

THOMAS F. GLICK

THE RECEPTION OF DARWINISM IN URUGUAY

RANCHERS DEBATE DARWIN

The reception of Darwinism in Uruguay followed the familiar Latin pattern of a debate between positivist and religionist intellectuals in the late 1870s and 1880s, with a significant and interesting exception. Before the intellectual debate began, another debate over Darwin's merits had already taken place among the cattle breeders who were members of the Asociación Rural—the Rural Association. That organization had been founded in 1871 with the intent of stimulating the modernization of the agrarian sector. Among its 165 founding members were members of both political parties, cattlemen, industrialists, and lawyers, all of whom subscribed to the objectives of the Association. Fifty-three of the founders were foreigners, including twenty-one Englishmen and ten Frenchmen. The Association favored the “concourse of all ideas,” and its statutes prohibited any religious or politically motivated manifestation.¹ This explains, I believe, the surprisingly open debate over Darwinism in the pages of its *Revista*, in its first twenty volumes. The Association's library contains an almost complete collection of Darwin's works, in the same French edition by Reinwald that influenced all sectors of the Uruguayan intelligentsia.²

In the very first volume of the *Revista*, that of 1872, two members—Víctor Las Cazes and Lucas Herrera y Obes—debated whether selection was a sufficient way to upgrade the national herd. By selection, they understood, naturally, the artificial or methodical selection that breeders practiced. According to Las Cazes, the Uruguayan cattle industry was too primitive to practice crossing and selection, although the indicated method, was also unlikely to yield a productive result, “unless we

¹ José Pedro Barrán and Benjamín Nahum, *Historia rural del Uruguay moderno (1851-1885)* (Montevideo, Banda Oriental, 1967), pp. 330-332, 388.

² See the inventory of Darwinian books in Uruguayan libraries in Thomas F. Glick, *Darwin y el darwinismo en el Uruguay y en América Latina* (Montevideo, Universidad de la República, 1989), Appendix, pp. 107-116.

simultaneously improve the conformation and [feeding] regime of the animals," which had to be much more intensively pursued.³

Herrera's conception was similar, as he believed that "the only way to obtain cattle in continuous relationship with the nutrients that the country provides, is to impose a consistent and intelligent selection upon the animals." That selection could indeed be put into practice immediately:

I note that Ch. Darwin in his *Origin of Species* is in complete agreement with what I have just suggested. Indeed, he says: "The improvement [of races] is by no means generally due to crossing different breeds; all the best breeders are strongly opposed to this practice, except sometimes amongst closely allied sub-breeds."⁴

This is the first mention of Darwin in the *Revista* and thus requires comment. First, Herrera had read the *Origin* in French translation (for "breeder," he uses the term *educador*, from French *élèveur*, for example). Second, he gives the impression that Darwin was already known in Uruguay. And third, he leaves no doubt as to what was the crux of the relationship between Darwin and the cattlemen: the great naturalist did not believe in the efficacy of crossing. Herrera is precise: "we can see in his chapter on variation in domestic species that in England the races of horses and sheep have been the result of a well-understood selection."⁵

The debate between selection and crossing was driven by cost. According to Herrera, selection was the better method and crossing, excessively costly when one considered the requirements of adaptation to the local range:

Crossing can be practiced on a defective, native race with two different aims: either the transformation of the native race into the improved foreign one; or simply the correction of some of its defects.

For the first objective, you need to have the same elements that are necessary for the sustenance of the race introduced; the transformation will take place more quickly, the more alike are the diet, the climate, and the [breeding] system applied. It is well known that we cannot, in economic terms, think of this kind of operation for the time being, with improved European races and our cattle, because it is contrary to the state of our agriculture.⁶

By this time the dynamic of improvement had already tilted in favor of crossing. Carlos Genaro Reyles had begun importing Durhams in 1870.⁷ The success of the operation remained to be demonstrated, but that was just a question of time. In the meantime, doubts remained. In the Rural Association, Reyles was the crossing spokesman, while Faustino J. Méndez championed selection as "the most convenient

³ Víctor Las Cazes, "Especie bovina," *Revista de la Asociación Rural* [hereinafter cited, RAR], 1, no. 4 (1872), 12-14.

⁴ Lucas Herrera y Obes, "Especie bovina," RAR, 1, no. 6 (1872), 21-24, citing Darwin, *Origin of Species*, 1st ed. (London, John Murray, 1859), pp. 31-32.

⁵ Herrera y Obes, "Especie bovina," p. 23.

⁶ Herrera y Obes, "Especie bovina," RAR, 1, no. 5 (1872), 16-19, on p. 17.

⁷ On the history of crossing, see Alba A. Mariani, "Los comienzos del proceso de mestización ganadera," in *Cinco perspectivas históricas del Uruguay moderno* (Montevideo, Fundación de Cultural Universitaria, 1969), pp. 85-121. Reyles had a "scientific cabinet" in his study, which included fossil mammals; it is described by his son Carlos in his novel, *Beba*.

and economical system" and "because it is within the reach of all, it works on any kind of ranch."⁸

In May 1878, Enrique Artagaveytia, horse breeder and outspoken partisan of selection, organized three lectures at the annual meeting of the Association on the subject "Improvement of Bovine Stock." The subject of the first lecture was selection, crossing, and the formation of new races; the second, on the causes of degeneration in cattle breeding stock; and the third—the one that aroused the most interest—was a debate between Méndez and Reyles.⁹ I have been unable to find concrete references as to what was said, but five years later the debate was remembered as a memorable event:

Just a few years ago. . . right at the dawn our rural science, there was a great debate among cattlemen. Its motive was really interesting. Would there be selection or crossing? In this Darwin, the scientific authority on these matters, was brought to bear, as well as other European and American experts in this science: breeders, *éleveurs*, zootechnicians¹⁰ in a word. The debate began in the Rural Association, first in its journal, then in lectures, reaching the point where it was brought up in general meetings where all of our principle ranchers gave their opinions. Two outspoken partisans stood out, one in favor of selection, the other of crossing.

With the exposition of each doctrine, the debate concluded, and the *leaders*¹¹, with no clear victory on that occasion, left the meeting with the assembly divided into selectionists and those who favored crossing. But, the *leaders*? We must applaud them, for once they defended their causes with pen and word, they set out to prove their points with deeds. One practiced selection on the Uruguayan coast, the other crossing on the Río Negro. Let us display similar patience while we await their Stud-Books.¹²

Meanwhile, the debate continued in the pages of the *Revista*. As late as 1877, Domingo Ordoñana, the leading ideologue of the ruralist movement, took the opportunity to comment on Darwin in the course of some "zoological observations." According to Ordoñana, the problem lay in the nature of species, which were "fixed and invariable."¹³

The partisans of the mutability of species have now reached the point where they believe that new species can be formed according to some stupid logic, and the learned Darwin who has *evolved* natural history to the point where he has confused races with species, also has participated in the same fantasy. Lately he has told us that, even though he immersed himself in zootechnics, he has found no observation capable of enlightening him.¹⁴

Crossing does not produce new and intermediate varieties; the inferior race is absorbed. Neither does selection lead to anything new; it simply multiplies individuals, either modified or perfected, "but whose modifications have the objective of augmenting their utility." And, in spite of selection, the *type* of the race is maintained intact and invariable. The zootechnicians who follow the Frenchman André Sanson and the Spaniard Navarro support the natural plan "which maintains and subjects species

⁸ See the "expositions" of Méndez and Reyles in RAR, 6 (1877), 312-316 (Méndez) and 315-316 (Reyles). Neither cites Darwin.

⁹ RAR, 7 (1878), 132. Artagaveytia is identified as a selectionist in RAR, 12 (1883), 591.

¹⁰ I prefer the term "zootechnician" to veterinarian. These men studied animal science attuned to the needs of breeders.

¹¹ English in the original.

¹² Un aficionado XY, "Selección y cruzamiento," RAR, 12 (1883), 134-138, on p. 134.

¹³ D. Ordoñana, "Consideraciones zootécnicas," RAR, 6 (1877), 431-434, on p. 431.

¹⁴ *Ibid.*, p. 432.

and varieties within their limits or zoological type, only permitting the development of natural aptitudes, without surpassing them."

Here, without knowing it, Ordoñana had stumbled upon an ideological problem, inasmuch as Sanson, whose influence was great in all Latin countries, was unable to distinguish between natural and artificial selection, completely misunderstanding Darwin. For Sanson, the species was "a distinctive form," a fact he had confirmed in experiments with Merino sheep (an experiment mentioned by Ordoñana to illustrate the absorption that is the end-product of crossing).¹⁵ Therefore, Ordoñana was simply being logical when he expressed his

surprise at contemplating the road that Mr. Darwin's doctrines had taken him in his *Origin of Species* taking as a pretext variations that have no meaning in zootechnics, as a prologue to change.

If Mr. Darwin had been a cattleman he would not have launched half of the hypotheses that plague his book, because all of them are contrary to the facts encountered in practice.

Of course, Ordoñana had it reversed. The observations on which Darwin had based his concept of artificial selection and, therefore, natural as well, had been gleaned from the same English breeders who were so frequently cited in the pages of the *Revista*. If Darwin had been a *French* cattleman. . .

A similar point was advanced less stridently by René Sacc, a Swiss zootechnician of the same tradition as Sanson who had been contracted by the Uruguayan government as an agronomist. Sacc at least had an appreciation of what aspects of Darwin's writings were useful in their application to domestic animals:

The immortal Darwin, studying the modifications which domestic animals undergo under the influence of man, has observed that in doves and dogs, these modifications are not limited to the exterior appearance of the individual, but they also affect the interior, even modifying the number and thickness of bones. In that he is correct, and I can confirm his observations with my own of feather-footed chickens that present the incredible trait that the number of their phalanges diminishes correlative to the feathers that adorn their feet.¹⁶

Sacc also agreed with Darwin that crossing only gives a temporary result: characters of type always reappear. But when he considered the theory of descent, Sacc was incapable of interpreting his own observations any further:

Darwin, who is the most profound and lucid observer of our times, embarked from a false starting point, basing his notion of the variability of species on the modifications which are obtained under the influence of man. For these modifications disappear once the intervention of man ceases.¹⁷

From here Sacc is led back to Linnaeus and the fixity of species. He ends his essay complaining about the interminable debates over Darwin that had converted "the majestic field of science into a small partisan question."

Up to this point we have observed a variety of positions: crossing will transform the creole stock (Reyles); artificial selection would do it (Méndez, Herrera y Obes); neither will work because types are fixed by definition (Ordoñana). At this point a man of

¹⁵ On Sanson's anti-Darwinism, see Yvette Conry, "L'Introduction du darwinisme," *Rivista di Filosofia*, 73 (1982), 72-73.

¹⁶ Dr. Sacc, "El carnero," *RAR*, 7 (1878), 276-286, on p. 276.

¹⁷ *Ibid.*, p. 283.

science joined the debate, on the side of selection: José Muñoz Romarate, the first graduate of the Faculty of Medicine in Montevideo and a Darwinian like his mentor José Arechavaleta (see below). Muñoz was also the first participant in this debate who understood the significance of artificial selection in Darwin's argument. Everything depended on variation, even though its laws were very imperfectly known. Breeders are very conscious of the complexity of the laws, as well as of the power of inherited tendencies such as albinism. The key to the problem of domestication is "the selective power of accumulation that man enjoys: *it determines the nature of variations; man favors them to an extreme and in a determinate direction.*"¹⁸ He goes on to introduce the line of English breeding theory that regards the organization of the animal as "something plastic which can be modeled as one pleases."

In his discussion of natural selection, Muñoz replies to the objections of French zootechnicians for whom natural selection was a conscious activity of animals and cannot be applied to plants. As Yvette Conry has noted, for Sanson and his school, natural and artificial selection were isomorphic categories, both requiring a selector. Taken literally, Muñoz observes, "natural selection" is a contradiction in terms and must be understood as a metaphor.

Turning to the nature of artificial selection, Muñoz observes that while breeders select only the most important characters, given the limited time any owner has in which to change his herd through selection, natural selection is always operating. Moreover, "nature is not concerned with appearances" but rather its power extends "to internal organs, both in cases of slight organic differentiation and in those involving the entire living mechanism." Natural selection is therefore a more finely tuned instrument than is artificial.¹⁹ Now he introduces Darwin's argument on pigeon beaks to demonstrate that artificial selection, carried to the extreme, can produce two distinct sub-races, with no intermediate forms: this is the same law of divergence of character that operates in natural selection. For Darwin, "the grouping of living forms around effective centers from which they radiate and diversify is explained by heredity and by the complex action of natural selection, which implies divergence of characters."²⁰ Muñoz compares natural to both unconscious selection (when a breeder preserves the best individuals and destroys the inferior ones, without any explicit intention to improve the stock) and methodical selection (where the breeder intends to improve the stock).²¹ Nevertheless, the breeder cannot ignore the effects of natural selection: "Even in the case of domestic animals natural selection intervenes in specified limits, beyond the action of man and even against his will."²² Darwin had explained how unconscious selection functions, and to carry it out "it is necessary to prevent the crossing of different races."²³ Muñoz's contribution, from a historical perspective, must have clarified selection's incompatibility with crossing. The two methods are in no way complementary: either one or the other.

¹⁸ José Muñoz Romarate, "De la selección como sistema de mejora en los animales domésticos," RAR (1879), 284-287, 298-301, 321-326, on p. 286.

¹⁹ *Ibid.*, p. 299.

²⁰ *Ibid.*, p. 300.

²¹ *Ibid.*, p. 301.

²² *Ibid.*, p. 322.

²³ *Ibid.*, p. 323.

By this time (the first five years of the 1880s) the general Darwinian debate was in full flower, involving all strata of society. All that was lacking was for someone to make the case that natural selection had already operated on the creole herd, adapting it to the peculiarities of Uruguayan pasture. That argument was in fact made, by an anonymous author, in 1883. His argument is interesting since it no doubt represented a common opinion among cattlemen, particularly those who did not wish to invest in imported English stock:

In their enthusiasm, Darwin's new disciples only expound one aspect of the question—that of fixity, constancy of blood lines, and thus the question of the race one is trying to perfect so that it might be stable and permanent in a fixed locality with its conditions of climate, forage, and so forth.

Therefore, there was no reason to import new breeding stock, because if the first breeders appreciated the characters they desired, they achieved them "by means of the life in which they were developed:"

Nor need we leave the country to confirm it. Are the cattle of Minas and Tacuarembó anything like those of the other Departments? They are nonetheless of the same origin. But after so many generations the cattle of those Departments acquired the special conditions of cattle of hilly regions, and are therefore better for milk than for beef. That is a fact.²⁴

Still, the anonymous author, although favoring selection, opted for an agnostic stance with regard to the possible advantages of crossing.

The same year there took place a debate among *estancieros* that began with "Philippic" against crossing written by Félix Buxareo Oribe, rancher and zoo-technician.²⁵ According to Buxareo, the bottom line of crossing was that stocks had to develop in conformity with the environment of a specific locality:

Each race is the result of local influences on a population of a species, a population which, under such influences, is modified, adapting itself to the climate, the temperature, to the feeding regime, to the kind of work of the environment in which it must exist and reproduce. It concludes by assuming a particular character which is maintained and perpetuated, not only through the permanent existent and continuous action of these local influences, but also by hereditary transmission.²⁶

He thought that Durham bulls, once introduced, would lose their pristine characters over a period of a few generations. The proof of this was the perturbation introduced into the creole horse herd "with that bastard, fictitious, useless and costly animal called the English horse."

Buxareo was answered by two supporters of crossing. The first, Alfredo Herrera (a convert from selectionism) had concluded that to reject crossing was to oppose

²⁴ Un aficionado, "Selección y cruzamiento" (note 12, *supra*), p. 135.

²⁵ Félix Buxareo Oribe, "Sobre el cruzamiento de razas animales," RAR, 12 (1883), 39-41. Buxareo was an *estanciero* who became a zootechnician. There are a number of allusions to Darwin in his manual, *Bovinotecnia* (Barcelona, Tip. Católica, 1898). His definition of species begins with Cuvier and ends with Quatrefages, although he seems not to have grasped the latter's association of the Biblical species with the Linnean family. All of his definitions of species are based on similarity of character, which does not permit transformation. In his discussion of selection, Buxareo defines natural and artificial selection, pointing out the advantages of the latter because it required no costly imports (pp. 19, 80).

²⁶ Buxareo, "Cruzamiento," p. 40.

progress.²⁷ The second was Carlos Reyles, who declared himself "diametrically opposed to the partisans of natural selection." He meant "artificial selection," of course, but by this time the terms had become confused and interchangeable. He says he had been a backer of natural section, "like everyone else," but experience had convinced him of the benefits of crossing, inasmuch as after twenty-two years of experience at crossing Creoles with Durham bulls, their blood had not deteriorated "in the least."²⁸ Reyles suggests that Buxareo perform an experiment, purchasing some "select, red-colored Creole cows—I mention the hair because it is essential for the beauty of cattle that the cows be of this color," and cross half with Durhams.²⁹ It is interesting that Reyles insists on the importance of color. Before the diffusion of Mendel's laws, and in view of the importance that both Darwin and Wallace assigned to the importance of the coloring of animals, Reyles had assigned this trait a significance which, in fact, it didn't really have.³⁰

In another article on zootechnical matters published the same year, Ordoñana explained that the degeneration of races does not occur in cattle in their country of origin when they breed only with others of the same race—"this is contrary to the doctrine of the illustrious Darwin who was a naturalist and not a zootechnician."³¹ In 1885, Ordoñana embarked on a European tour, sending back some interesting travel letters for the pages of the *Revista*. It is instructive to note that in a letter dated in London in September 1885, the veteran anti-Darwinian comments on British Imperial policy in Darwinian terms: "spirits are concentrated on the zoological struggle for existence," the same expression that, later on, he appropriated to define the working class movement: "Worker strikes, which are no more than zoological struggles, continue to appear in various European countries."³²

The great debate between selection and crossing was closed in 1886 by the same person who had begun it, Lucas Herrera y Obes.³³ Recall that in his article of 1872, Herrera had inclined towards selection, on Darwin's authority. Meanwhile however he too had begun to import Durhams, at the same time as his attitude towards Darwin had hardened. In the course of reevaluating selection, he evidently changed his views on Darwin as well:

It is impossible to speak of improving races without establishing what is meant by "races" and whether they are capable of improvement or not. Nor can one speak of crossing without deciding if there are, or are not, impassable barriers between the different kinds of animals on which we operate. Nor can we approve or condemn selection as an improving

²⁷ Alfredo de Herrera, "Sobre ganado Durham," RAR, 12 (1883), 68-70. See another article by the same author, "El cruzamiento de razas," RAR, 8 (1879), 22-26; on p. 24, he mentions Darwin's comments on the Collins, a family of English breeders.

²⁸ Carlos Reyles, "Sobre el cruzamiento de nuestro ganado vacuno con el de raza inglesa Durham," RAR, 12 (1883), 164-165, on p. 164.

²⁹ *Ibid.*, p. 165. See the discussion of this exchange by Barrán and Nahum, *Historia rural (1851-1885)*, pp. 604-611.

³⁰ See the anonymous article, "Colores de los animales," RAR, 11 (1882), 200-201, where the interest of Darwin and Wallace in the topic is mentioned.

³¹ D. Ordoñana, "Historia natural zootécnica," RAR, 12 (1883), 228-230, on p. 230.

³² D. Ordoñana, "Correspondencia de Ordoñana," RAR, 14 (1885), 609-617, on p. 609, and 15 (1886), 193.

³³ Lucas Herrera y Obes, "La mejora de ganados," RAR, 15 (1886), 40-45.

agent without knowing, appreciating, and judging the Darwinian school, which is that which introduced this scientific term with the meaning it has today.³⁴

He goes on to describe the mutability of organic types according to the Darwinians, concluding that, for them, selection is the *agent* while for anti-evolutionists it is the *instrument*. The question that remains is the definition of species, whether it is absolute or merely conventional: "It is not possible to be only half a Darwinian: it is necessary to be one, or not to be one."

Whenever selection has been identified as an agent for the improvement of our races of cattle, I have impugned it on the understanding that the question could not be discussed except scientifically and the virtue of selection, so considered, rests on Darwinian theories which we do not accept. We reject selection as an agent, even though we do not admit it as an instrument either; that is to say, as a consequence of heredity.³⁵

He had, in the end, decided in favor of the Durhams which, in the context of the present debate, implied a rejection of Darwinism. It is obvious that Herrera, once convinced of the benefits of crossing, could abandon Darwin and give full rein to his ideological inclination to oppose him, inasmuch as he no longer had any practical motive to continue in an agnostic, utilitarian stance. His brother Julio was an outspoken anti-Darwinian.³⁶ Lucas Herrera and Domingo Ordoñana are convenient symbols of the limits of "civil discourse" within the Rural Association: to consider the ideas in a public forum and apply them whenever they were useful was possible without the abandonment of previous ideological positions.

It is important to note that during the period 1872-1890, the *Revista* of the Rural Association was the most important medium for the diffusion of Darwinism in Uruguay. The selection/crossing debate aside, the journal published numerous articles on Darwinism, almost all of which were favorable: for example, an article on mange as a hereditary predisposition, with an allusion to Darwin's theory;³⁷ a note on *Toxodon platensis*, referring to a specimen collected by Darwin and described by Richard Owen;³⁸ an article by the Spanish Darwinian, Odón de Buen, on similarities between plants and animals, with an openly monistic conclusion;³⁹ an essay by Fernando Manduit on atavism in a fully Darwinian and selectionist context;⁴⁰ and, to close the cycle, a panegyric of T. H. Huxley in which he roundly asserts that "the most powerful instrument for the extension of the domain of knowledge in natural history which has been placed in human hands since the publication of Newton's *Principia* is the *Origin of Species*, by Darwin."⁴¹ The importance of these articles transcends their practical or

³⁴ *Ibid.*, p. 41. Herrera y Obes is identified as an importer of Durham bulls by Alfredo de Herrera, "Sobre ganado Durham" (note 27, *supra*), p. 68.

³⁵ Herrera y Obes, "La mejora de ganados," p. 42.

³⁶ Julio Herrera y Obes, "Evolución," in *Escritos* (Montevideo, 1947), pp. 7-11.

³⁷ Eugenio Clairian, "El acarus o arador y su probable procedencia," *RAR*, 2 (1873), 100-109 (reference to Darwin on p. 106).

³⁸ J. T. B., "Paleontología. El *Toxodon Platensis*," *RAR*, 4 (1875), 1125.

³⁹ Odón de Buen y del Cos, "Analogías y diferencias entre animales y vegetales," *RAR*, 14 (1885), 203-204, on p. 204: "Insofar as concerns the great laws of the struggle for life, heredity, and evolution, there is only the slightest difference between plants and animals; atmospheric agents might vary and induce variations in a plant, which either accommodates its organism to exterior influences or dies."

⁴⁰ Fernando Manduit, "Atavismo," *RAR*, 14 (1885), 570-573 (reference to natural selection on p. 572).

⁴¹ T. H. Huxley, "El origen de las especies," *RAR*, 18 (1889), 127-129, on p. 129.

topical interest inasmuch as, in the words of one rancher, the *Revista* of the Association constituted "the reference book of young ranchers."⁴²

THE NEW BIOLOGY IN URUGUAY

We can date the first discussion of Darwin among Uruguayan positivists to 1874 at the earliest. It has been claimed that the first supporters of Darwin, in 1875 and 1876 respectively, were José Pedro Varela (1845-1879) and Angel Floro Costa (1838-1905).⁴³ That is the impression that one gets from reviewing the student and positivist journals of the 1870s; I find no mention of Darwin there before 1875.⁴⁴ No Darwinian titles appear in a manuscript catalog from the National Library in 1870.⁴⁵ But from this evidence one can conclude only that in university circles Darwinism and positivism made their appearance simultaneously. A search of Darwinian titles in other Uruguayan libraries up to 1900 produced a strong predominance of Darwin—both in titles (28) and copies (56) over Haeckel (16 titles, 24 copies), and Huxley (9 titles, 16 copies). Uruguayan intellectuals preferred to read Darwin directly, rather than in popularizations by others and read Darwin in French, as they did the works of other Darwinians like Haeckel, Huxley, and Gegenbaur, as well as Spencer's *Principles of Biology*. Only Varela had a collection of Darwin's works in English, but he too seems normally to have used French translations, which he cites in his works.⁴⁶ So my search confirms the observation of Ergasto H. Cordero, with reference to the Reinwald editions, that "it was in those works that young people imbibed the new theories."⁴⁷

Darwinism was more widely diffused in university courses and public lectures than through the written word. At the Ateneo del Uruguay, an intellectual club where the most important public lectures were presented, "Of those who lecture here, the majority

⁴² Alfredo de Herrera, "Sobre ganado Durham," p. 68.

⁴³ Arturo Ardao concludes that positivism first appeared in Uruguay somewhat before 1875 and that the first mention of Darwin was by Varela, in *La legislación escolar* (1876); *Espiritualismo y positivismo en el Uruguay* (México, Fondo de Cultura Económica, 1950), pp. 79-80; and *Etapas de la inteligencia uruguaya* (Montevideo, Universidad de la República, 1971), p. 109.

⁴⁴ The first mention occurs in L. Figuer, "El hombre primitivo," *La Voz de la Juventud*, 2 (1875), 10-11, 19, 22-23, 28. Darwin and Quatrefages are mentioned on p. 23, with both names misspelled (Darwn, Buatrefages).

⁴⁵ Biblioteca Nacional, list dated March 19, 1870. It is odd that among the 111 natural science titles there is not even one evolutionary volume, stranger yet because José Arechavaleta was a member of the governing board of the Library at this time. The list is reproduced in *El Club Universitario*, 2 (1872), 301-303 (283 volumes, mainly in French).

⁴⁶ In spite of his collection of Darwin in English, Varela used French translations: of the *Origin*, that of Royer, with its Lamarckian annotations, and of *The Descent of Man* (Reinwald edition, with Carl Vogt's introduction). See Varela, *El destino nacional de la Universidad*, 2 vols. (Montevideo, Colección de Clásicos Uruguayos, 1965), I, 185, 199. Cf., *ibid.*, p. 180, n. 1, where he provides Spanish titles, and p. 218, n. 1, where he gives information on the circulation of scientific books in Montevideo: both he and his opponent Carlos María de Ramírez depended on the same copy, in French, of Spencer's *Social Science*, owned by a common friend. "That friend," Varela explains, "obliged me to return the Spencer so he could lend it to Dr. Ramírez, which would have deprived me of a powerful weapon, since there are only a few copies of this book in Montevideo, had not another gentleman done me the kindness of lending me the same work, only in English." Clearly, Varela was more at ease reading works of English science in French.

⁴⁷ Ergasto H. Cordero, "Dos aspectos de la vida científica de Arechavaleta," *Revista Nacional*, 15, no. 44 (1941), 250-255, on p. 252.

are evolutionists," according to the professor of natural history, José Arechavaleta. "Dr. Manuel B. Otero and Srs. Susviela Guarch, Felippone, and Regúnaga are outspoken partisans of [evolution]."⁴⁸

In the Faculty of Law, Martín C. Martínez's chair of Natural Law was a center of Darwinian discourse. In his inaugural lecture of 1882, Martínez commented on the recent biological revolution: "It has been scarcely twenty years since that kind of natural history, which had been reduced to the humble classification of species, disappeared under the impulse of the greatest of scientific revolutions." That revolution had been so potent that it also caused the reformation of other sciences, such as psychology: "It is clear that the laws of heredity and natural selection...eliminated forever the empty system of [mental] faculties with which it had attempted to build an entire explanatory system of psychical life."⁴⁹

The progress of the history of science, in Martínez's view, was linked to the progress of society generally. In his courses, Martínez taught law as a variant of sociology. In the curriculum for his 1885 course, for example, he develops the influence of ambient societies, including "the effects of the struggle for existence," on the development of social institutions. He also explained that the social and economic changes historically introduced in the organization of property respond to the "influence of natural selection." The course ended with his conception of philosophy of law, pointing out "modifications introduced by evolutionary theory in the utilitarian concept of law in the direction of explaining its historical development and the obligatory character of its prescriptions."⁵⁰ Martínez, who was both a Spencerian positivist and a Social Darwinist, characterized himself as an "explanatory naturalist," insofar as he believed that Darwinian mechanisms explained social phenomena in a literal, and not merely figurative, way. We can presume that his presentation of Darwinian theory was faithful to its biological meaning, as Martínez understood it.

In the chair of Constitutional Law, held since 1873 by the anti-Darwinian Justino Jiménez de Aréchaga, the students took part in well publicized debates on Darwinism, according to the direct testimony of one of the participants, Juan Antonio Ramírez, who recalled debating the *Origin of Species* with fellow student Carlos Vaz Ferreira.⁵¹ Both Martínez and Aréchaga directed theses sustaining positions contrary to their own.

In the curriculum of the preparatory course in General Geography in 1884, Antonio M. Rodríguez taught anthropology from an evolutionary perspective:

⁴⁸ José Arechavaleta, "La teoría de la evolución es una hipótesis?" *Anales del Ateneo del Uruguay*, 1 (1881), 121-131, on p. 121. Florentino Felippone, student of Arechavaleta, was Professor of Chemistry. In 1988, I purchased the Ateneo's discarded copy of Carl Gegenbauer, *Manuel d'Anatomie Comparée* (Paris, Reinwald, 1874) from a second-hand book dealer. During the military dictatorship of the 1970s, the Ateneo purged its library of most of its Darwinian titles.

⁴⁹ Martín C. Martínez, "Discurso inaugural," cited by Juan Antonio Oddone and M. Blanca París de Oddone, *Historia de la Universidad de Montevideo. La Universidad Vieja, 1849-1885* (Montevideo, Universidad de la República, 1963), pp. 405-410, on pp. 406-407.

⁵⁰ Martín C. Martínez, "Programa de Derecho Natural," *Revista de la Sociedad Universitaria*, 3 (1885), 5-11, on p. 11.

⁵¹ See Juan Carlos Gómez Haedo, "Justino Jiménez de Aréchaga," *Revista Nacional*, 1 (1938), 69-77, on p. 76; and Oddone, *La Universidad Vieja*, p. 264.

General anthropology—State of humankind considered globally—Monogenism—
Polygenism—Transformism and Selection⁵²—Applications to man.

The text in that course was the *Antropología* of Paul Topinard, a French Lamarckian.⁵³

Two of the earliest professors of the Faculty of Medicine (founded 1876) were eminent Darwinians: the professor of anatomy, Julio Jurkowski, and the professor of physiology, Francisco Suñer Capdevila, both of whom debated Carlos María Ramírez in 1877.⁵⁴ Suñer (1848-1916) was a Catalan deputy to the Cortes of the Spanish First Republic who fled to Uruguay after its fall.⁵⁵ The monistic and Darwinian orientation of his course is detailed in the first curriculum of the Faculty of Medicine. In the very first lesson students had to consider, among other topics, "the parallel between inorganic bodies and organized beings and between animals and plants" and theories about life. The second lesson introduced the Haeckelian theme of simple bodies in nature before proceeding to cellular evolution.⁵⁶ More characteristically monist themes appear in a succeeding lecture: "intellectual faculties," including "the influence of organization on intellectual faculties. Intelligence of animals" and the origin of instincts.⁵⁷ The debate over "moral faculties," whose source was the chapter so titled in *The Descent of Man*, was the subject most debated by positivists and idealists (*espiritualistas*, conventionally), inasmuch as the latter sought to preserve a non-material basis for human morality. The last lesson in Suñer's course was an openly Darwinian discussion, ending on Huxleyian note:

Lesson 52. Development of the individual after birth. Ages. Temperaments. Death. Human races and their characteristics. Are they distinct species or branches of the same species? Animal species. Origin of species. Ascending progress of organisms. Spontaneous generation. Man's place in nature.⁵⁸

Jurkowski (1843-1913), although an evolutionist, did not teach anatomy from an evolutionary perspective. Evolution is absent from his anatomy program, as is any comparative perspective, an oddity among Darwinian anatomy professors in this period. As a text he used Sappey's *Tratado* in preference to the evolution-oriented manuals of Testut or Gegenbaur.⁵⁹ Either Jurkowski's Darwinism was rhetorical only and did not affect his instruction, or he used Sappey because there were no Spanish translations of the evolutionary textbooks, or he judged that descriptive, rather than comparative, anatomy was more appropriate for his students.

⁵² *Elección*, suggesting that he had used Royer's translation of *Origin*.

⁵³ Archivo General de la Nación (AGN), Archivo de la Universidad de Montevideo, 1883, expediente no. 20. Aula de Geografía General, Program del Primer Año, p. 12.

⁵⁴ Blanca París de Oddone, *La Universidad de Montevideo en la formación de nuestra conciencia liberal* (Montevideo, Universidad de la República, 1958), pp. 140-141, n. 64, provides extracts from lectures by Jurkowski and Suñer from the *Revista Científica Literaria*, 1 (1877).

⁵⁵ Suñer Capdevila is often confused with his brother of the same name. See Thomas F. Glick, "La 'Idea Nueva': Ciencia, política y republicanismo," in B. Ciplijauskaitė and C. Maurer, eds. *La voluntad de humanismo: Homenaje a Juan Marichal* (Barcelona, Anthropos, 1990), pp. 57-70, on pp. 59-61.

⁵⁶ *Programa de la Facultad de Medicina* (Montevideo, 1876), p. 6 (Programa del Aula de Fisiología).

⁵⁷ *Ibid.*, p. 11 (lesson 47).

⁵⁸ *Ibid.*, p. 12.

⁵⁹ *Ibid.*, pp. 3-5. Ph. C. Sappey, *Tratado de anatomía descriptiva*, Rafael Martínez y Molina, trans., 2nd ed. (Madrid, Carlos Bailly-Baillière, 1878).

JOSÉ ARECHAVALETA

Arechavaleta (1838-1912), the founder of modern biology in Uruguay, was born in 1838 in the village of Urioste, near Bilbao. He emigrated to Montevideo at the age of 18. There he studied botany and entomology with Ernesto J. Gibert, French naturalist and a refugee from the Revolution of 1848. On the basis of these studies, Arechavaleta obtained a pharmaceutical license, his only professional credential. As a young man, Arechavaleta took part in a scientific salon or *tertulia* which met in the back room of the Las Cazes family pharmacy—meetings frequented by Gibert, Teodoro Vilardebó and other physicians and naturalists. Years later, Arechavaleta's own pharmacy was the site of a famous *tertulia* of positivists whose participants included Varela, the Ramírez brothers, and Carlos María de Pena.⁶⁰ Inasmuch as Arechavaleta's earliest publications date from the 1880s we do not know when he first became a Darwinian, although among the evolutionary books in his library, a few date from before 1870.⁶¹

In an important lecture read at the Ateneo del Uruguay in 1881, Arechavaleta in replying to Prudencio Vázquez y Vega's assertion that evolution was merely a hypothesis, identified himself as an evolutionist of the school of Ernst Haeckel.⁶² For Arechavaleta, evolution was a fact amply demonstrated by evidence from comparative morphology and physiology, anatomy, embryology and, more specifically, studies of rudimentary organs, geological succession, and the geographical distribution of species.⁶³ He expounds Haeckel's three doctrines of the general theory of evolution, and those of descent and selection, emphasizing the fact that evolution lacks any plan or design and that evolutionary processes are as valid for one-celled organisms, as they are for complex ones.⁶⁴

It is clear that in this period Arechavaleta conceptualized his research program in terms derived from his reading of Haeckel. Of this there is an indirect testimony of one of his students during the 1870s, Manuel Tardáguila. In a review of the history of entomology in Uruguay, Tardáguila observes that Lamarck and Darwin "have completely transformed scientific studies and their classification, an inevitable

⁶⁰ On Arechavaleta, see Antonio Peluffo, "Arechavaleta: el investigador, el maestro, el hombre," *Anales de la Facultad de Química*, 6 (1960), 7-22; Peluffo, "José Arechavaleta," *Revista Nacional*, 1 (1938), 121-129; Telésforo de Aranzadi, "Don José Arechavaleta y Balpardo," *Boletín de la Real Academia Española de Historia Natural*, 13 (1913), 528-545; Joaquín de Saltearín, "José de Arechavaleta," *Revista Histórica*, 9 (1918), 77-95; Cordero, "Dos aspectos" (n. 47, *supra*); Ardao, *Espiritualismo y positivismo*, pp. 129-135.

⁶¹ Arechavaleta's personal library was incorporated after his death into that of the Museo de Historia Natural in Montevideo. Among the earliest titles are Richard Owen, *The Zoology of the Voyage of the H. M. S. Beagle*. Part I, Fossil Mammals (London, Smith Elder, 1840), and Louis Buchner, *Conférences sur la théorie darwinienne de la transmutation des espèces* (Paris, Reinwald, 1869). He owned more than one Darwin title, in the Reinwald French edition, from the 1870s, as well as copies of Vogt's translation of Gegenbaur, *Manuel d'Antomie Comparée* (see n. 48, *supra*) and Huxley's *Éléments d'anatomie comparée des animaux invertébrés* (Paris, Adrien Delahaye, 1877). His books are identified by the stamp "J. Arechavaleta". His copy of Haeckel, *Psychologie cellulaire* is inscribed "Al profesor don José Arechavaleta, mi distinguido maestro y gran amigo. J. Regúnaga. Buenos Aires, enero de 1880." His copy of Huxley, *L'Ecrevisse* lacks the stamp but is inscribed, "Al Sr. Don José Arechavaleta, su afmo. amigo y comp[añ]ero. A. Vázquez Acevedo. Ag. 24 1880."

⁶² Arechavaleta, "La teoría de la evolución es una hipótesis?" (n. 48, *supra*); Prudencio Vázquez y Vega, "Crítica de la moral evolucionista," *Anales del Ateneo del Uruguay*, 1 (1881), 201-222, on p. 215.

⁶³ Arechavaleta, "La teoría de la evolución es una hipótesis?", p. 125.

⁶⁴ *Ibid.*, pp. 123-124.

consequence of the two great laws of evolution and descent" that they formulated. From this, he concludes that "the natural classification of Haeckel, based on those laws...transforms [zoology and botany] completely." Tardáguila had studied botany and zoology with Arechavaleta in 1874 and 1875, when the latter had imparted to his students the new rules of natural taxonomy as outlined by Haeckel.⁶⁵

According to natural classification, based on the findings of embryology, comparative anatomy and paleontology, Haeckel, in his *Natürliche Schöpfungsgeschichte* of 1868, a genealogical tree of twenty-two human ancestors. In the first stage were found moneras, primordial ancestors of all animals, lacking—according to Haeckel—a nucleus. Years later it was ascertained that Haeckel had invented these purely hypothetical ancestors by analogy with ontogenetic states of embryogeny (an analogy based on a misunderstanding of the fate of the nucleus of a fertilized egg).⁶⁶ Haeckel's hypothesis stimulated the "discovery" of various moneras, including the famous—or notorious—*Bathybius* of T. H. Huxley. As a pure Haeckelian, Arechavaleta repeated the feat: in the mud of a swamp in Carrasco, Arechavaleta believed he had found a *Bathybius*, "a supremely simple organism, a protoplasmic mass, entirely naked and without a nucleus," that he baptized *Helobius Oterii* in honor of his friend and fellow Darwinian, Manuel B. Otero.⁶⁷ The discovery itself is of less interest than its significance within the Haeckelian universe of Arechavaleta: the importance of the moneras—as Arechavaleta himself observed—is that their existence would reduce the distance between organic and inorganic beings—a crucial point for monists who wanted to do away with that distinction.⁶⁸

Moreover, even though Arechavaleta admitted that even Huxley had, by that time, abandoned his *Bathybius*, it was nevertheless clear that for him to accept or reject moneras was the equivalent of accepting or rejection evolution itself.⁶⁹ He viewed his discovery in Carrasco as providing evidence for Haeckel in his moment of crisis: "In my opinion, then, *Helobius Oterii* should occupy the first step of the ascending scale, alongside *Protobathybius* and *Bathybius*."⁷⁰

It was as a pedagogue that Arechavaleta's influence in the reception of Darwin in Uruguay was most felt. His role as a teacher has been concisely described by Telésforo de Aranzadi:

with his teaching he awoke in an entire generation of studies love for the study of the observational sciences, for in an epoch when the laboratory and the microscope were

⁶⁵ Manuel Tardáguila, "Nuestra historia de entomología," *Boletín de la Sociedad Ciencia y Artes*, 8 (1884), 257-259, on p. 257. Tardáguila, who received a B.A. in 1871 and J.D. in 1882, appears in 1883 as a student of medicine when he applied for the position of interim professor of botany and zoology in the preparatory program of the University. He had been examined in General Botany in 1874 and 1875, in Zoology in 1874, and in Medical Botany, also by Arechavaleta, in 1881 (AGN, Archivo de la Universidad, expediente no. 52 of 1873). In 1874 Tardáguila appears with other students of Arechavaleta in a request for railroad tickets from Montevideo to Juan Chazgo "for the purpose of herborizing with their professor" (AGN, Archivo de la Universidad, expediente no. 59 of 8174 (22 October).

⁶⁶ See the discussion in Stephen Jay Gould, *Ontogeny and Phylogeny* (Cambridge, Harvard University Press, 1977), pp. 170-173.

⁶⁷ José Arechavaleta, "Apuntes sobre algunos organismos inferiores," *Anales del Ateneo del Uruguay*, 3 (1882), 41-46, 250-255, on p. 44.

⁶⁸ *Ibid.*, p. 43.

⁶⁹ *Ibid.*, p. 251.

⁷⁰ *Ibid.*, p. 253.

unknown as instruments of teaching, in which all was theory and speculation, it was he who, making his students see and observe the fundamental phenomena of biology, speaking to them of evolution and making them translate Darwin and Haeckel, definitively determined the orientation of the future studies of many of them towards the biological sciences.⁷¹

For the use of his zoology students at the Ateneo, Arechavaleta translated from the French a chapter that Alfred Giard, had written to accompany his translation of a book of Huxley's that he used as a textbook in his chair at Lille. In a translator's introduction, Arechavaleta observed that "The considerable advances of the natural sciences in these last few years is owing to the evolutionary theory contained and developed in the immortal book, *Origin of Species*." The Ateneo, wishing to keep abreast of the scientific movement, had founded chairs for its instruction. In his, that of zoology, he lectured "according to the new principles, which I have professed for many years."⁷² Giard's text was a composite of Darwinian and Lamarckian notions. He presents three corollaries to Malthus's "theorem" of population: first, the struggle for existence; second, the Lamarckian "law of adaptation," that is, the inheritance of acquired characteristics; third, natural selection.⁷³ Although neo-Lamarckian mechanisms were everywhere in vogue at this time, still Arechavaleta's choice of a text is odd, because nowhere else in his writings is there even a hint of Lamarckian explanation. After 1888 Giard began to emphasize Lamarckian mechanisms even more and to criticize what he regarded as the hypervaluation of the Darwinian struggle for life.⁷⁴

But Lamarckism was only one aspect of Giard's evolutionism. He is today remembered more for his contribution to Haeckel's theory of recapitulation. Indeed, the pamphlet translated by Arechavaleta continues with Haeckel's biogenetic law and Fritz Müller's principle that the series of phases that an embryo presents in the course of its development will be abbreviated or condensed. The result of such condensation will be a more rapid evolution, so that variations advantageous in the struggle for life will come into play.⁷⁵ The discussion of Müller's ideas takes up five pages of the

⁷¹ Aranzadi, "Don José de Arechavaleta" (n. 60, *supra*), p. 536. Cf. Peluffo, "Arechavaleta," p. 19: Arechavaleta "translated for his students whole chapters of works on transformism: Haeckel, Spencer, Russell (*sic*: he meant Wallace), Weismann, and others." Another student of Arechavaleta recalled: "He was the first among us who dared to speak of Darwin and Pasteur with respect and admiration. I say this because, compared with the archaic dogmatism of the arguments of those times, anything that was not metaphysical speculation or scholastic dialectic was considered an act of irreverence and the person who so held, a vulgar empiricist" (Joaquín de Salterain, "José de Arechavaleta," p. 80).

⁷² Alfredo Giard, *Un capítulo sobre los principios generales de la biología* (Montevideo, 1879), p. vii. Among the copies of this pamphlet preserved in the National Library is one that Arechavaleta signed for Angel Floro Costa. Giard's book was broadly based on Huxley's "Notes on the Invertebrata for the Use of Students of Zoology" (1874).

⁷³ Giard, *Capítulo*, pp. 29-30.

⁷⁴ On Giard's Lamarckism, see Peter J. Bowler, *The Eclipse of Darwinism* (Baltimore, Johns Hopkins University Press, 1983), pp. 111-112. It is interesting to compare Giard's corollaries with those adduced by Carlos Berg in 1891: "Growth with reproduction; transmission by heredity almost included in the reproductive process; variation through the direct or indirect influence of external conditions and the use and disuse of organs; rapid multiplication which must produce a struggle for existence and which implies natural selection which, in turn, determines divergence of character and the disappearance of less perfected forms (individuals, etc.); "Elementos de zoología," *Anales de la Universidad* (Montevideo), 1 (1891-92), 220-252, on p. 249.

⁷⁵ On Müller and condensation, see Gould, *Ontogeny and Phylogeny*, p. 101. In 1887 Giard made a important contribution to the theory, clarifying the embryological mechanisms of neoteny and progenesis (*ibid.*, p. 227).

pamphlet's thirty-seven. Why would Arechavaleta devote so much space to complicated mechanisms of recapitulation that few of his secondary level students could follow? He must have thought that in view of the reigning confusion over the mechanisms of evolution, Haeckel's biogenetic law offered the greatest hope of clarity.

POSITIVISTS VERSUS RELIGIONISTS

In Uruguay, just as in the majority of Hispanic countries, Darwinian mechanisms of evolution were not debated. What was put in play were systems of values and social diagrams. Darwin was a symbol conveniently appropriated as a weapon in the ideological battles that divided nineteenth-century elites. Darwinism was introduced as a theme of debate in academic circles at the same time as was Spencerian positivism, in 1875. A decade later, José T. Piaggio evoked the mood in the University Society:

Ideas succeeded one another with each change of speaker. Scarcely had the echoes of a proponent of positivism died down when the semi-eloquent voice of a young Cartesian resounded in the hall. That was a vortex of ideas in play. . . some laughed at Spencerian doctrines and so many things were spoken about Darwin!⁷⁶

The first major episode was the debate between Carlos María Ramírez and José Pedro Varela in the fall of 1876.⁷⁷ Ramírez was correct when he asserted that Varela's introduction of Darwin in a critique of the University in his book *La legislación escolar* had a broader motive: "And now that I've named Darwin, I ask myself whether or not resistance or acceptance of Darwin has not become an unequivocal criterion of the retardation or precocity of whatever system of legislation among cultivated nations."⁷⁸

Ramírez himself tried to block out an agnostic position while the scientists clarified the matter, inasmuch as—as he admitted, "I am inclined to believe that we do not descend from Adam and Eve; and I do not see that, in order to convince myself of our genealogical relationship with monkeys—in a very remote past—I need perceptibly change what I think about the present nature and future destiny of the human race."⁷⁹ Varela had to back off somewhat, explaining that he had alluded to the method of teaching philosophy, not the content, inasmuch as he was an advocate of the freedom of instruction.⁸⁰ Whether accurate or not, Ramírez's perception is an index of the strong polarization over Darwinism, that left no space for calmer spirits (what few there were) like Ramírez.

The next marker in positivist/idealist debate was the "conversion" of Gonzalo Ramírez (1846-1911), professor of Penal Law and brother of Carlos María, in 1878. In view of the piling up of

unchallengeable proofs which depose in favor of the grand view of the English naturalist Charles Darwin, the modern philosopher and moralist resolutely proclaims the schism of the

⁷⁶ José T. Piaggio, "Discurso," *Revista de la Sociedad Universitaria*, 3 (1885), 271-275, on p. 273.

⁷⁷ José Pedro Varela and Carlos María Ramírez, *El destino nacional y la Universidad*. Polémica, 2 vols. (Montevideo, Colección de Clásicos Uruguayos, 1965).

⁷⁸ *Ibid.*, II, 119.

⁷⁹ *Ibid.*, II, 120.

⁸⁰ *Ibid.*, II, 188-189 n. 1.

sciences; and following the example of the Catholic philosopher, they sentence us either to renounce science or to be atheists.

My profession of faith I do here consign and, sealing it with an intimate memory of the other world, I tell you with all sincerity that, without ceasing to be a humble sectarian of the doctrines of Charles Darwin, I have been able to extend for the last time the frozen hand of a beloved being, feeling the idea of a Supreme Being palpitate in my brain, enlivening my heart with the beautiful dream of immortality.⁸¹

Gonzalo Ramírez's honest confession caused a sensation in intellectual circles and won him, to boot, a sardonic open letter from Angel Floro Costa. Costa noted that Ramírez's profession had stimulated "a formidable imprecation" from Julio Herrera y Obes who asserted that one could not be a Darwinian and a idealist at the same time. With this, Costa was in agreement, since "science neither permits nor tolerates diplomatic maneuvers."⁸² The rest of Costa's letter was a kind of plea for an end to all anthropomorphic illusions.

The conversion of Ramírez marked the end of the "spiritualist" movement that had begun in 1872 with the Club Universitario's "Profession of Rationalist Faith," a Deist tract which declared both belief in God and a rejection of all Catholic dogma.⁸³ The ideological polarization that seemed inevitable when Darwin was debated in Catholic countries did not permit agnosticism.

In 1878 too, there took place a polemic over the conflict between science and religion in which the bishop of Montevideo Mariano Soler defended the Catholic side and Manuel B. Otero, the positivist Darwinian side.⁸⁴ Soler's strategy in defending the Biblical account of creation consisted in demonstrating that the *sequence* of events in the *Genesis* narrative was in accord with the findings of science. The key point was the supposed proof that animal life had preceded the appearance of plants. Soler looked foolish citing whatever scientist could be adduced in support of his position, however unknown or ancient he might be ("fossil authors," according to Otero), while Otero made the mistake of invoking Dawson's *Eozoon* which, as Soler knew, had already been discredited by Darwinian naturalists.⁸⁵

In 1880, Soler published a pamphlet attacking Darwinism from the same Biblical perspective.⁸⁶ Although Soler prided himself in presenting only scientific arguments and even though he cited a plethora of sources (he had a copy of the Spanish translation of the *Origin* in his personal library), his science was nothing more than a thin patina that covered a religious apology of a genre that had by this time become traditional. He

⁸¹ Gonzalo Ramírez, "Clase inaugural del curso de derecho natural y penal, 1878," *Revista Nacional*, 14 (1941), 295-298, on pp. 297-298.

⁸² Angel Floro Costa, "La metafísica de la ciencia. Fantasía literaria dedicada a mi compatriota y amigo el doctor don Gonzalo Ramírez," *El Panorama*, 1 (1878), 25-31, 38-43, 97-102, 129-135, on p. 26. On the polemic between Floro Costa and Gonzalo Ramírez, see Fernando Mañé Garzón, *Un siglo de darwinismo: Un ensayo sobre la historia del pensamiento biológico en el Uruguay* (Montevideo, Facultad de Medicina, 1990), pp. 43-56.

⁸³ On the "Profession," see *El Club Universitario*, 2 (1872), 361; and París, *Universidad de Montevideo*, p. 115. Ardao (*Etapas*, p. 110) locates the end of the first phase of positivism in 1879, with the polemic of Jurkowski and Arechavaleta against Vázquez y Vega. In my view the conversion of Ramírez was more significant, inasmuch as it demonstrated the impossibility of a middle way.

⁸⁴ The lectures of Soler and Otero are reproduced in Soler, *El Génesis y la geología* (Montevideo, A. Barreiro y Ramos, 1878).

⁸⁵ *Ibid.*, pp. 75 (fossil authors), 131 (eozoon, the imaginary fossil).

⁸⁶ Mariano Soler, *El darwinismo ante la filosofía de la naturaleza* (Montevideo, Marella Hermanos, 1880).

proposes a long list of anti-Darwinian scientists (including Hooker!) and identifies Haeckel as an exaggerated Darwinian (separating Haeckel from Darwin was a *leitmotiv* in Catholic apologetics). He cites the Catholic evolutionist St. George Mivart without first-hand acquaintance with his ideas, as well as the Mivart's Spanish follower Zeferino Cardinal González, without appreciating the conciliatory stance of this interesting and important figure.⁸⁷ In another article, Soler introduces an interesting detail: Huxley's findings on the close relationship of birds and reptiles confirms *Genesis* I.20, where Moses indicates the commonalty of the two groups, inasmuch as both were created on the same day. Huxley had added nothing new!⁸⁸

Soler was the captain of the anti-Darwinian team (together with his lay epigone, Juan Zorilla de San Martín). His *modus operandi* is instructive. He was a member of the Society of Sciences and Arts, an association devoted to scientific popularization whose most vocal spokesmen were the engineers Carlos Honoré and Melitón González, two outspoken Darwinians who in May 1882 had organized a memorial program in honor of Darwin, one month after his death. The Society had even sent a floral arrangement to Darwin's tomb. González opened the session with a brief talk, describing natural selection and presenting Florentino Ameghino's hypothesis of America as the cradle of humanity.⁸⁹ Honoré followed with a long lecture that began with an evocation of his student days in Belgium, when he had had

the opportunity to defend in lectures the theory of the *Origin of Species* against many young people inspired by outmoded ideas. . . . There were but a few of us who resolutely popularized the ideas of that fecund thinker outside of the University classrooms in which his ideas were discussed with either a marked timidity or a completely hostile spirit. It was we who sought an expansion of the official curricula so that they might encompass the subjects indispensable for the appreciation of the new theory.⁹⁰

Honoré's recollection most likely refers to the Free University of Belgium during the decade of the 1860s. This University was a stronghold of Krausism at this time; Wilhelm Tiberghien was rector in 1867-68 and again in 1875-76.⁹¹ He also recalled that ten years before (1872) in the Club Universitario "there predominated that scant information which persons devoted exclusively to legal concepts acquire about nature." Honoré had been one of those who lectured on Darwin there. Compare that to the present situation in 1882:

Today we see quite a different spectacle: our libraries now offer all the works of the *poorly known* individual [Darwin] of those days. We have attended public lectures, heard spirited debates, read interesting polemics, all of which demonstrate that his ideas have already

⁸⁷ On the ideas of Mivart and González, see Glick, "Spain," in *The Comparative Reception of Darwinism*, 2nd ed. (Chicago, University of Chicago, Press, 1988), pp. 307-345, on pp. 340-343.

⁸⁸ Mariano Soler, "La cosmogonía de la ciencia," *Boletín de la Sociedad Ciencias y Artes*, 8 (1884), 87-101, 122-124, 133-139, on p. 138. For Huxley's lumping of birds and reptiles in the same group, see his article "On the Classification of Birds," *Proceedings of the Zoological Society of London*, 1867, 415-472.

⁸⁹ "Sociedad Ciencias y Artes. Sesión celebrada en honor del naturalista Carlos Roberto Darwin," *Boletín de la Sociedad Ciencias y Artes*, 6 (1882), 229-236.

⁹⁰ Carlos Honoré, "Discurso sobre Darwin, sus obras y la influencia que ejercieron en la ciencia," *Boletín de la Sociedad Ciencias y Artes*, 6 (1882), 241-247, 253-260, on p. 242. In Mañé's view (*Un siglo un Darwinismo*, p. 115), Honoré was the most intelligent of Uruguayan commentators on Darwin.

⁹¹ See Susana Monreal, "El krausismo en la Universidad Libre de Bruselas (1834-1897)," in Krause-Ahrens-Tiberghien: *Estudios y selección de textos* (Montevideo, Fundación Prudencio Vázquez y Vega, 1988), pp. 33-38.

penetrated our spirits and that Uruguayan society has not been indifferent to the change of ideas which has operated in knowledge of General Laws which guide the organic world.⁹²

Honoré, who had done some meteorological research, observed that Darwin's studies of the glaciers of Chile and Patagonia had lighted the path of his own studies of glaciers.⁹³ Asserting that there was no doubt that "the open book in which Darwin had deciphered the most essential elements of the Law of evolution had been the soil of Uruguay and Argentina," he went on to discuss the evidence that Darwin had gathered in South America. The lecture ends with an evaluation of the stimulus that Darwin had given to various scientific disciplines: geology, morphology, embryology, and the social sciences.

Beginning with the seventh number of the next volume of the *Boletín* of this Society (February 17, 1883), Mariano Soler's name appears as a member of the editorial board; and, in the same number, there appears another version of his critique of Darwinism.⁹⁴ Accompanying Soler's article is an editorial note by Melitón González explaining that "Without endorsing the ideas presented, we want to stress again the responsibility of the Sociedad Ciencias y Artes and rectify one of the concepts mentioned by the author at beginning of his article." Soler had written that inasmuch as Darwinism had been defended in the *Boletín*, there was also an obligation to present a refutation. González replied that the Society neither defends nor attacks the Darwinian theory. Nevertheless, "we must point out that we do not agree with the synthesis that [Soler] presents of the system; a synthesis which serves him as a premise to attack it." He provides some examples of errors the bishop had made and reserves the right to refute his refutation.⁹⁵

Soler replied that González had scruples when it came to scriptural doctrines but not when "the same *Boletín* has repeatedly printed completely materialist doctrines."⁹⁶ In another short article, Soler asks González to refute him, but that he could refute that refutation inasmuch as González had formed an erroneous concept of the position of Soler, who had not attacked the doctrine of Darwin concretely, but rather that of "Darwinism in its evolutionary and transformist form, expanded by Haeckel, Huxley, and Vogt. . . . The statutes [of the Society] do not extend to the President [González] the right to print in its *Boletín* a more or less scientific and extensive critique of any theory whatsoever, and then describe it as false and inexact, in a dictatorial way, and in the guise of a chronicle."⁹⁷

The Catholic Club of Montevideo was established by Soler in part to establish a platform from which to take the offensive against materialism and Darwinism. I found no books by Darwin in the library of the Club, but it did have copies of books by Spanish clerics who struck a conciliatory note, like Zeferino González and Miguel Mir. Unlike the Spaniards, however, Soler was not a conciliator. The obituary of Darwin that Juan Zorrilla published in the daily, *El Bien Público*, was one of the most violent

⁹² Honoré, "Discurso," p. 243.

⁹³ *Ibid.*, p. 244.

⁹⁴ Mariano Soler, "Crítica del darwinismo bajo el aspecto de las ciencias experimentales y de la filosofía de la naturaleza," *Boletín de la Sociedad Ciencias y Artes*, 7 (1883), 428-431 and following.

⁹⁵ "Crónica. El darwinismo," *Boletín de la Sociedad Ciencias y Artes*, 7 (1883), 431.

⁹⁶ Mariano Soler, "Crónica. Con ocasión del darwinismo," *Boletín de la Sociedad Ciencias y Artes*, 7 (1883), 443.

⁹⁷ Mariano Soler, "Tomamos la palabra al señor González," *Boletín de la Sociedad Ciencias y Artes*, loc. cit.

and no doubt reflected Soler's views as well.⁹⁸ Zorrilla began with a spectacular error: "The celebrated Darwin has just died in the United States."⁹⁹ It is difficult to take Zorrilla at face value in view of his inability to identify Darwin's nationality. "Darwin was famous," he concluded, "as one of those who wounded humanity in its most vital and noble fibers: in its dignity, in its divine origin and its sublime and immortal destiny." He accuses Darwin of having deliberately sought in his research weapons against the faith, an accusation that even his Catholic detractors in Spain never dared to say.¹⁰⁰ Spanish Catholics, to the degree that they controlled public education, could well display equanimity upon contemplating the death of their great enemy Darwin, or so they perceived him. Zorrilla and Soler, on the other hand, were much more combative, inasmuch as they had to recover a hegemony which they had already lost.

VÁZQUEZ ACEVEDO'S UNIVERSITY: A POSITIVIST DICTATORSHIP?

In 1881 Martín C. Martínez, Eduardo Acevedo, and Prudencio Vázquez y Vega all received the doctorate in law. The first two, both positivists, drew up a new philosophy curriculum which the last named—an idealist—attacked harshly for its Darwinian and materialist contents.¹⁰¹ The program (the version approved was emended to reflect Vázquez y Vega's critique) is the clearest document of the intellectual program of the university Darwinians. The first part of the program is a course on psychology, whose principal objective was to ascertain the causal role of natural selection in the evolution of the senses.¹⁰²

That was not the worst of it, however, from the point of view of Vázquez y Vega and other anti-materialists. Most objectionable was a section on evolutionary ethics, based on Spencer and on Darwin's chapter on "Moral Faculties" in the *Descent of Man*, where Darwin asserts that "sympathy" (a term straight out of Rousseau and/or Adam Smith) is an instinct that endows groups of humans with social solidarity, and the groups better so endowed are advantaged over other groups in the struggle for existence.¹⁰³ Egoism and altruism are also traits that likewise advantage their carriers.¹⁰⁴

⁹⁸ "Darwin," *El Bien Público*, April 30, 1882.

⁹⁹ The error was so gross that an editor of an anthology of the writings of Zorrilla had to add a footnote to explain Zorrilla's lapse: *Juan Zorrilla de San Martín en la prensa. Escritos y discursos*, Antonio Seluja Cecín, ed. (Montevideo, Comisión Nacional del Homenaje del Sesquicentenario de los Hechos Históricos de 1825, 1975), p. 47.

¹⁰⁰ Cf. The obituaries of Darwin published in traditional Catholic media, reproduced by Diego Núñez Ruiz, "La muerte de Darwin en la prensa española," *Mundo Científico*, 2 (1982), 396-404, on pp. 398-399.

¹⁰¹ The texts of the proposal, the polemics over it, and the program finally approved are reproduced in full in María Teresa Carballal de Torres, "La reforma positivista del programa de filosofía, en 1881," *Cuadernos Uruguayos de Filosofía*, 3 (1964), 203-290.

¹⁰² *Ibid.*, p. 211: "Sense of sight. . . Is it possible to explain with the help of natural selection the development of this sense based on the optic pigmentation of the lower animals? Sense of hearing. . . How does evolutionary theory explain the development of this sense in the animal kingdom? (p. 212): Sense of smell. . . Is the sense of smell in civilized man a rudimentary sense that is tending to disappear? Darwin's view. . . genetic sense . . . Development of this sense in the animal kingdom. How does evolutionary theory explain that development?"

¹⁰³ *Ibid.*, p. 230: "The great influence which, according to Darwin, sympathy has had in the genesis of morality." Cf. Prudencio Vázquez y Vega, "Crítica de la moral evolucionista," *Anales del Ateneo del Uruguay*, 1 (1881), 210-222.

¹⁰⁴ "Reforma positivista," p. 231.

When Vázquez y Vega attacked their syllabus, Azevedo and Martínez replied that

The study of evolutionary theory offers the advantage of unquestionable practical utility. Darwin's grand system represents the most powerful inductive effort ever made throughout history and, studying it, students are made cognizant of mental operations and their utility with greater facility and precision than could be obtained learning abstract theories and rules by rote memory from a text book.

Still, the reformers were prepared to defer to their opponent's wounded feelings and "in order to remove "even the suspicion of partiality," they resolved "to excise from the curriculum the enumeration of those arguments of Spencer that have so exercised the spirit of Dr. Vázquez y Vega."¹⁰⁵

At graduation ceremonies, students were invited to make statements of academic conscience, the best of which were presented publicly. Darwin turns up in two such pronouncements for 1882:

In all the annals of science there is no more colossal reform than then one at work in the present century, ever since the immortal Charles Darwin launched his great theory on the origin of species. From biology it has extended itself to all other branches of human knowledge.

Lorenzo Barbagelata, May 23

And perhaps in the contrary sense:

England is not an innovative nation; thus it has not been able to bring about a scientific revolution. This is why Darwin is the Amerigo Vespucci of anthropology, while in the social sciences Spencer adumbrates his reflection. The true revolutionaries were Lamarck and Auguste Comte... the Latin race is a race of Gods.

Isidro Revest, May 22¹⁰⁶

Revest's formulation is interesting as a call for both evolutionism, and positivism in the French style that Varela had attacked in *La legislación escolar*.

In a similar contest in 1886 one of the student statements provoked the ire of the editors of the Protestant magazine, *El Evangelista*:

To deny the origin of man from a lower form, as Darwin has demonstrated in his transformist theory, is to deny the law of evolution [which is] admitted as true by the entire scientific world.¹⁰⁷

For evangelicals, Christianity admitted no changes of species.

The Darwinian tone of the University was set by its leader Alfredo Vázquez Acevedo, elected rector on a positivist list in 1880 and who served in that position until 1889 with the exception of two terms of two years each.¹⁰⁸ Anti-Darwinians viewed him as the orchestrator of an evolutionist take-over of the University, a view which the rector did nothing to oppose. Indeed in his 1885 graduation speech, Vázquez Acevedo reflected on the role of evolutionism in the University and in Uruguay:

In few countries has the modern theory of evolution made as rapid progress as in our small republic. While the old nations of Europe hobble the truths that the eminent Darwin has

¹⁰⁵ *Ibid.*, pp. 252-253. On this polemic, see also Mañé Garzón, *Un siglo de darwinismo*, pp. 99-106

¹⁰⁶ AGN, Archivo de la Universidad de Montevideo, expediente 40 bis of 1882.

¹⁰⁷ "Descendemos del mono?" *El Evangelista*, 9 (1886), 333.

¹⁰⁸ On Vázquez Acevedo's election, see Ardao, *Espiritualismo y positivismo*, pp. 175-178; and París de Oddone, *La Universidad de Montevideo*, pp. 82-84.

taught, we dare promote them, carrying their explanations and philosophical consequences farther than the English scholar himself.¹⁰⁹

These lines were cited in a congressional debate in 1886 in order to show that the rector had converted the university into a positivist dictatorship. Such was the accusation of the idealist deputy Carlos Gómez Palacios in the session of June 11 when he presented three "propositions:"

- (1) That the University is a philosophical sect, a materialist sect, where the only system taught exclusively is materialism.
- (2) That the Rector's personality constitutes a dictatorship, that he exercises, with the professors, deans, and members of the council as Satraps.
- (3) That the professoriate is notoriously incompetent.¹¹⁰

Gómez Palacios urged the recovery of the "true principles of science," in a sense contrary to the Darwinian direction indicated in the Rector's speech, concluding that was no freedom of instruction in the University inasmuch as the only philosophy imparted there was positivism, or "disguised materialism."¹¹¹

Next to speak in this debate was the deputy Lamas who also weighed in with a conspectus of the principles of the University as he saw them, including egoism and Spencer's struggle for life:

In this narrow sphere they confine all the forces of human evolution. I hope it is nothing more than that which Buffon assigned to the lower species, when, in denying them free will, he said that they only functioned through desire and repugnance, which is the same as pleasure and pain.¹¹²

Inasmuch as the idealists were marginalized in the University, they had no other recourse except to use the Congress as a tribune for reclaiming the position they had lost. I do not think, however, that their testimony in itself constitutes proof of a positivist dictatorship. More to the point were the words of Carlos Honoré, positivist deputy, when he alleged that there reigned in the University a philosophical intolerance that ought to be replaced by "true positivism" of the tolerant kind.¹¹³

A better criterion for assessing the state of the University had been introduced in the debate of the previous year by the deputy Mendoza, according to whom "it is necessary to ascertain whether there is freedom of instruction in the University... if a spiritualist student is obliged, by force, to give a Spencerian examination," that is, to respond to questions in conformity with Spencer's ideas.¹¹⁴ On this criterion it is doubtful that positivists ruled in a dictatorial way. We noted, for example, the atmosphere of free

¹⁰⁹ Ardao, *Espiritualismo y positivismo*, p. 221 (Discurso de Vázquez Azevedo en la Colación de grados de 1885). Cf. the paraphrase by Antonio María Rodríguez delivered in the Uruguayan House of Representatives in 1886: "that our country, so small in area, was nevertheless one of those which received with greatest enthusiasm and affection the most important scientific advances of our epoch: the evolutionist doctrine, the most important one of the contemporary period, found here a greater number of followers than are found in many European countries, and it is better known and more studied... than it is in many retrograde countries of Europe;" *Diario de Sesiones de la Cámara de Representantes*, 79 (1886), 275.

¹¹⁰ *Diario de sesiones*, p. 280.

¹¹¹ *Ibid.*, pp. 282, 295.

¹¹² *Ibid.*, p. 313.

¹¹³ *Ibid.*, p. 345.

¹¹⁴ *Diario de sesiones*, 73 (1885), 364.

debate in Aréchaga's classroom. Similarly we might note that Martínez, the staunch Darwinian, approved the anti-evolutionist thesis of Jorge Arias in 1884, the same year in which Manuel Herrera's anti-Darwinian thesis was also approved.¹¹⁵

SOCIAL DARWINISM

Here we examine the thought of Martín C. Martínez and Eduardo Acevedo, both of whom emphasized natural selection as the principal mechanism (for Martínez, the only mechanism) of social evolution. Both defined their concepts in doctoral theses defended in 1881. Acevedo begins his treatise, *El gobierno municipal*, by considering the lack of specialization in simple animals. Thus, in the monera, "Every part of this rudimentary organism feels, every part breathes, every part digests." There is no specialization. But as one reviews the zoological scale from the monera to man one observes the increasing division of labor. Sociology offers analogies: there is no division of labor among primitive tribes: Evolution explains the transformation from rudimentary to civilized society, "demonstrating that in the struggle for existence those beings win out whose physiological functions are better distributed and those societies in which the principle of the division of labor has been most wisely applied."¹¹⁶ In prehistoric societies, the struggle for existence was brutal. Then the first steps towards division of labor were consolidated through natural selection which favored groups organized in tribes over isolated hunters. Eventually democracy prevailed over tribal despotism, because it represented a greater division of labor:

In the struggle for existence, natural selection consolidated political and civil liberty because only such laws could communicate to peoples the power required to destroy the effect of the various agents of destruction that are opposed to the development of all organisms... natural selection leads to such a grand and fecund result and demonstrates that it is possible to explain human progress—the most important phenomenon in sociology with only the aid of the general laws that govern all beings.¹¹⁷

His thesis that local government represented the segregation of functions must be understood in this biological context: that is, a greater division of labor than that represented by the centralizing Uruguayan government. Acevedo's archly Darwinian dissertation, by the way, was directed by the anti-Darwinian Aréchaga.

Martínez's dissertation on "territorial property" presented a similar type of historical argument viewed phylogenetically. For Martínez

The natural sciences have rehabilitated history. The study of organisms from intrauterine life on, the history of the layers of the earth studied according to their order of appearance, man himself studied from the embryological stage to that of the child, primitive and

¹¹⁵ Jorge Arias, *Consideraciones acerca de la escuela de la evolución* (Montevideo, Universidad Mayor de la República, 1884), a thesis praised by Protestants as "a healthy reaction of enlightened youth against the philosophical modernism that invades everything;" "La tesis del doctor Arias," *El Evangelista*, 7 (1884), 109-110, on p. 109. Manuel Herrera, *La evolución en las ciencias jurídicas* (Montevideo, Universidad Mayor de la República, 1884), a thesis criticized by positivists as "reactionary, an intent to recapture for metaphysics the dominion that the theory of evolution has conquered in the world of ideas;" review in *Revista de la Sociedad Universitaria*, 2 (1884), 329-331, on p. 331. On the theses of Arias and Herrera, see Mañé, *Un siglo del de darwinismo*, pp. 139-141.

¹¹⁶ Eduardo Acevedo, *El gobierno municipal* (Montevideo, 1882), p. 6.

¹¹⁷ *Ibid.*, pp. 9-10.

civilized, illuminated the problems of the origin of species and of man, of his purpose in life, of his social laws and psychic nature.¹¹⁸

Martínez's recapitulationist bias permitted him to identify the property system of present-day Tasmanians (preserved as "lower organisms") with those of our own Stone-Age ancestors.¹¹⁹

Nomadic tribes, he continues, replaced hunters owing to the operation of natural selection. In a more recent period, slavery became a powerful agent of progress, inasmuch as it represented an advance in the division of labor. And so he continued on through successive stages of human history: sedentarization and invention of agriculture, village communities, finally families.

The most active cause of this historical development has been natural selection. As nomads triumphed over hunter hordes, sedentary peoples triumphed over nomads. Sometimes nomads conquered sedentary societies; but besides the fact that this happened when barbarians had acquired the habits of peoples they later conquered, their conquests were destructive whirlwinds, but nothing more than that. They either disappeared or else adopted the customs of the peoples they dominated. By contrast, the conquests of sedentary peoples were permanent, and with them they brought their customs, including the way they appropriated land.¹²⁰

In another essay of the same period, Martínez explores the evolutionary meaning of warfare.¹²¹ The central note is Haeckel's notion that evolution had transformed death into the source of life. Through war, stronger races have replaced weaker ones.¹²² The rigid and brutal legal codes of Antiquity constituted a form of selection: through them, less brutal societies were produced. In our days, however, war has been converted into a cause of retrogression and ruin, inasmuch as, owing to technological innovations, the strong perish along with the weak. Moreover the prosperity of a world empire, like England, came to depend on peace, lest the international market be disturbed. He concludes that industrialism had replaced warfare as the main focus of the struggle for existence: "Our democratic regime is nothing more than the substitution of one form of struggle for another: competition replaces struggle through warfare; debate is the substitute for persecution."¹²³

I have focused on the ideas of Martínez and Acevedo because they were the Uruguayan representatives of classical Social Darwinism. Organic models had become the normal mode of social explanation. Social recapitulationism was widespread, too, as in Carlos María de Pena's Haeckelian pedagogical notions: "The education of the child ought to harmonize, in the manner and order followed, with the education of the human race, viewed historically. The genesis of knowledge in the individual should follow the same path as that of the genesis of knowledge in the race."¹²⁴ There was also, of course, strong dissent in the liberal camp from this kind of reasoning. From the older idealist

¹¹⁸ Martín C. Martínez, "La teoría evolucionista en la propiedad territorial," in his *Estudios Sociológicos* (Montevideo, Colección de Clásicos Uruguayos, 1965), pp. 3-51, on p. 30.

¹¹⁹ *Ibid.*, p. 33.

¹²⁰ *Ibid.*, pp. 45-46.

¹²¹ Martínez, "La concepción contemporánea de la guerra," *Estudios sociológicos*, pp. 80-112.

¹²² *Ibid.*, p. 86.

¹²³ *Ibid.*, pp. 103-104.

¹²⁴ Carlos María de Pena, "Pro Herbert Spencer: Influence en el Uruguay de algunas ideas de Spencer sobre educación," *Anales de Instrucción Primaria*, 1 (1903), 497-507, on p. 499.

point of view, Carlos María Ramírez, after reviewing the cruel markers of Spencer's social vision, had to demur, in a footnote: "Some of these phrases are literal, as incredible though it might seem."¹²⁵

CONCLUSIONS

It seems to me quite clear that the Latin countries present a different pattern in the reception of Darwinism than do those of England and the United States. In the English-speaking countries the crucial variable in the reception of Darwinism in any one locale was the prevailing dynamics of interaction there among the various Protestant denominations. That is, reception was clearly decentralized. In Latin, Catholic countries, however (and here, I mean France, Spain, Italy and all the countries of Latin America) the centralized mode of social control—whether by state or church—would seem to be the principal variable. Inasmuch as the vast majority of population those countries were Catholic, the dynamic of religious differentiation does not attain *per se* (although of course secularization was a key issue). Centralization was crucial, however. The fact that Col. Latorre, the positivist dictator, delivered public education into the hands of an outspoken Darwinian, José Pedro Varela, in large part explains the ease with which Varela put across his positivist educational reforms. Catholic presidents, whether of the parliamentary or the authoritarian variety, had similar successes in opposing Darwin.

Boston University

¹²⁵ Varela and Ramírez, *El destino nacional y la universidad*, I, 42 n. 1.