



Contents lists available at ScienceDirect

Studies in History and Philosophy of Biol & Biomed Sci

journal homepage: www.elsevier.com/locate/shpsc

“How nationality influences Opinion”: Darwinism and palaeontology in France (1859–1914)

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ARTICLE INFO

Keywords:

Félix bernard
 Jacques boucher de perthes
 Marcellin boule
 Georges cuvier
 Cuvierism
 Charles Darwin
 French anti-Darwinism
 Evolutionary laws
 Albert gaudry
 Etienne geoffroy saint-hilaire
 Human evolution
 Jean-baptiste Lamarck
 Lamarckism
 Neo-lamarckism
 Missing links
 XIXth century palaeontology
 Palaeoanthropology
 Phylogenetic trees
 Edouard de saporta

ABSTRACT

This paper discusses the “non-reception” of Darwin's works and concepts in French palaeontology and palaeoanthropology between 1859 and 1914. Indeed, this integration was difficult, biased and belated, for ideological, intellectual and epistemological reasons: Clémence Royer's biased 1862 translation of Darwin's *Origin of Species* pulled its ideas toward “social darwinism”, making them less attractive to the natural sciences. - French nationalism and the authority of religion, which imposed Cuvier's thinking until late into the century - the dominance of Lamarckian and neo-Lamarckian transformism in France, both in biology and in paleontology, which proposed the notion of orthogenetic laws and environmental determinations, and refused darwinian evolutionary mechanisms - obstacles inherent to the application of Darwin's concepts to palaeontology, namely the impossibility to identify evolutionary mechanisms through the fossil record, which was stressed by Darwin himself and underlined in turn by 19th century French palaeontologists.

However, as I argue, in the course of the examined period, French palaeontology grew from refusal to a better understanding and evaluation of Darwin's thinking. The quest for intermediary forms, the construction of branching evolutionary trees and the attempts to reconstruct human biological and cultural evolution were important efforts toward an integration of some aspects of Darwinian views and practices into French palaeontology and palaeoanthropology. The 1947 Paris conference which brought together American Neo-darwinists and French paleontologists made Darwinian concepts better understood and triggered a revival of French palaeontology from the 1960s.

“Le Darwinisme est en mauvaise odeur au Jardin des Plantes”¹ wrote palaeontologist Vladimir Kovalevsky (1842–1883) to Charles Darwin on August 19th, 1871 (DCP, 1871), as he reported about his work at the Paris Muséum of Natural History, where he had come to study fossils under Albert Gaudry's guidance (Kovalevsky, 1873). “The French are dead against You and I must really mitigate my Darwinism not to irritate them,” he added. Indeed, it was not comfortable to be a Darwinian palaeontologist in France in those years. Albert Gaudry had been barred for more than a decade from the chair of Vertebrate paleontology at the Museum of Natural History because of his support to Darwin's thinking. And Darwin's own application to the French Academy of Sciences as a corresponding member was rejected six times before he was eventually elected at the botany section, in 1878.

French anti-Darwinism has been underlined and commented on at length, starting with Darwin himself: “Judging from the rapid spread in all parts of Europe, excepting France, of the belief in the common descent of allied species, I must think that this belief will before long become universal. How strange it is that the country which gave birth to Buffon, the elder Geoffroy & especially to Lamarck sh^d now cling so pertinaciously to the belief that species are immutable creations” he wrote to Gaudry in 1868 [DCP²-LETT-5794]. A long tradition of scholarship has insisted on the difficult, or even non-reception of Darwin's thinking in 19th and part of 20th Century French natural sciences – Yvette Conry's study *L'introduction du Darwinisme en France* stated that “French 19th Century palaeontology missed Darwinism³” (Conry, 1972a,b, 227), Peter Bowler devoted a whole chapter to “French anti-

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¹ “Darwinism is extremely unpopular in the botanic garden”. (The Muséum d'histoire naturelle was in the botanic garden in Paris).

² DCP is for Darwin Correspondence Project.

³ All translations from the French in this text are mine.

<https://doi.org/10.1016/j.shpsc.2017.10.003>

Received 25 April 2017; Received in revised form 10 October 2017; Accepted 11 October 2017

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Darwinism” in his study of *The Eclipse of Darwinism*, concluding that “Darwinism was never eclipsed in France because there was nothing to eclipse in the first place” (Bowler, 1986, p. 117), and in Tom Glick's *Comparative Reception of Darwinism*, Robert Stebbins (Stebbins, 1988, 122) similarly insisted on the fact that “there was no Darwinian revolution in France”, because “the evolutionary plot had already been explored, and driven off the stage in the dramatic encounter of 1830 and subsequent developments”. However, more recent works brought criticisms to these judgments, stressing the importance of Darwin's work for the acceptance of transformism in France (Grimoult, 2000), or providing a more complex and subtle vision, owing both to a finer examination of several French palaeontologists' scientific works and to a reassessment of what can be defined as “Darwinism” and its uses in palaeontology during the 19th Century (Tassy, 2006).

The particular choices and attitudes of French palaeontologists between 1859 and 1914 reveal in fact a varied and complex situation. While some of them held on to Cuvierian fixism until the end of the century and even beyond, others endorsed transformism under the name of Lamarckism or Neo-lamarckism and ignored Darwin's works and concepts. But there were also readings of Darwin's works among palaeontologists and anthropologists, sometimes flawed with errors or misunderstandings, and some of which led to integrating his ideas and methods into their research. In addition, palaeoanthropology emerged and flourished in France as a new field in its own right, allowing the possibility to discuss the application of evolutionary concepts to human evolution.

As I will argue, in the course of the examined period, French palaeontology grew from blunt refusal to a better understanding and evaluation of Darwin's thinking. The quest for intermediary forms, the construction of branching evolutionary trees and the attempts to reconstruct human biological and cultural evolution were important landmarks toward a real, if limited, integration of some aspects of the Darwinian vision and methods into French palaeontology.

1. Nationalism claims and religious frameworks the persistence of Cuvier's authority

“Darwin was the continuator of a grand tradition; he applied his genius to demonstrating a theory that Diderot had presented and announced, and that Lamarck and Geoffroy had developed scientifically. Darwin knew how to make the marvelous discoveries of the savant [Cuvier], who with most ferocity and authority rejected the transformism of Lamarck and of Geoffroy Saint-Hilaire, serve his own argument. In creating palaeontology, Cuvier, the champion of species immutability, furnished valuable arguments to the transformist, Darwin”.

This extract from Darwin's obituary published in 1882 in the *Bulletin de la Société d'Anthropologie de Paris* is a perfect characterization of Darwin's reception in French palaeontology. Through its homage to the great British scientist, it strongly insists on what Darwin owed to French naturalists: not only Lamarck and Geoffroy, but even Cuvier who, although being the strongest opponent to transformism, still provided in his palaeontological works arguments in support to Darwin's transformist doctrine. By claiming Darwin's unavowed heritage, it is clear that the author of his obituary pays indirect homage to the prestigious French school of the natural sciences which flourished during the first third of the century.

France was the cradle of vertebrate paleontology (Rudwick, 1972, 1998) and the place of the invention of its name (Ducrotay de Blainville, 1822). At the turn of the 19th century Cuvier (1769–1832) laid the bases for its foundation, through the definition of its practical methods and theoretical principles (Cohen, 2004; 2011) and the publication of his seminal works (Cuvier, 1812; 1825). Cuvier imposed a fixist and catastrophist framework to French paleontological research (Laurent, 1987), strongly refusing evolutionary interpretations of the succession of forms in the fossil record, and explaining discontinuities between them by immense catastrophes which periodically marked the

history of life and destroyed successive faunas and floras. According to Cuvier, the paleontologist's aim was to identify and reconstruct anatomically extinct beings and to establish their relative antiquity relying on their stratigraphic succession.

Cuvier's intellectual influence extended well beyond his death in 1832, both in the French sciences and in French scientific culture (Cohen, 2002). His scientific authority persisted through the end of the century, and his catastrophism prevailed in France even long after Lyell had strongly asserted actualism as a conceptual foundation for scientific geology in England. The idea of the fixity of species and fauna, of the short duration of Earth history, and the hypotheses of a succession of geological catastrophes, the last of which he identified as the biblical Deluge (Cuvier, 1825), constructed a temporal and conceptual framework which remained acceptable by religion. This certainly was a serious obstacle to the acceptance of Darwinian materialism and evolutionary mechanisms in France while Cuvierism still reigned during the second half of the 19th Century.

Cuvier's disciples, who had by then become academic authorities, continued to argue against transformism until late in the century (Conry, 1972a,b, 195–199). Biological fixism and geological catastrophism long characterized the “official” geology and palaeontology which prevailed in major teaching and academic institutions, and remained the conceptual framework for a number of major scientific elaborations, such as Elie de Beaumont's (1798–1874) theory of mountain formation [Elie de Beaumont 1852], Louis Agassiz' (1807–1873) glacial theory (1840) and classification of species (1869), Alcide d'Orbigny's (1802–1857) paleontological stratigraphy (1849), and even, to some extent, Jacques Boucher de Perthes' (1788–1868) recognition of human antiquity (1857, 1864, Cohen & Hublin, 2017). For many French geologists and paleontologists, the refusal of Darwin's thinking primarily followed their overall rejection of transformism.

Among the reasons for this rejection, xenophobia and nationalism certainly played their parts. French natural sciences had been flourishing and brilliant during the first decades of the century, with the internationally renowned figures of Cuvier (1769–1832), Geoffroy Saint-Hilaire (1772–1844) and Lamarck (1744–1829). During the last decades of the century, French natural history scientific institutions were in decline (Limoges, 1980). In the 1870's, as the Second Empire collapsed, and after the terrible defeat of Sedan and the episode of the Paris Commune, the themes of “decadence” were pervasive in French society. French science tried to argue for its specificity and grandeur against German and English scientific research, and remained committed to its masters of the previous decades. Foreign scientists were considered with suspicion: Darwin was ignored by many French naturalists several decades after the publication of his *Origin of Species*, or viewed as no more than Lamarck's epigone.

Another major reason for the misreading of Darwin's work was the circumstance of its first translation in 1862 (Darwin, 1862).⁴ The French title given by Clemence Royer (1830–1902) to Darwin's book was *De l'origine des espèces ou des lois du progrès des êtres organisés* [*On the origin of species, or the laws of progress of organized beings*]. In this rendition and the accompanying 52 page preface, Darwin's text was skewed to insist upon social “progress” and the necessity of finding its “laws”. “Natural selection” was translated as “élection naturelle”, which distorted Darwin's concept to give it an almost metaphysical meaning. Royer's translation and its preface, which were oriented towards a claim for social progress, contributed in making Darwin's work a basis for

⁴ Getting his work translated into French was a difficult task for Darwin, and the choice of Royer came after several failures. On 30 mars 1860 he wrote to Quatrefages (DCP-LETT-5794) « The Gentleman who wished to translate my “Origin of Species” has failed in getting a publisher: Bailliere, Masson & Hachette all rejected it with contempt. It was foolish & presumptuous in me, hoping to appear in a French dress (...). It is a great loss—I must console myself with the German Edition which Prof. Bronn is bringing out”. After the publication of Royer's work he expressed his disapproval and opposed a second edition.

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