. We are here one half Americans, and one half French, and it happens that the Americans have placed themselves on one side of the table, and our French friends are on the other. Let both parties rise, and we will see on which side nature has degenerated.” It happened that his American guests were Carmichael, Harmer, Humphreys, and others of the finest stature and

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<sup>21</sup> James Madison to Thomas Jefferson, December 4, 1786.

<sup>22</sup> In *Federalist* Number 11, “The Utility of the Union in Respect to Commercial Relations.”

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

form; while those of the other side were remarkably diminutive, and the Abbé himself particularly, was a mere shrimp.<sup>25</sup>

Franklin, in his classic frontiersman-like demeanor, had made his point.

### *Jefferson takes the Helm*

~“There is not a sprig of grass that shoots uninteresting to me.”<sup>26</sup>

When Thomas Jefferson learned of the theory of New World degeneracy, he was outraged, and somewhat surprised. The surprise came because, on all other issues, Jefferson thought Buffon one of the great minds of the Enlightenment, referring to the Count as a “celebrated Zoologist, who has added and is still adding, so many precious things to the treasures of science.”<sup>27</sup> Degeneracy was the exception.

The outrage was generated on my fronts. Jefferson was furious that the world’s leading natural historian dared to make such sweeping, damning claims about life on an entire continent (actually two, for the theory applied to South America as well). What’s more, Jefferson was not at all convinced that the data Buffon used to build his theory was reliable. Travelers’ tales from Frenchmen who had been to the New World for business reasons seemed a shaky base from which to generate a theory. Jefferson wrote:

It does not appear that Messrs. de Buffon and D'Aubenton [who did the sketches] have measured, weighed, or seen those of America... and ...who were these travelers? Was natural history the object of their travels? Did they measure or weigh the animals they speak of? Or did they not judge of them by sight, or perhaps even from report only? Were they acquainted with the animals of their own country, with which they

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<sup>25</sup> Letter from Jefferson to Robert Walsh, December 4, 1818. Carmichael, who was present at the dinner with Raynal, goes further, noting “in fact there was not one American present who could not have tost [sic] out of the windows any one or perhaps two of the rest of the company” (Letter from Carmichael to Jefferson, October 15, 1787).

<sup>26</sup> Thomas Jefferson to Martha Jefferson Randolph, December 23, 1790.

<sup>27</sup> Jefferson 1785, *Notes on the State of Virginia*, Penguin Press 1999 reprint, 68.

undertake to compare them? Have they not been so ignorant as often to mistake the species?<sup>28</sup>

Jefferson staged a two-pronged assault on the theory of degeneracy. Stage one involved a book, and stage two involved a moose. The book, *Notes on the State of Virginia*, was ostensibly an overview of Jefferson's home state, where he served as governor from 1779-1781. But the longest chapter of the book, entitled "Production, mineral, vegetable and animal," was all about debunking the theory of New World degeneracy (Figure 3). Jefferson writes:

...the opinion of a writer [Buffon], the most learned too of all others in the science of animal history, that in the new world... that nature is less active, less energetic on one side of the globe than she is on the other. As if both sides were not warmed by the same genial sun; as if a soil of the same chemical composition, was less capable of elaboration into animal nutriment; as if the fruits and grains from that soil and sun, yielded a less rich chyle, gave less extension to the solids and fluids of the body, or produced sooner in the cartilages, membranes, and fibres, that rigidity which restrains all further extension, and terminates animal growth. The truth is, that a Pigmy [sic] and a Patagonian, a Mouse and a Mammoth, derive their dimensions from the same nutritive juices.<sup>29</sup>

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<sup>28</sup> *Notes on the State of Virginia*, 56.

<sup>29</sup> *Notes on the State of Virginia*, 48.

NOTES on the state of VIRGINIA;  
written in the year 1781, somewhat corrected and enlarged in the winter of 1782, for the use of a Foreigner of distinction, in answer to certain queries proposed by him respecting

1. Its boundaries	- - -	page 1
2. Rivers	- - -	3
3. Sea ports	- - -	27
4. Mountains	- - -	28
5. Cascades and caverns	- - -	33
6. Productions mineral, vegetable and animal	- - -	41
7. Climate	- - -	134
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Figure 3. The table of contents of *Notes on the State of Virginia*. Chapter 6 is largely devoted to debunking the theory of New World degeneracy.

Jefferson ceded that climate *might* affect the size of animals, but he argues there is no evidence that it *does*. “It is the uniform effect of one and the same cause, whether acting on this or that side of the globe,” Jefferson wrote, and “it would be erring therefore against that rule of philosophy, which teaches us to ascribe like effects to like causes, should we impute this diminution of size in America to any imbecility or want of uniformity in the operations of nature.”<sup>30</sup>

Page after page of this chapter in *Notes on the State of Virginia* are full length tables of data that Jefferson presented contra to Buffon’s claims of degeneracy (Figure 4). But conservative scientist that he was, when he spoke about this and related issues to

<sup>30</sup> *Notes on the State of Virginia*, 48.

friends, he noted that “More facts must be collected, and more time flow off, before the world will be ripe for decision. In the mean time, doubt is wisdom.”<sup>31</sup>

*A comparative view of the Quadrupeds of Europe and of America.*

I. ABORIGINAIS OF BOTH.		
	Europe. lb.	America. lb.
Mammoth . . . . .		
Buffalo. Bison . . . . .		*1800
White Bear. Ours blanc . . . . .		
Carribou. Renne . . . . .		
Bear. Ours . . . . .	153.7	*410
Elk. Elan. Original palmated . . . . .		
Red deer. Cerf . . . . .	288.8	*273
Fallow Deer. Daim . . . . .	167.3	
Wolf. Loup . . . . .	69.8	
Roe. Chevreuil . . . . .	56.7	
Glutton. Glouton. Careajou . . . . .		
Wild cat. Chat sauvage . . . . .		†30
Lynx. Loup cervier . . . . .	25.	
Beaver. Castor . . . . .	13.5	*45
Badger. Blaireau . . . . .	13.5	
Red fox. Renard . . . . .	13.5	
Gray fox. Isatis . . . . .		
Otter. Loure . . . . .	8.9	†12
Morax. Marmette . . . . .	6.5	
Vison. Foinie . . . . .	2.8	
Hedgehog. Herisson . . . . .	2.2	
Marten. Marte . . . . .	1.9	†5
Water rat. Rat d'eau . . . . .	7.9	
Weasel. Belette . . . . .	2.2	oz.
Flying squirrel. Polatouche . . . . .	2.2	†4
Shrew moscu Musaraigne . . . . .	1.	

Figure 4. One of the tables Jefferson used as evidence against the theory of New World degeneracy. In this table, he compares the size of (a small sample set of the) animals found in both the New World (in this case represented by America) and the Old World (represented by Europe), and finds no evidence that those in the latter are larger.

*Notes on the State of Virginia* was quite a popular book, but Jefferson understood that it was dry, and that to really make his point about degeneracy, he would need to do something more. He settled on this: he would have one of his friends get him a moose—preferably one that was between 7-10 feet tall—and then he would have it stuffed and sent to Buffon, who would have no choice but to admit that life in America was not small, weak and feeble.

The hunt for a moose involved many of Jefferson’s friends, but soon settled on Jefferson’s colleague, General John Sullivan. Sullivan, had been a representative at the Second Continental Congress, and he was Attorney General of New Hampshire when Jefferson approached him about obtaining a moose to use send to Buffon. Sullivan

<sup>31</sup> Thomas Jefferson to Marquis de Chastellux, June 7, 1785.

searched for the moose himself, and also sent out orders to some of his friends to look for the perfect animal for Jefferson. He kept Jefferson apprised on the search, and this piqued Jefferson's interest. "The readiness with which you undertook to endeavor to get for me the skin, the skeleton and the horns of the moose," Jefferson wrote his friend, "emboldens me to renew my application to you for those objects, which would be an acquisition here, *more precious than you can imagine.*"<sup>32</sup>

In 1784, while the hunt for the moose was on, Jefferson was appointed minister plenipotentiary to France. When he arrived in Paris, he finally received an invitation to dine with the Count at Buffon's country residence. At the dinner, Jefferson told Buffon that the theory of New World degeneracy was simply wrong, and "that the [European] rein deer could walk under the belly of our moose." Buffon finally relented and agreed that he would "give up the question," *if* Jefferson could provide him with such a moose.<sup>33</sup>

Sullivan continued to write Jefferson of his hunt for the moose. And, at last during the winter of 1787, he found one, writing Jefferson that a team of a dozen men he had hired had the perfect animal, and that:

every engine was set at work to preserve the bones and cleanse them from the remaining flesh. And to preserve the skins with hair on, with the hoofs on and bones of legs and thighs in skin without putrefaction... the skin [of the head] being whole and well dresst [sic] it may be drawn on at pleasure.<sup>34</sup>

The stuffed moose, after a number of false starts, finally arrived in Paris in early October 1787. Jefferson wanted to deliver it to Buffon in person, but the Count was too ill to receive visitors. Buffon's assistant nevertheless acknowledged receipt of the moose, and Jefferson noted in his diary that the moose had "convinced Mr. Buffon. He promised in his next volume to set these things right."<sup>35</sup> Jefferson took this to mean that Buffon

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<sup>32</sup> Thomas Jefferson to John Sullivan, January 7, 1786. Italics added.

<sup>33</sup> Webster's recollection of Jefferson, from *The Papers of Daniel Webster, Correspondence, Volume 1, 376-377.*

<sup>34</sup> John Sullivan to Thomas Jefferson, April 16, 1787.

<sup>35</sup> Webster's recollection of Jefferson, from *The Papers of Daniel Webster, Correspondence, Volume 1, 376-377.*

would retract the theory of New World Degeneracy in the next volume of *Natural History: General and Particular*.

But there was to be no such next volume of *Natural History*. Soon after he received the moose, the Count died. There was no retraction. The theory of New World degeneracy can still be found in volumes 9 and 14 of *Natural History: General and Particular*. It is true that Jefferson knew that Buffon knew he was wrong, and this gave Jefferson some solace. But he feared that the theory of New World degeneracy would live on after the Count and weave its tentacles into the brains of many, and for a long time.

He was right. But that is another story.<sup>36</sup>

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<sup>36</sup> Dugatkin 2009, *Mr. Jefferson and the Giant Moose*, University of Chicago Press.