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The true world's first sculptures of antediluvian animals, which never were. . .

Les véritables premières sculptures au monde d'animaux antédiluviens, qui ne furent jamais. . .

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ABSTRACT

In 1852, the French state commissioned the artists Frémiet and Jacquemart to execute bronzes of a plesiosaur and a pterodactyl for the Jardin des Plantes in Paris. The orders were cancelled before the sculptures could be realized, largely because of petty jealousies among the professors of the Muséum national d'Histoire naturelle, who maintained that the long-extinct animals were too poorly understood for accurate reconstructions. In this way an important opportunity to educate and inspire the French public about the life of the past was lost.

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R É S U M É

En 1852, les artistes Frémiet et Jacquemart reçurent une commande de l'état français pour le bronze d'un plésiosaure et celui d'un ptérodactyle, tous deux destinés au Jardin des Plantes. Celle-ci fut cependant annulée avant que les œuvres ne pussent être achevées, en raison d'une rebuffade des professeurs du Muséum national d'Histoire naturelle. Ces derniers alléguèrent que ces animaux des temps reculés étaient trop mal connus pour permettre de telles reconstitutions. Une importante opportunité d'inspiration et d'information du public sur les êtres vivants du passé fut ainsi perdue.

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1. Introduction

Although their original purpose was educational, the sculptures by B. Hawkins that have been braving the weather and drawing the gaze of the strollers for more than a century and half at Sydenham are works of art

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in their own right. Since their inauguration, they have been widely considered the first attempt to create three-dimensional restorations of long-extinct vertebrates (see e.g., MacDermott (1854), pp. 185–186, McCarthy and Gilbert (1994)).

This view is challenged by a forgotten episode that took place in continental Europe, in the very place that saw the birth of palaeontology as a rigorous science: the Muséum national d'Histoire naturelle in Paris. Unfortunately, this institution failed to seize the opportunity to be at the vanguard of sculptural restorations of the outlandish creatures of deep time.

Location of the unpublished documents cited: AN, Centre d'Accueil et de Recherche des Archives nationales, Paris; AM, Bibliothèque centrale du Muséum national d'Histoire naturelle, Paris.

2. Order

On June 3rd, 1852, A. Romieu, the freshly nominated director of the Fine Arts in the Ministry of the Interior during the transition period between the Second Republic and the Second Empire, sent a letter to the sculptor E. Frémiet (b. 1824, Paris-d. 1910, Paris) (Fig. 1). In it, he announced that the Minister of the Interior (V. Fialin de Persigny) approved this very day his proposal to commission the artist with the execution of a bronze representing a plesiosaur. Romieu added that the remuneration would amount to 5000F, that the sculpture would have to be 10 feet in dimension (more than 3 m) and that it was destined to decorate the Jardin des Plantes in Paris.

On June 26th, 1852, Romieu sent another letter to the sculptor H.-A. Jacquemart (b. 1824, Paris-d. 1896, Paris) to notify him that, at his proposal, the Minister by decree of June 22th (Fig. 2) gave the artist the responsibility of carrying out a bronze portraying a pterodactyl. He added that the remuneration would be of 7000 F, that the artwork would be intended for the Jardin des Plantes and that the sketch was to be submitted to him.

3. Reaction

On June 28th, 1852, Romieu wrote to the trustees of the Muséum national d'Histoire naturelle to inform them about the two bronzes that would be placed in the Jardin des Plantes. Romieu added that these artworks would be paid for by the Ministry (AN F/21/88 (dossier 24), AM 5 (chemise 11)).

The issue was dealt with as the 11th point examined at the meeting of the professors of the Muséum national d'Histoire naturelle that was held the following day. The learned assembly was composed of C. Duméril, M.-E. Chevreul, G.-L. Duvernoy, L. Cordier, A.-C. Becquerel, A. Serres, A. de Jussieu, H. Milne Edwards, A. Valenciennes, E. Fremy, A. Brongniart, P. Flourens and J. Decaisne. The minutes of the gathering (AM 5 (chemise 11), AM 55) indicates that the group of distinguished savants begged the director of the Muséum, Duméril, to see Romieu so as to inform him that science did not possess any data on the external characters of the pterodactyl and the plesiosaur, and that fantastic animals could result from their

realization in sculpture. It must be emphasised that normally the Muséum communicated with the director of the Fine Arts by mail: the meeting of Duméril with Romieu, which sounded the death knell of the project, was not commonplace.

The minutes do not name the opponent(s) to the artistic project of Romieu. Yet, of all the professors present that day only Duméril, Duvernoy and Cordier may have had an influence on this issue because they were experts in the zoology of lower vertebrates, comparative anatomy and geology, respectively. The record suggests that Duméril was not among the outraged professors. As for Cordier, he showed very limited interest in palaeontology. In contrast, Duvernoy paid steady attention to this discipline (see e.g., Focillon (1855)). As a successor of H.-M. Ducrotay de Blainville (himself G. Cuvier's chair heir) and before the creation of a chair of palaeontology at the Muséum, Duvernoy was actually seen as the one with an enlightened opinion on every topic related to extinct vertebrates. This is supported by Bartlett (1891a) (p. 173) charging "the professor of paleontology at the Jardin des Plantes" with this affair. We suggest, therefore, that Duvernoy was probably the most virulent adversary to Romieu's order.

4. Journalistic coverage

Although it was a short-lived project, Romieu's idea spread in the press. According to an article published in the June issue of the *Revue et Magasin de Zoologie pure et appliquée* edited by the entomologist F.-E. Guérin-Méneville (Anon, 1852a), Romieu planned to order sculptural restorations of most large fossil animals known at the time. The author of the paper (most probably Guérin-Méneville himself) also indicated that the plesiosaur and the pterodactyl were in the process of being executed. It should be emphasised that, in contrast with the timorous professors of the Muséum, he was most enthusiastic about Romieu's initiative because of its potential for popularizing palaeontology.

The issue was also picked up by the newspapers. For example, *La Presse* (one of the foremost journals of the time in France) announced on July 2nd (Anon, 1852b [and republished in *La Lumière* of July 31st (Anon, 1852c)]) that Frémiet was commissioned to execute the "*Plesiosaurus doctyclodarius*" (sic, in fact *Plesiosaurus dolichodeirus*) and Jacquemart the "*Pteradactylus crastirostris*" (sic, actually *Pterodactylus crassirostris*). The author added that these were two of the antediluvian animals with colossal proportions found and described by Cuvier. In fact, the latter was not involved in the original description of either of these species, let alone their discovery. Nevertheless, the mention of these taxa is interesting as it provides a clue as to how the statues of Frémiet and Jacquemart might have looked had they had the chance to complete them (Fig. 3).

In a way, the most interesting press coverage of the project is found in the famous satirical newspaper *Le Charivari*. It began on June 30th with a piece that recalls the concern of the professors of the Muséum (Huart, 1852). It evoked the supposed quandary in which Frémiet and Jacquemart found themselves on the brink of beginning their sculptures. The humorous author pointed out that

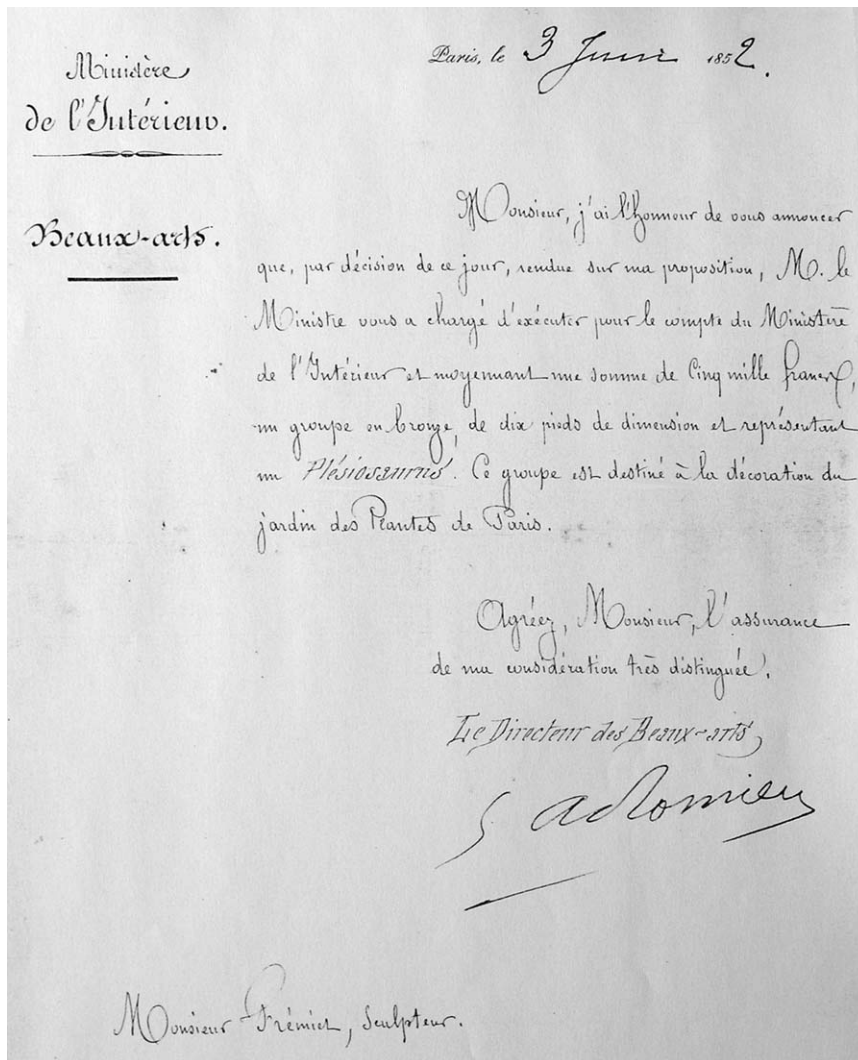


Fig. 1. Letter informing Frémiet of his commission to make a bronze of *Plesiosaurus* (after a copy kept in the Musée d'Orsay; the original is supposed to be in the Bibliothèque nationale de France, but was not located).

Fig. 1. Lettre informant Frémiet de la commande d'un bronze de *Plesiosaurus*.

these artists had nothing on which to base their work, but Cuvier's opinion, according to which the *Plesiosaurus* was a sort of lizard of colossal proportions with the neck of a swan, while the *Pterodactylus* was a bat of immense size with the head of a crocodile. The second article (Caraguel, 1852a), published the following day, took up the idea of the impossibility of sculpting a long-extinct being. The third (Delord, 1852), published a day later, adopted a more political tone by taking advantage of the episode to attack T. Delamarre, the director of the Bonapartist journal *La Patrie*, and the priest J. Gaume, the author of *Le Ver rongeur des Sociétés modernes* (Gaume, 1851). The latter, which was published just one year earlier, denounced the weight given to pagan authors in the education of youth. Later in the same month, a fanciful inauguration of Frémiet's *Plesiosaurus* was imagined in another article (Caraguel, 1852b), at the end of which the savants of the Jardin des Plantes vetoed the sculpture that overstepped the mark

into hideousness and extravagance. Ten days earlier, the famous caricaturist A. de Noé, aka Cham (1852), had published a series of vignettes on the embellishments of Paris (the title referred to the beginning of the renovation programme of Paris commissioned by Louis-Napoléon), two of which drawings were dedicated to the artistic plesiosaur-and pterosaur-to-be (Fig. 4).

These are among the first representations of Mesozoic reptiles captured in caricatures. Whereas geologist H. De la Beche's famous cartoon "Awful Changes" dates back to 1830 (Rudwick (1992), p. 49, p. 264; see also Rudwick (1975)), it was not widely diffused until much later (Buckland (1857), frontispiece). Another early drawing, "Sawrian" by the poet T. Hood (1836) (pre p. 113), merely alluded to Mesozoic reptiles through the animalized saws it showed. Interestingly, there is a remarkable analogy between Cham's two drawings and one by J. Leech (1855) on the impact of the Crystal Palace antediluvians

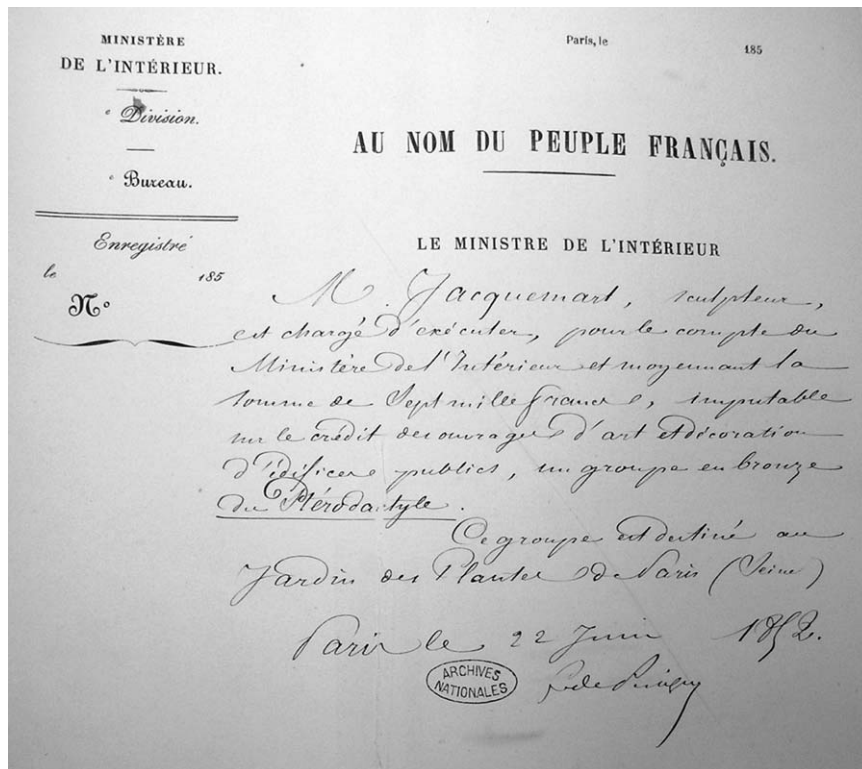


Fig. 2. Ministerial order putting Jacquemart in charge of executing a bronze of a pterodactyl (AN F/21/88 (dossier 24)).

Fig. 2. Arrêté ministériel chargeant Jacquemart d'exécuter un bronze de ptérodactyle (AN F/21/88 (dossier 24)).

on some of the park visitors, which was published some years later in *Punch* (the famous London humour magazine inspired by *Le Charivari*). In the latter the awe-struck onlooker is a little boy and in the former it is a cleaning lady. This attests to the truly horrifying impression these relatively “new” animals could spark in the mid-19th century (an emotion hardly conceivable now that these creatures are so familiar). But in Cham’s and Leech’s cartoons, there are also a gentleman and a tutor who show absolutely no fear whatsoever of the nearby monster(s), as if the terror inspired by the terrestrial and marine Mesozoic reptiles was intimately related to the lack of social development of those who suffered from it (whether due to their lower class condition or their age).

5. Aftermath

In a letter dated July 5th 1854 (AN F/21/81 (dossier 22)), Frémiet wrote that the plesiosaur (he actually meant the clay model of it) was 10 feet high and that it had to be destroyed due to a cause beyond his control when it was seen entirely completed by the director of the Fine Arts. Details about the true origin of the *Plesiosaurus* project were provided by the American sculptor T. Bartlett (1891a) (p. 173), who had lived in Europe and interviewed Frémiet. It appears that this idea came up at some point in a conversation between Frémiet and C. Blanc during his first term of office as director of the Fine Arts (1848–1850). Although we have no proof, it is probable that the subject of ante-

diluvian animals was introduced by Frémiet, rather than by Blanc, because he had become well acquainted with the Muséum through his early professional activity (see e.g., Thiébauld-Sisson (1896a)) and showed keen interest in prehistoric themes ever since (see e.g., Thiébauld-Sisson (1896b)). Yet, Bartlett (1891a) (p. 173) indicated that the idea of making a *Plesiosaurus* was due to Blanc. This credit was willingly conceded by Frémiet in some of his letters to Blanc (AN F/21/494 (document 48), AN F/21/572 (letter of October 12th 1871)). In one, Frémiet mentioned that Blanc had begun to make him execute an antediluvian animal in 1849 before this was stopped by “scientific timidities” (AN F/21/572 (letter of October 12th 1871)). The date is obviously in error and it is possible that Frémiet credited Blanc with the idea as an incentive to finally have this command executed. It is indeed difficult to envision that by the late 1840s the idea of sculpting ancient animals had never crossed Frémiet’s mind (in a reply to the artist, Blanc mentioned incidentally the antediluvians as Frémiet’s plan; AN F/21/494 (document 47)).

6. Discussion

Frémiet, by declining the indemnities offered for the cancellation of the plesiosaur (which was done before he even received down payment), prompted the order of a bronze percheron for the veterinary school of Alfort as a replacement (decree of July 30th 1852, letter to Frémiet dated August 3rd; AN F/21/81 (dossier 22)). This



Fig. 3. Imaginary view of the sculptures that Frémiet and Jacquemart could have executed. Almost no data is available on how the statues by Frémiet and Jacquemart would have looked except for the fact that, according to Bartlett (1891a) (p. 173), Frémiet's *Plesiosaurus* was depicted as choking in the attempt to swallow a fish. Romieu did not even indicate which species had to be figured by the sculptors. Pterosaurs and plesiosaurs were only known in a limited way at that time and the genera Romieu wanted to be sculpted were quite "waste-basket taxa" (see a list of the species of *Plesiosaurus* and *Pterodactylus* accepted in those days in Pictet (1853), pp. 535–537, pp. 525–527). However, two species were mentioned in contemporaneous newspapers: *Plesiosaurus dolichodeirus* and "*Pterodactylus*" *crassirostris* (now in the genus *Scaphognathus*). We think that it is probably not casual that these species were the only ones of their genera that were figured in the reference book the Parisian sculptors most likely would have looked into in 1852: the massive *Cours élémentaire de Paléontologie et de Géologie stratigraphiques* of the naturalist A. d'Orbigny (1849, 1852). The copper engravings in question were modifications by E. Salle of reconstructions originally published by the geologist W. Conybeare (1824) (pl. 49 fig. 1) and the palaeontologist A. Goldfuss (1831) (pl. 9 fig. 1). For a sense of what was missed with the cancellation of the project, we offer this creative retouching (Frémiet and Jacquemart were accomplished artists and doubtless would have produced more outstanding achievements than what is shown here). We freely took inspiration from the silhouettes of *Plesiosaurus dolichodeirus* and "*Pterodactylus*" *crassirostris* in d'Orbigny (1849) (fig. 8, fig. 21, fig. 106, fig. 107), (1852) (fig. 418, fig. 455), as possibly did Frémiet and Jacquemart. At least until invalidation by palaeontologist S. Williston (1914) (p. 91), *Plesiosaurus* was usually depicted in life restorations with a neck alike that of a swan. This directly originated in a suggestion raised by Conybeare (1824) (p. 389). In the scene presented here (which is modified after a steel engraving by C. Jacque (in Bernard et al. (1842), post. p. 70), the statues are situated on the margin of the ancient reservoir, where two Jacquemart's lions now stand. **Fig. 3.** Vue imaginaire des sculptures que Frémiet et Jacquemart auraient pu exécuter.

resulted in a magnificent work (Bodin, 2003). In addition, a bronze group representing a fight between an elephant and a rhinoceros was ordered from Jacquemart for the Jardin des Plantes by the Ministry of the Interior as a substitute for the pterodactyl (decree of August 9th 1852, letter to the artist dated August 10th; AN F/21/88 (dossier 24)). This commission (which may have been subsequently considered to represent too romantic a drama) mysteriously led to the lion sniffing a cadaver that is visible today in the Jardin des Plantes near the entrance at the intersection of the rue Geoffroy Saint-Hilaire with the rue Cuvier. This work is stunning too and was not too badly received by the harsh 19th critics (see e.g., Jouve (1855), pp. 614–615, Gautier (1856), p. 183). So, one might think that art did not lose that much eventually from the waste of Frémiet's and Jacquemart's efforts with the antediluvians. Yet, this is not so for French science, which saw a delay for several decades of three-dimensional restorations of Mesozoic reptiles. Frémiet did not know the good fortune that Hawkins enjoyed shortly later, thanks to the vision of the architect J. Paxton and the attention of the anatomist R. Owen.

The reluctance of the first palaeontologists and geologists to create and even to be associated with restoration of antediluvian forms of life and their reasons thereof have been detailed by science historian M. Rudwick (1992). They remained in effect well past the mid-19th century, when these restorations had become routine in popular publications. When the construction of the Crystal Palace geological display was decided (which was, oddly enough, shortly after the French episode, on August 10th 1852), the palaeontologist G. Mantell had first been elected to superintend it (see Dell (1983), p. 90; see also Torrens (1997), pp. 186–187, Dean (1999), pp. 260–261). He, however, much like his Parisian colleague(s), appears to have considered this project as rather unscientific and declined the honour to take any part in it. As late as 1875, the palaeontologist O. Marsh wrote "A few years hence we shall certainly have the material for some good restorations of our wonderful extinct animals, but the time is not yet" (Schuchert and LeVene, 1940) (p. 295). Although Owen was quite conformist in his technical publications aimed at fellow savants, his involvement in the realization of the Crystal Palace Park in Sydenham and the decoration of the British Museum (Natural History) later in Kensington suggest he was supportive of these "restitutions" (see Owen (1854); Owen (1881), p. 424; see also Hawkins (1854), p. 447, Cunningham (2001), pp. 52–53, pp. 58–60). But, he was actually rather ambivalent about such displays, as underscored by science historian J. Secord (2004) (pp. 156–157). Admittedly, a number of scientists, such as palaeontologist E. Cope, in USA, and geologist O. Fraas, in Württemberg, were probably more unequivocally enthusiastic about all kinds of restorations of extinct animals (see e.g., Davidson (1997), Allmon (2006), Nyhart (2009)). However, it was not until the sunset of the 19th century that a respected palaeontologist dared loudly and clearly to proclaim that the restorations of fossil vertebrates, including three-dimensional ones, were worth the effort (see Osborn (1898)). Plesiosaurs and pterosaurs became out-



Fig. 4. Cartoons by Cham (1852) of Frémiet's plesiosaur and Jacquemart's pterosaur. The cacography "drolichoderius" (instead of *dolichodeirus*) is based on the French word *drôle* (which gave *droll* in English). It is obvious that Cham had no idea how these animals looked like and that he did not bother to inform himself about. He drew the plesiosaur with a swan neck and a lizard body and the pterosaur with a crocodile head and bat wings, just as they had been portrayed in *Le Charivari* shortly earlier (Caraguel, 1852a; Delord, 1852; Huart, 1852).

Fig. 4. Caricatures du plésiosaure de Frémiet et du ptérosaure de Jacquemart par Cham (1852).

standing protagonists of the Crystal Palace Park. Indeed, three examples of plesiosaurs representing as many different species (including *Plesiosaurus dolichodeirus*) were made by Hawkins while four individuals of pterodactyls (but not any "*Pterodactylus*" crassirostris) were also put on display (Owen, 1854; McCarthy and Gilbert, 1994). Small models from these works sold later as spin-offs (see e.g., Tennant (1858), Ward (1866), pp. 80–81) included both plesiosaurs (a group of two – one of them *P. dolichodeirus* – together with an *Ichthyosaurus*) and a pterosaur. However, apart from the Crystal Palace Park and its tie-in products, plesiosaurs and pterodactyls were very seldom displayed in three dimensions during the remaining part of the 19th century (whether for educational or purely artistic purposes). Without intending to be exhaustive, a restoration of *P. dolichodeirus* was initially on show in the Königsbau in Stuttgart (1865) (Anon, 1865). It is possibly a copy of this that was on display at the California Academy of Sciences in San Francisco toward the end of the century (Holder, 1893) (p. 241). Both the pterodactyl and the plesiosaur figured among the creatures that have decorated from 1883 for some time the Trocadéro waterfall in Paris (Thiébaud-Sisson, 1896b). We can also mention the presence of pterosaurs as architectural ornaments in the Natural History Museum in London (1881) and in the former Facultades de Medicina y Ciencias in Saragossa (1893) (Knoll and López-Antoñanzas, 2010).

Art historian L. Baridon (2008) (p. [62]) recently suggested that the project of restitution of a plesiosaur was rejected by savants because of a fear of too much realism. The archives mentioned above are evidence that it was rather the other way around. According to Bartlett

(1891a) (p. 173), the only reason why the project did not grow beyond the stage of the clay model was entirely due to one professor of the Muséum. He stated that the latter was both irritated because he had not been consulted previously and resentful of an ignorant initiative that, he thought, trespassed on his territory. But, he also confirmed that the rushed complaint at the Fine Arts direction was done under the pretext that it was impossible to verify the scientific accuracy of the artwork that would be produced (see also Bartlett (1891b), p. 24).

The irritation of the professors of the Muséum is probable because they did not even suggest changing the taxa to be sculpted by better known or, better said, less bizarre, extinct species. By the mid-19th century a good deal of data had been gathered, for instance, on the woolly mammoth (*Mammuthus primigenius*) and even the woolly rhinoceros (*Coelodonta antiquitatis*) (see e.g., Tolmachoff (1929)). The professors of the museum had access to the abundant literature on these mammals. With a rational methodology and only a little risk-taking, they could have easily helped Frémiet and Jacquemart to produce fairly reasonable (from a scientific viewpoint) three-dimensional restitutions. As early as 1836, the collaboration, right in Paris, of the naturalist P. Boitard and the draughtsman T. Susemihl resulted in the publications of pretty remarkable wood engraving restitutions of a variety of fossil reptiles and mammals (including pterosaurs, a plesiosaur, a mammoth and a rhinoceros). The latter, although showing inevitable mistakes, would be considered convincing enough throughout the rest of the 19th century (including by "serious" authors; see e.g., Contejean (1874), Fig. 347, Fig. 464) to be reproduced a number of times and

become a source of inspiration for artists (Boitard, 1836). Indeed, the impressive cover pterosaur would eventually even be sculpted (Knoll and López-Antoñanzas, 2010). Because there were such precedents, one cannot help but thinking that the professors snubbed their supervisory ministry owing more to an intense haughtiness they developed toward people thought to be trespassing on their domain than an exaggerated prudence about scientific accuracy.

Strangely enough, *Scaphognathus crassirostris* is one of the very few (together with another pterosaur) species whose restoration was presented by the palaeontologist A. Gaudry (1890) (fig. 343) in his *Enchaînements du Monde animal*. This modest work by the draughtsman H. Formant was even used on the cover of the opus. Sadly, no such effort was translated into sculptural form on Gaudry's magnificent inheritance to the Jardin des Plantes that is the building of the *Galerie de Paléontologie et d'Anatomie comparée*, inaugurated in 1898. Its façade is rich in representations of animals (especially mammals), but no large, spectacular, extinct Mesozoic reptiles or Cenozoic mammals are displayed thereon. As for antediluvians, one had still to content oneself with a few, discrete, fossil invertebrates and panchronic vertebrates.

7. Conclusion

In 1852, orders were passed to the sculptors Frémiet and Jacquemart to execute bronzes of a plesiosaur and a pterosaur, respectively. This was, however, soon cancelled due to the opposition to the idea from the professors (probably Duvernoy above all) of the Muséum national d'Histoire naturelle, to whose garden the oeuvres were destined. Nevertheless, at least the clay model of the plesiosaur was already made at that time. This sculpture that Frémiet had to destroy and of which nothing has survived was probably the first in the world representing a Mesozoic creature.

One cannot but deeply deplore that artists were not given the chance to recreate their antediluvians because of the personalities of men of science who were supposed to be among the most brilliant of their time. Their judgement did not match Frémiet's and Jacquemart's artistry. This is all the more regrettable because, not to belittle Hawkins, there is a world of difference between his talent and that of a Frémiet, which was comparable with A.-L. Barye's. Marvelling at both the real and monstrous animals Frémiet and Jacquemart realized during their careers (see, for instance, the elephant and rhinoceros in the forecourt of the Musée d'Orsay, the chimeras of the Château de Pierrefonds and the lion-dragons of the Fontaine Saint-Michel in Paris), one can picture how wonderfully these sculptors would have breathed life into their plesiosaur and pterosaur.

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