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Nicola Descalzi and South American fossil mammals: a transatlantic history connecting Buenos Aires, London, and Mineralogical Museum of Turin University

ABSTRACT

Early in the 1850s, the Mineralogical Museum of Turin University received two shipments from Buenos Aires, which contained some of the first specimens of megatheres and glyptodonts to be mounted and displayed in Europe. The first part of this article, which is based on archival research as well as on secondary sources, refers to the actors connected with the exhumation of the skeletons, in particular to the Genoese Nicola Descalzi (1801-1857) and the Neapolitan Pietro de Angelis (1784-1859). Since the1820s they had both lived in Buenos Aires, where they tried to become providers of data, maps, artefacts, and museum specimens for European collectors and collections. Descalzi exhumed and arranged the bones of an extinct mammal that he called *Mulita elefantina*, the specimen that arrived in Turin in 1852 and on which, in 1839, Richard Owen had created the new genus *Glyptodon* after a sketch and a tooth sent from Buenos Aires. The second part of the paper, by referring to the debates about the anatomy and mode of life of the South American megafauna, discusses how Eugenio Sismonda, in charge of Turin's mineralogical collections, reflected those debates in the process of mounting the *Megatherium* skeleton, an arrangement that was later lost with the bombing of the museum during the Second World War. This paper discusses the role of the Turin glyptodont specimen in the comparative anatomy of those years, showing events that co-occurred in various parts of the world.

Keywords: Pietro de Angelis, Nicola Descalzi, *Glyptodon*, *Megatherium*, Henri Picolet d'Hermillon, Eugenio Sismonda.

INTRODUCTION

On Monday, 24th November 1851, the *Gazzetta Piemontese, Giornale Ufficiale del Regno*, published the report of Eugenio Sismonda (1815-1870) on the new gifts received at the Mineralogical Museum of Torino[2], the capital of the Kingdom of Sardinia-Piedmont. Sismonda, who devoted his research to fossil invertebrates, had been a professor of mineralogy at the local University since 1848. From the early 1840s, he had been in charge of the museum collections, directed by his brother, the geologist Angelo Sismonda (1807-1878), both active figures in Piedmont's academic scene.

* Archivo Histórico del Museo de La Plata/CONICET, La Plata.

[2]The collections of Mineralogical Museum are now hosted and managed by Museo Regionale di Scienze Naturali in Torino.

In that occasion, Eugenio Sismonda (1851) reported on a series of bones donated to the Turin Museum by the Savoyard Baron Henri Claude Louis Picolet d'Hermillon (1797-1864), former general consul in Buenos Aires (1835-1848) and, by then, general minister of the Kingdom of Sardinia at the Brazilian Court in Rio de Janeiro (Avetta, 1935; Chiaramonte 1991; Halperin Donghi, 1954). The bones belonged to two fossil mammal genera endemic to the Americas, firstly *Megatherium*, established by the French anatomist Georges Cuvier in 1796, and secondly to a giant cingulate, presumably *Glyptodon*, first described by the British anatomist Richard Owen in 1839.

In November 1851, Eugenio Sismonda reported that, while *Glyptodon* was still on its way to Turin, *Megatherium* was already at the museum laboratory, where it "*awaits the work of an expert hand that will restore it and repair the inevitabile damage caused by fossilisation itself, as well as the crossing of the very long stretch of sea and land that separates the place where it has lain buried for centuries and centuriesto the place where it will, so to say, rise to new life*." (Sismonda, 1851). Sismonda and his colleagues prepared the two skeletons, presenting *Megatherium* in 1852 and *Glyptodon* in 1853 (AAVV, 1872, 65), which, together with the nearly complete skeleton of *Mastodon*[1] found during the construction of the railroad from Turin to Genova (Sismonda, 1850), became the stars of the Turin fossil mammal galleries. Even though Sismonda never wrote a scientific report on the South American fossil specimens, he used them to illustrate the section devoted to the Pliocene fossils (*Fossili del terreno pliocenico*) in his work *Elementi di storia naturale generale*, published in Turin in 1853. In that work they represented examples of the giant mammals from that geological epoch. According to Sismonda, "the Museum of Turin possesses the most complete skeleton (of *Megatherium*) that has been discovered so far" (Sismonda, 1853, p. 133, my translation), the same argument he used when he announced the discovery of *Mastodon* (Sismonda, 1850).

This admiration for the completeness and mightiness of the Turin skeletons was alive for many decades. Thus, in 1874, the guides of Turin, describing the Museum located in the Palazzo Carignano, remarked that on the last floor of the palace*:* "Notable among the exotic fossils are a *Glyptodon* and a *Megatherium* from the Rio de la Plata, which are admired by naturalists and the general public alike" (Anonymous, 1874, p. 24, my translation). Sadly, in today's Museo Regionale di Scienze Naturali in Turin, whilst the shell of *Glyptodon* is in good shape *Megatherium*, as a result of WWII bombing and later reforms of the halls, is dismounted and many pieces of the original arrangement are missing[2]. In that sense, this article, which combines archival research with secondary

[1] Today the term *Mastodon* is only used for North American proboscideans. In general, gomphotheres in the Pleistocene of Europe are now included in the genera *Deinotherium* or *Anancus* (this latter is most probably the material found in this area). *Mastodon* is no longer considered as a valid name for the European gomphotheres.

[2] In the storage rooms of the fossil vertebrate collections from the Museo Regionale di Scienze Naturali, the bones of *Megatherium* and *Glyptodon* are listed as "Coll. 103. Resti di mammiferi provenienti dal Sud America" [Coll. 103. Remains of mammals coming from South America]. This collection includes*:* PU 15125 and PU 15123 "Gliptodonte, località ignota, donazione Descalzi" [Glyptodont, unknown locality, Descalzi donation] and PU 15124 "fragmento caudale terminale di Gliptodonte" [terminal caudal fragment of Glyptodont], shown in the exhibition in Rome entitled "Darwin 1809-2009" (Eldredge, 2009). Other skeletal parts of glyptodont are listed as "*Glyptodon clavipes* radio destro", "femore con rotula", as "bones remaining from the preparation of glyptodont" and "teeth of the depicted glyptodont". In one of the drawers, there are several fragments of the shell

sources, is an attempt to restore, if not their lost bones, the role of the Turin specimens in mid-nineteenth-century comparative anatomy, showing and connecting the historical developments that took place in various parts of the world. In particular, it refers to the Genoese Nicola Descalzi (1801-1857) and the Neapolitan Pietro de Angelis (1784-1859), who both settled in Buenos Aires in the 1820s as providers of data, maps and museum specimens for European collectors and collections.

Sismonda, while acknowledging the circumstances that mediated between the death of an animal, the deposition of its remains and the exhibition of a fossil skeleton, made no specific references to those who were involved in its recovery ex humation or when and how it happened. The bones had been excavated in 1838 near Buenos Aires, 13 years before their arrival in Turin. At that time, the genus *Glyptodon* had not yet been formally described and the possibility of *Megatherium*'s armoured nature was under discussion (Podgorny, 2001, 2007, 2013). Thus, the actual exhumation of the skeletons in 1838 and their arrival in the Turin Museum in 1851-1852 happened in two different contexts in the history of the comparative anatomy of mammals. Those years are characterised by, among other things, the definition of a new genus based initially only on a tooth and sketch from the 1838 excavations, so that the full skeleton arrived in Turin already known as the "new" species *Glyptodon clavipes*.

BUENOS AIRES, 1838

In the year 1838, the Neapolitan polymath Pietro de Angelis sent a short note to the Argentinean surveyor and writer Juan María Gutiérrez (1809-1878), an employee of the Topographic Department of the Province of Buenos Aires that was established after the May Revolution of 1810[3]. de Angelis, former tutor of King Murat's sons and follower of Vico's new science, had arrived in Buenos Aires from Paris in 1827, hired by an administration that, upon his arrival, had ceased to exist (Sabor, 1995). Unemployed, de Angelis would survive as a journalist, typographer, educator, propagandist, and archivist to Juan Manuel de Rosas (1793-1877), who was in the Buenos Aires governor's office until 1852. Gutiérrez, de Angelis' correspondent, was a founding member of the short-lived Salón Literario established in Buenos Aires in May 1837 (Weinberg, 1958), a space frequented by university students, writers, and thinkers, including de Angelis and the Argentinian poet Esteban Echeverría (1805-1851).

de Angelis was an avid reader of European scientific novelties, very well aware of the demand for colonial manuscripts, natural history specimens, and giant fossil skeletons. By 1838, De Angelis had already begun to publish his "Recopilación de leyes y decretos promulgados en Buenos Aires" and his "Colección de Obras y Documentos relativos a la Historia Antigua y Moderna de las Provincias del Río de la Plata", compiling unpublished official reports and maps found in the old colonial repositories but also in the homes of

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as well as non-identified fragments, PU 15119.*1* is used for the jaw and maxillary of *Megatherium americanum* Cuvier with indications of "località ignota, mascella; es. Donazione De Scalzi; stesso individuo di 15119.2 mandibula" [unknown locality, maxilla, ex. De Scalzi's donation; same individual of 15119.2 mandibula]. Some of the bones still have their old labels, however they are almost illegible.

[3] de Angelis to Gutiérrez, 1838, Fondo Casavalle, Archivo General de la Nación (AGN), Buenos Aires.

former Spanish officers. Maps and documents produced during the late Spanish administration were of great value not only for the local government - as the creation of the Topographic department testifies - but also for the foreign commercial powers (France, Great Britain, the US, the Kingdom of Sardinia and the Brazilian Empire) interested in the land and navigation routes that connected the inland with the ports of Buenos Aires and Montevideo. de Angelis, as a collector of Spanish manuscripts, was in contact with the consuls arriving in Buenos Aires after independence, key figures in acquiring data and specimens for museum and university collections in their respective countries. The consuls, for their part, relied upon their co-nationals living in South America and on the trade in favours, rewards, and monetary compensation that they distributed according to their interests. The consuls constructed chains of information and networks of providers where objects, data, and natural specimens circulated through people who spoke the same language and shared similar cultural codes. Thus, the British, the French, and the Sardinian consular agents tended to work with people from their communities settled in Rio de la Plata under their homeland's protection and/or obligation.

The British Consulate in Buenos Aires opened for business in 1824 with the arrival of the consul Woodbine Parish (1796-1882) and Charles Griffiths (1790-1850), the vice-consul, the former staying in Buenos Aires until 1846. The Sardinian Consulate opened ten years later with the arrival of Henri Picolet d'Hermillon, who lasted 12 years in Buenos Aires (Halperin Donghi, 1954). While Picolet sent fossil skeletons to Turin only in 1851, by 1832 Parish had already sent to England a collection made in the countryside (Podgorny, 2007).

In the bill to Gutiérrez, de Angelis referred to some of the manuscripts he wanted to access or publish in his upcoming work. He also mentioned the help of Echeverría and the Genoese pilot Nicola Descalzi, who had been the astronomer of the expedition to the Río Negro in the campaign against the Indians organised by Juan Manuel de Rosas in 1833 (see the Annex with the Necrology of Descalzi attributed to the Sardinian diplomat and politician Massimo Cerruti published in the *Gazzetta Piemontese*; on Descalzi see also Fernández Arlaud, 1976 and García & Podgorny, 2013). As for Descalzi, de Angelis told Gutiérrez that he had spoken with him the day before about a copy of the map of Uruguay that they both wished to study. Descalzi would lend it on his return from his journey to exhume bones in the countryside, the beginning of the story of the Turin skeletons but also a central event in the creation of the genus *Glyptodon*. De Angelis, before closing his letter, quoted a version of Echeverría's poem "*La Cautiva":*

como me parece que dice el Sr. Echeveria
..., mirando
El hondo cauce anchuroso
De un arroyo que copioso
Entre la paja corria
Se volvió atrás, exclamando,
Arrobado de alegría:
Alli en la orilla verdosa,
el inmoble cuerpo posa[4]

[4] The original by Echeverría is as follows*: "...y mirando el hondo cauce anchuroso de un arroyo que copioso entre la paja corría, se volvió atrás, exclamando arrobada de alegría: -¡Gracias te doy, Dios Supremo! Brian se salva, nada temo. Pronto llega al alto nido donde yace su querido, sobre sus*

It was a slightly modified excerpt from "El Pajonal", the fifth part of "La cautiva" ("The Captive"), a poem included in Echeverría's *Rimas* published in 1837 that narrates the story of a couple, María and Brian, abducted by the natives. In that particular scene of the poem, Maria and Brian are sheltered from the summer heat by the pampas' grasslands while other animals die from the drought. Maria, however, can find water and thus save her and her husband, whose body lies in agony on the banks of the creek.

de Angelis -who was a "bromista y decidor de chistes" ("a prankster and teller of jokes", Echeverría, 1873) - in his transcription cut the lines about the discovery of water to focus on the happiness created by the mere presence of the immutable corpse. By changing just one letter ("arrobada, which refers to Maria" for "arrobado", which refers to a man), Maria's happiness is replaced by Descalzi, happy to have found a dead body. He was mocking the Genoese who, in those weeks, was surveying the properties of the French landowner Frederique Massot (dates unknown) and the English rural store manager Hannah Byrne/Ana Birne (Cuneo, 1940, however, refers to "the Irish Anna Bruse"), an opportunity he took to seek for fossil skeletons. At the end of the bill, de Angelis' sense of humour turns into a more sombretone*:* "I will never have that fortune" ("Yo nunca tendré tanta dicha").

The Argentine historian Josefa Sabor (1995) stated that Descalzi was commissioned by de Angelis, which would have meant that he introduced Descalzi to the fossil business. However, in 1838 the sharp-tongued de Angelis considered Descalzi the "greatest slanderer of Buenos Aires"[5]. Given the quarrelsome character of the Genoese pilot – who was involved in several court cases- and de Angelis' poor temper, it is not surprising that this partnership was short-lived and that Descalzi offered the bones to others. Finally, de Angelis entrusted the search of bones to others. But why is the finding of bones associated with happiness and fortune? Why were Descalzi and de Angelis involved in these endeavours? Fossil bones from South America were much wanted*:* dealing with old bones was one of the resources they used to obtain the money that would allow them to come back to Europe or negotiate favours to live better in the Americas (Podgorny, 2011). At the same time, these transactions show that they both, among many others, were well aware of the interest these skeletons had for European scientists and museums.

BONES ON DEMAND

In June 1832, William Clift (1785-1849), curator of the collections of the Royal College of Surgeons, delivered to the Geological Society of London his descriptions of *Megatherium* bones sent by Parish, an event immediately reported in the Buenos Aires press (Clift, 1835; Podgorny, 2013). Clift - through the consular office- sent to Buenos Aires a sketch illustrating the bones necessary to complete the skeleton, an image that circulated in the Río de la Plata Provinces and would feed what local agents called the "fossil fever" that exploded in the pampas in the first half of the 1830s (Podgorny, 2013, 2015).

Although Clift entitled this work "a description of the remains of *Megatherium*", he referred to three skeletons found in three different localities. He insisted that the skeletal

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hombros le carga, y con vigor desmedido lleva, lleva, a paso lento, al puerto de salvamento aquella preciosa carga. Allí en la orilla verdosa el inmoble cuerpo posa..."

[5] de Angelis to Gutiérrez, op.cit.

remains were accompanied by an immense shell, or case, portions of which were brought to England thanks to the endeavours of the consul Woodbine Parish. However, he did not mention to which animal the shell belonged, opening a story of intrigue and espionage that includes agents in different museums sending information back and forth between London, South America, and several European cities.

Several experts tried to elucidate the anatomy of the armoured animal found close to the bones of *Megatherium*. In 1833, the German naturalist and engraver Eduard d'Alton (1772-1840) presented his report at the Berlin Academy of Sciences on other remains that had recently arrived from Rio de Janeiro. D'Alton (1835) compared these fragments with the armourof several species of *Dasypus* (armadillos) stored in Berlin, concluding that the fossil carapace from Uruguay shared all the characteristics of living armadillos, with the remarkable fact that they could not have come from a single living individual. He clearly stated that they were not remains of *Megatherium* but of a giant extinct animal more closely allied to a species of *Dasypus*. He classified the new animal as an armadillo, but he could not go beyond the generic level since the teeth and skull were lacking. All these bones created a puzzle concerning the relationship among these peculiar South American animals.

While in Paris, *Megatherium* was compared with pangolins (Anonymous, 1836). In contrast, in England, the geologist William Buckland (1784-1856) had no doubts that all the bones brought by Parish belonged to a single kind, namely *Megatherium,* armoured with a bony cuirass or dermal skeleton. In his "Geology and Mineralogy Considered with Reference to Natural Theology" Buckland (1836) conjectured that *Megatherium* resembled a tilted wagon, "*probably...covered with a bony coat of armour; varying from three-fourths of an inch, to an inch and half in thickness, and resembling the armour which covers these living inhabitants, of the same warm and sandy regions of South America*" (Buckland, 1836, p. 159-160).

Sometime after Clift published his paper, Charles Darwin (1809-1882) sent to England several skeleton pieces of Megatherium and other animals from his voyage on the Beagle that in 1833 anchored in Buenos Aires and the South Atlantic coast. Like Parish, Darwin presented the entire series to the Museum of the College of Surgeons, requiring casts to be given to the British Museum, the Geological Society, and the collections of the universities of Cambridge and Oxford. He also wanted to keep one set for himself.[6] Clift and his son-in-law Richard Owen professed a peculiar interest in bringing these collections together, as they were probably related to the specimens already presented by Parish. Owen would describe them in the "Zoology of the Voyage of the Beagle", whose first issue appeared in February 1838; the second and third numbers were published in March and May 1839, and the fourth in April 1840 (Freeman, 1977; Herbert, 2005).

While Owen was elaborating this work, late in 1838, he described the new genus *Glyptodon,* based on a new consular report from Buenos Aires that gave sense to the bones donated by Parish to the College of Surgeons and reconsidering his former conclusions expressed in the first delivery of Darwin's *Fossil Mammalia* (Owen, 1841).Many of these reconsiderations originated in the reports, offers, and parcels sent by fossil providers, who had discovered that dealing in old bones was a good investment given the growing demand from European institutions and collections (Podgorny, 2007, 2013). In fact, the volume and quantity of fossils obtained by these means were many times greater than those provided by

[6] Charles Darwin to the chairman of the Board of Curators of the Royal College of Surgeons, 19 December 1836, Royal College of Surgeons (Curators Deed Box).

Darwin and Parish. Moreover, considering that Darwin himself relied upon his chains of information and local informants (Herbert, 2005), one can ascertain that this fauna emerged through the combination of regional expertise, the agents employed to survey the pampas and the competence of several learned societies and individuals.

Parallel to the elaboration of Owen's *Fossil Mammalia*, Parish prepared an account of the Provinces of Río de la Plata (Parish, 1839). The writing of his account reflects the doubts and the new alliances these bones were creating. When Parish was writing the chapter on the geology of the pampas, he still followed Buckland's suggestions. However, he was also advised by his colleague Joseph Pentland (1797-1873), former secretary to the Consulate-General in Peru. Pentland had resided in Paris since 1828, acting as liaison between the English scientists and Georges Cuvier's laboratory at the Muséum national d'Histoire naturelle (Sarjeant & Delair, 1979; Sarjeant 1993). On Pentland's advice, Parish postponed finishing the chapter on *Megatherium* that he wanted to include in his book.

In December 1835, Pentland had written to Parish to ask if certain bones of the hindfoot stored in London, the casts of which were donated to Paris, were found associated with the bony armour. To him, it appeared difficult to reconcile the dermal skeleton with the general anatomy of *Megatherium*. He confidently told Parish that the hind foot was that of a gigantic armadillo, nearly as large as an elephant and the largest rhinoceros.[7] He had analysed them, concluding that the covering belonged to this animal, not *Megatherium*. The information about where the bones were found cleared up all doubts. Pentland was almost sure Parish had the honour of discovering a new fossil animal as interesting as *Megatherium*. Parish replied to Pentland, confirming the locality of the bones and also commenting on Clift's doubts and Buckland's ideas.[8]

Parish requested permission to talk to Clift, which Pentland conceded in early January 1836. In the same letter, Pentland commented extensively on his works regarding the anatomy of the South American fossils. Pentland was sure that two gigantic species formerly inhabited the region, one allied to sloths, whereas the other was more closely related to armadillo. In any case, he concluded, "*Buckland's opinion as to the* Megatherium*'s scaly covering is no longer tenable*".[9]

Parish tried to convince Buckland not to commit himself to the idea of the presence of armourin *Megatherium*. However, Buckland did not want to listen: on 9 January 1836, after thanking Parish for the advice, he wrote that he had little doubt that besides *Megatherium*, other animals had similar armour, but that "finding half a dozen more Cuirasses among the ancient animals of the Pampas will not deprive *Megatherium* of his privilege of belonging also to that honourable Corps"[10]. Buckland had printed the chapter on the subject well before their correspondence, but he was able to correct any errors in his description of the plates, but he never did: Richard Owen would later have the pleasure of erasing the paragraphs relating to the cuirass of *Megatherium* in the edition of Buckland's treatise from 1869 (Buckland & Buckland, 1869, p. 142). However, Owen had not always thought that way. Publishing the first number of *Fossil Mammalia* (February 1838), Owen placed *Megatherium* among Dasypodidae, representing the end of a line that connected the

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[7] Joseph Barclay Pentland Esq. to Woodbine Parish Esq. (on the Shell of *Megatherium*. Query *Dasypus*), 17 December 1835, received on December 22nd, NHM, FE.

[8] Copy of Mr. Parish's answer to Mr. Pentland's letter, 23th December 1835, NHM, FE.

[9] Mr. Pentland to Woodbine Parish Esq., 4th January 1836. NHM, FE, underlining in original.

[10] Dr. Buckland to Woodbine Parish Esq., 9 January 1836. NHM, FE.

fossil and living species of *Dasypus* by a series of armadillo-like animals (Owen, 1838). His ideas changed soon after the news that arrived from Argentina later in the same year.

In 1838, Parish was trying to finish his book; still oscillating between Buckland's and Pentland's opinions, he stated that there was evidence for supposing that *Megatherium* was covered with "a coat of mail" (namely, a shell), an idea that originated early in the century in Montevideo (Podgorny, 2013, Podgorny and Richard, 2024). Suddenly, he received a letter from Buenos Aires that made Parish decide to contact Owen, placing the latest report from the River Plate in Owen's hands*:* the local consul, Charles Griffiths, had received a note from the Genoese pilot Nicola Descalzi, who had brought the bones of an immense *Megatherium* to town. Griffiths, in possession of Clift's paper and sketch, met Descalzi and found that the side of the pelvis missing in the London and Madrid skeletons was in good condition.[11]

According to the Sardinian consular agent and future Senator of the Kingdom, Marcello Cerruti (1808-1897), the secretary to the British Consular office in Buenos Aires in 1837-1838 told him*:* "*at that time he saw in Descalzi's house two fossils that the latter had recently discovered, one of which was an Elephantine* Mulita *(glyptodont) [namely an armadillo of elephantine dimensions] and the other a* Megatherium*"* (Cerruti quoted in Cuneo, 1940, p. 80, my translation).

Descalzi had collected these remains from some depth below the old channel of a dried-up stream. Griffith added that Descalzi asked two thousand silver dollars for each of his skeletons but that the Sardinian consul had already made a sort of agreement with him.[12] According to Cerruti (quoted by Cuneo, 1940, p. 80, my translation)*:* "*Picolet made him hope for a mark of royal munificence (which he never got) or at least the admission of his daughter into the Royal College of Noble Dames in Turin*". Thus, London received, instead, one of the teeth and a sketch of the animal which "conveyed the idea of a gigantic quadruped of the Megatherium or Armadillo family, having the internal skeleton, and the external dermal bony case in their natural relative positions[13] (Fig. 1).

With the volume almost printed, Parish received Owen's conclusions on Griffiths's report*:* based on the regularly fluted or sculptured form of a portion of the tooth, Owen established an entirely new genus of quadruped.In this instance, with his book almost ready, Parish could only resolve the situation by attaching four pages to the already finished and printed chapter, numbering the additional pages with letters from 178b to 178e to keep the index as it was, and adding "*a sketch reduced by Mr Clift, from an original drawing made of it in sit*", at the beginning of the book. This insertion allowed him to add Owen's news of a new animal with a shell; the genus *Glyptodon* came into being in Parish's book (Fig. 2).

The urgency to print rather than re-paginate was connected to the awareness of the imminent publications of the descriptions and naming of new kinds of extinct animals with

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[11] Copy of an extract of a letter from Mr Griffiths, H.M. Consul at Buenos Aires, to Sir Woodbine Parish, Buenos Ayres, 12th November 1838, Natural History Museum London (NHM) copied by Clift on 12 February 1839.

[12] Copy of an extract of a letter from Mr. Griffiths, op. cit.

[13] Manuscript notes on *Glyptodon* 1838, OC 78, Owen Collection, NHM, Notice of an extinct quadruped found in a fossil state in the month of September last in the Province of Buenos Ayres in South America, by R. Owen, December 1838. Accompanied by a drawing representing the entire animal as it appeared when found and a section of the teeth, one of them has been received.

tessellated armours. Several attempts had been made to attach a shell to an animal: German oryctologist Heinrich G. Bronn (1800-1862), in his *Lethaea geognostica* (2nd edition, Stuttgart, 1838, vol. 2, p. 1258), created the names *Orycterotherium* and *Chlamydotherium* to refer to two hypothetical extinct mammals with and without shell, to which a particular foot stored in Berlin could be attributed (Müller, 1849).

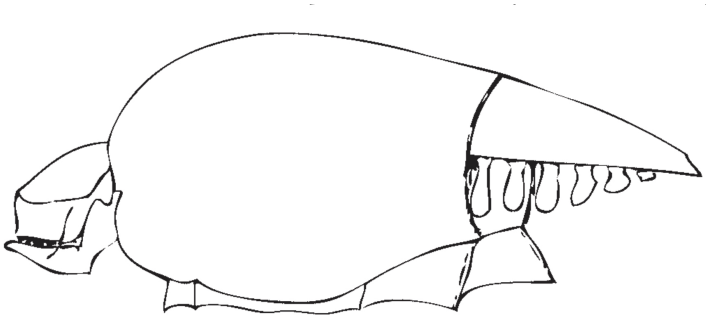

Fig. 1. Original sketch of the fossil animal recovered by Nicolas Descalzi on the 31st of August and 1st September 1838 in the Province of Buenos Aires, Cañuelas. Based on the sketch kept in the "Manuscript notes on *Glyptodon* 1838" (Owen Collections OC 78, Natural History Museum of London).

Pentland was sure that there were two animals, which he did not name but were under study by other naturalists. Bones and shells from the caverns of the valley in Rio das Velhas in Brazil, were presented under the name *Hoplophorus* by the Danish naturalist Peter Lund (1801-1880) in 1837 (published 1841). They were also mentioned in a letter sent to Paris in November 1838 and published in French on 15 April 1839, the same date as Griffiths's letter to Parish (on Lund, see Lopes, 2008). D'Alton brought the subject to the Meeting of the German Physicians and Scientists at Erlangen in September 1839, proposing the name *Pachypus*.

On the other side of the Atlantic, commissioned by the Library and Museum of Montevideo, the Uruguayan physician Teodoro Vilardebó (1803-1857) - De Angelis' local customer, who bought fossils that he resold to the museums in Brazil and Paris- and Arsène Isabelle (1806-1888), *chargé d'affaires* of France, excavated the skeleton of an enormous animal with a carapace in December 1837, which received the name *Dasypus giganteu*s. They published a note in *El Universal*, a newspaper from Montevideo, in 1838 and forwarded it to Paris[14]. However, Parish had already received the news from his informants in Buenos Aires, a note that he translated for Owen and later transcribed in the memoir Owen published in 1841 (delivered 1839). Since it was not officially communicated to any learned society, the pages included in Parish's book in late 1838 assured a name for this extinct mammal of many names and contested anatomies: *Glyptodon* (γλυφω, sculpo,

[14] M. d'Orbigny communique l'extrait d'une lettre de M. Th. Vilardebo, directeur du Muséum de Montevideo (*Bulletin de la Société Géologique de France*, 1840, 11: 156–160); also "Summary of account of fossil bones found near Montevideo in 1838 and now in the museum of that city", NHM, FE, and 'Informe presentado a la Comisión de Biblioteca y Museo por los miembros de ella, Dr. Bernardo Berro y Dr. Teodoro M. Vilardebó, sobre el reciente descubrimiento de un animal fósil, en el Partido de Piedra Sola, Departamento de Colonia, *El Universal*, in Schiaffino, 1949: 221.234.

οδους, dens), depicted by Clift by appending the feet stored in London since 1831 to Descalzi's sketch received by the post from Buenos Aires. In this way, *Glyptodon* brought together various written sources with shells, feet and teeth found in spots separated by hundreds of kilometres.

Most probably, Parish's involvement with the fossils awakened in de Angelis a possibility not yet fully exploited: the sale of bones from the pampas to European institutions.

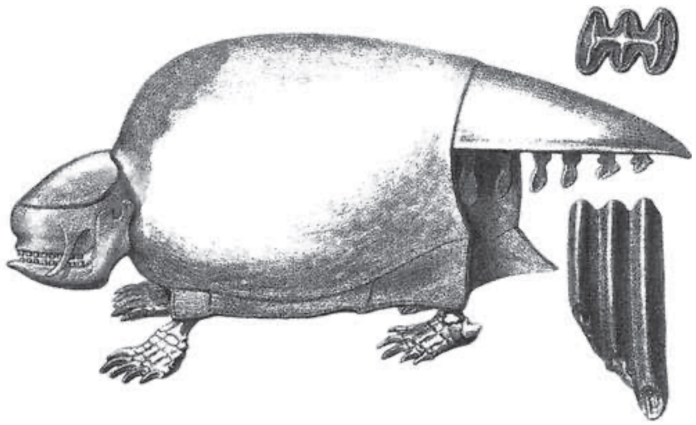

Fig. 2. *Glyptodon* drawing, from Parish, 1839 (Biblioteca Nacional). Note the inclusion of the feet in Descalzi's sketch and the drawing of the tooth in occlusal and lateral views.

As early as 1831, de Angelis had tried to acquire the skeletons found in the estancias in the Río Salado area, which ended up in Parish's collection. De Angelis was aware not only of the amount of money the British consul had invested in their exhumation but also of the costs involved in the publication of Darwin's *Fossil Mammalia*, a work he bought to read and study (Podgorny, 2007).

Furthermore, in 1832, four months after Clift's presentation at the Geological Society, the Buenos Aires newspapers reported the discussions these skeletons had generated in London.Shortly afterwards, Juan María Gutiérrez reviewed it in a local periodical, the *Museo Americano*, which might have fuelled the fossil fever of all those willing to make fame and money from the prehistoric products of the pampas. Gutiérrez, for his part, illustrated his article not with Clift's plate but with the drawing made by a draughtsman of the Royal Artillery Corps when the grand skeleton - the basis for the future genus *Megatherium*- was discovered in Luján in 1787, copies that circulated in the La Plata provinces from, at least, the early nineteenth century (Podgorny, 2011, 2019).

In April 1838, shortly after the publication of the report on the Pedernal fossil in Montevideo, de Angelis asked to be sent the issues of the *Universal* containing the account of the acquisition of the bones of "I don't know whatever animal, discovered in Pando", namely Vilardebó's pamphlet "on the mulita", the same name used by Descalzi for referring to his *Mulita elefantina*. By then, de Angelis was "working on a small piece of work on that argument" and had already procured bones of a remarkable size in the province of Entre Ríos, north-east of Buenos Aires. In May 1838, he insisted that he needed two copies of the *Universal* because the first had arrived somewhat ruined, and he wanted

to send a set to Europe. It was most probably through this channel that Parish and Clift received the news of the *Universal* that Richard Owen would enclose, translated, in his 1839 memoir, where he proposed the new species *Glyptodon clavipes.*[15]

Descalzi and de Angelis were fundamental in allowing Owen to create the new genus and species *Glyptodon clavipes*. Descalzi, for finding the bones (the immutable body) and drawing the sketch that arrived in London; de Angelis, for sending information and specimens to London and other European and South American collections (Podgorny, 2011). Descalzi's sketch and tooth arrived in London via the British consular agents while the news from Uruguay reached London thanks to de Angelis and his contact with Parish. The *Glyptodon* shell, however, would arrive in London only a couple of years later, sold and shipped by de Angelis to the Royal College of Surgeons, where Owen mounted it in the mid-1840s. (Podgorny, 2001, 2011). The first *Glyptodon* shell to be mounted in Paris had to wait until the mid-1860s (Podgorny, 2001), whereas the one in Bologna dates from 1879. [16] That means that the Turin skeleton was one of the first to have been displayed in Europe, even when it arrived 13 years after its exhumation. This delay still deserves further explanation.

As the letter of Charles Griffiths shows, Picolet, the Sardinian consul, was instrumental in assuring the skeletons for the Kingdom of Piedmont. He promised Descalzi a series of favours and advantages for his Argentinean and Genoese families. The Descalzis were from Chiavari, where G. Gaetano, Nicola's father, still lived and was established as a very well-known carpenter and furniture maker (see Appendix; on Descalzi's father see Brignardello, 1870)[17]. The pilot Nicola Descalzi, trained by his family, was a good carpenter and constructor, and possessed the skills and expertise needed for the mounting and shipment of fossil skeletons[18]. The testimonies gathered by Cerruti show that Descalzi presented the two skeletons in his house*:* probably the sketch he sent to London depicted how he had envisioned the structure of *Mulita elefantina.* His skills as a draftsman, ship builder, and furniture-maker were at his disposal. This adds a new dimension to the history of *Glyptodon,* showing how its shape was suggested first in Buenos Aires, combining knowledge about the local fauna (the shape of the living armadillo, namely "mulita") and the construction skills learnt in the family workshop on the Ligurian coast where he acquired the skills to shape new structures and combine forms and functions, tensions and materials.

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[15] de Angelis to Carlo Zucchi, 24 April 1838, in Badini, 1999, p. 95; De Angelis to Carlo Zucchi, 3 May 1838, in Badini, 1999, p. 96; De Angelis to Zucchi, 19th May 1838, in Badini, 1999, p. 98.

[16] Dono Reale. - *Gazzetta ufficiale del regno d'Italia* (Roma), 29th December 1879, p. 5841.

[17] G. G. Descalzi (1767-1855) was the designer and constructor of the so-called campanina chair, whose aspect of incredible lightness, in reality, masks the two main characteristics of the object*:* robustness and elasticity (on the chair, see Pessa & Montagni, 1985, also Podgorny, 2023).

[18] The role of carpenters in the mounting of fossils appears as well when Parish commissioned an American joiner for the recovery of the bones that he was going to ship to London (Podgorny, 2013)

CONCLUSIONS: TURIN 1851-1861

Circumstances, including the naval blockade in the Rio de La Plata and Picolet's own itineraries, determined that the skeletons remained on the western side of the Atlantic. Picolet would use them as a pretext to exit the country where he did not want to stay anymore. As Cúneo recalls, in 1840:

> "*Sicché il Picolet pensava che la posizione degli agenti consolari non fosse più ostensibile a Buenos Aires, tant'è vero che nessuno aveva voluto accettare di essere Console di Francia al Plata. Il Descalzi gli aveva consegnato due fossili perché li mandasse al Museo di Torino. Preoccupato della necessità e del pericolo di ritornare al suo posto egli trasse pretesto da questo dono per chiedere un congedo, che gli consentisse di mettere al sicuro la preziosacollezione di oggetti di storia naturale che voleva offrire a Carlo Alberto."* [19]
>
> N. Cuneo, 1940, p. 103

Further research is needed to explain what happened with the skeletons between 1840 and 1851, but when the fossils finally arrived in Turin, the genus *Glyptodo*n had already come into existence in the scientific literature. Once in Turin, the remains were mounted like the models already displayed in Madrid (*Megatherium*) and London (*Megatherium* and *Glyptodon*). They were two of the stars of the fossil mammal collection, as reported not only by the guides in Turin but also by scientific travellers such as the British geologist Hugh Falconer (1808-1865) (Huxley, 1864) and the German geologist Friedrich A. Römer (1809-1869). Römer (1856) mentioned that both skeletons amazed the naturalists, who were surprised to find them in Turin, the only city - except for London - to have a mounted *Glyptodon* carapace. Römer (1856, p. 172, my translation) says*: "In Turin, I took a closer look at the collections of the university and the polytechnic school; both are very beautiful. The university's mineral collection is very rich and has been organised and labelled with the greatest care by Professor Sismonda; the minerals lie in cabinets rising in terraces and are mounted on small blocks, on the front of which the name, crystalline areas and place of discovery are indicated. In the palaeontological collection, the complete skeletons of* Megatherium cuvieri, Glyptodon clavipes, *both from the Pampas, and* Mastodon angustidens, *which was found near Dusino in Piedmont, are surprising".* However, these visitors probably did not know that the London and Turin objects were connected and that, in fact, the description of the genus *Glyptodon* was based on the specimen exhibited in Turin.

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[19] Thus, Picolet believed that the position of consular agents was no longer tenable in Buenos Aires - so much so that no one had been willing to accept the post of French Consul to the Río de la Plata. Descalzi had entrusted him with two fossils to send to the Turin Museum. Anxious about the necessity and danger of returning to his post, he used this donation as a pretext to request leave, which would allow him to safeguard the precious collection of natural history objects he intended to offer to Carlo Alberto.

Sismonda never described these skeletons in detail but in the case of *Megatherium*, in his article in the *Gazzetta Piemontese* from 1851, he revised the debate over its anatomy, habits and food according to the teeth and feet:

> "*Perfetto accordo regna tra questi nell'assegnare al megaterio un regime affatto vegetale; che la forma dei denti non ne comporterebbe un altro; ma riguardo al modo, con cui egli si procacciasse cotesto vitto vegetale, abbiamo discrepanza di pareri. Alcuni infatti paragonano il megaterio a certi rosicanti, che vivono sotterra entre tane da loro scavate e là nutronsi delle radici degli alberi, che circondano la loro dimora; ma la colossale sua statura pare opporsi ad una tale idea, come sembra opporvisi il ragionamento quando si pensi che l'istinto dato dalla natura ad alcuni animali di vivere rintanati sotto terra é un vero mezzo di difesa, il quale se é provvido per i deboli, sarebbe stato per lo meno inutile al megatario (sic), in cui tutto spira tale forza e gagliardia da non avergli lasciato paventare gli audaci insulti del maggiori quadrupedi.*
>
> *Altri fondandosi sulla grande facilità, che esso deve avere nell'eseguir i movimenti delle membra anteriore in grazia della speciale struttura del suo avambraccio, è sulla sua analogia organica coi tardigradi, hanno supposto che a guida di questi si arrampicassi sugli alberi, e vi cogliesse le foglie e i frutti; giova però l'osservare, che su la prima idea era respinta dalla colossale statura, questa o è dall'enorme peso del corpo.*
>
> *Meglio ragionata e più verosimili sembra a noi l'opinione di coloro i quali combinando l'attitudine delle membri anteriori ad energici movimenti collo straordinario sviluppo delle vertebre caudali e delle unghie, pensarono che il megaterio con questi potenti strumenti scoprisse le radici degli alberi, colla forza delle braccia li atterrasse, e poscia assiso come su d'un tripode costituito dalle gambe posteriori et dalla robustissima sua coda medesime ne portasse alla bocca le foglie e i frutti."* [20]
>
> E. Sismonda, 1851

[20] Perfect agreement exists among scholars in attributing a strictly herbivorous diet to the *Megatherium* - its dental structure would not permit any other regime. However, regarding the manner in which it procured this plant-based sustenance, opinions diverge. Some compare the *Megatherium* to certain burrowing rodents that live underground in self-dug dens, feeding on the roots of surrounding trees. Yet its colossal stature seems to oppose this idea, as does reason itself when one considers that the instinct of subterranean life - granted by nature to some animals - serves as a means of defense. While providential for the weak, such an adaptation would have been, at the very least, superfluous for the *Megatherium* (sic), whose entire frame exudes such strength and vigor that it would have feared no aggression, even from the boldest of large quadrupeds. Others, basing their argument on the great mobility of its forelimbs - facilitated by the unique structure of its forearm - and its organic resemblance to tree sloths (Tardigrada), have supposed that, like them, it climbed trees to gather leaves and fruits. Yet here too, an objection arises: if the first hypothesis was dismissed due to the creature's colossal size, this one is equally challenged by its enormous body weight. A more reasoned and plausible opinion, in our view, is that of those who - combining the powerful mobility of its forelimbs with the extraordinary development of its caudal vertebrae and claws - proposed that the *Megatherium* used these robust tools to unearth tree roots, topple trees with the force of its arms, and then, seated on a tripod formed by its hind legs and its massive tail, bring leaves and fruits to its mouth

Sismonda - who corresponded with Richard Owen- followed Owen's description of *Megatherium* as given, for example, in his Croonian Lecture delivered before the Royal College of Physicians on May 6 1851 (see Rupke, 1994). While Owen (1850-1854 recognised the authors who were advocating different interpretations of the animal's capabilities)[21], Sismonda gave no discussion of the hypothetical ways of life that had been attributed to this mighty, extinct animal.

The concept that the powerful tail must have functioned with the two hind limbs in forming a tripod as a firm foundation for the massive pelvis, and affording adequate resistance to the forces acting from and upon that great osseous centre, was connected with the idea that the animal was adapted to browse small branches and leaves by standing on the hind legs. For example, in the Crystal Palace's reconstruction of *Megatherium,* as in the mounting of megatheria in several museums, the skeleton is mounted rearing into a tree, balanced on its tail and the sides of its feet (Rudwick, 1992; Ramírez Rozzi & Podgorny 2001, Wilton & Michel, 2022). This interpretation shaped the visual depictions that were going to be published in popular books about the deep past.

I have been unable to find pictures or photographs of the Turin *Megatherium* skeleton as displayed in Palazzo Carignano before WWII. However, Sismonda, in his book *Elementi di storia naturale,* depicted *Megatherium* on four legs, following the illustrations of Clift and D'Alton (based on the specimen displayed in Madrid, see Podgorny, 2019). Sismonda added a silhouette to the skeleton to show the hypothetical contour of the animal (Sismonda, 1853). As for *Glyptodon,* he published a depiction of the mounted shell in his book and added a detail of the armour pattern (Fig. 3 a-b).

It is not clear if the bones that arrived in Turin from Buenos Aires belonged to one or more individuals of each species, but the skeletons were not complete. To prepare the skeletons, Sismonda eventually appealed to other materials, as heand others reported:

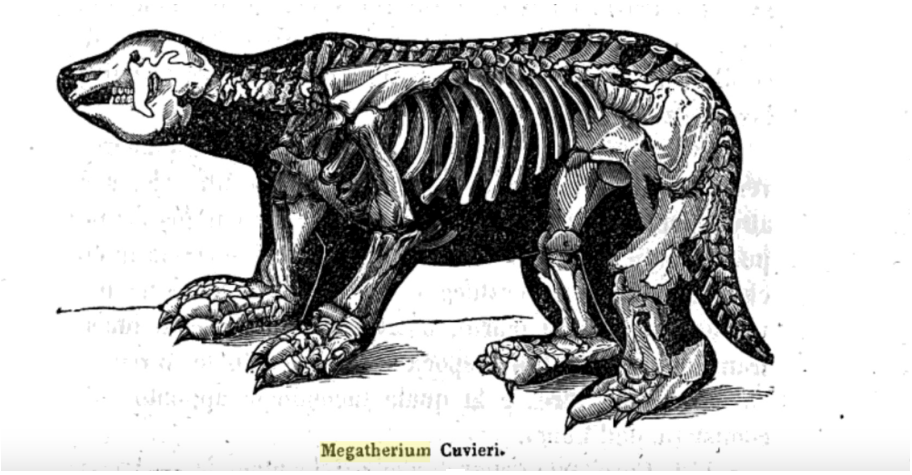
> *"Sismonda, having seen the state in which this fossilised relic was in, set about restoring it, having it completed under his direction with artificial pieces, but faithfully representing the real lost ones, and succeeded in placing it back on its feet, as it now stands in the said Museum, a subject of admiration both for its rarity and for the skill of those who brought it to its present state with science."*
>
> A. Sobrero, 1861, 344, my translation

Falconer, who visited several museums in the winter and spring of 1858-1861, reported that a nearly entire specimen of *Glyptodon* was exhibited in the Museum at Turin. London naturalists immediately requested information and photographs of this skeleton from the museum authorities, who responded readily. These photographs of the skeleton were used to compare the anatomy of the specimens in both collections (Huxley, 1862-1863).

This request also shows that in the early 1860s the skeleton exhumed by Descalzi in 1838 and mounted in Turin in 1853 still played a central role in the comparative anatomy of fossil mammals in a context where the interchange of bones and information from South

[21] D'Alton, for instance, proposed that *Megatherium* was fossorial, while the Danish Peter Lund suggested it was a climbing animal.

America was fragmentary, in terms both of the imagined skeletons and of the various agents who arranged the bones on their way. Constructing a fossil vertebrate usually means bringing together teeth, bones and, most importantly, scraps of information from various places and remote events that, as this paper shows, were co-occurring but not necessarily derived from a coordinated approach. In that sense, palaeontological knowledge developed in bits and pieces, but it sometimes fragmented things that were found together.



A

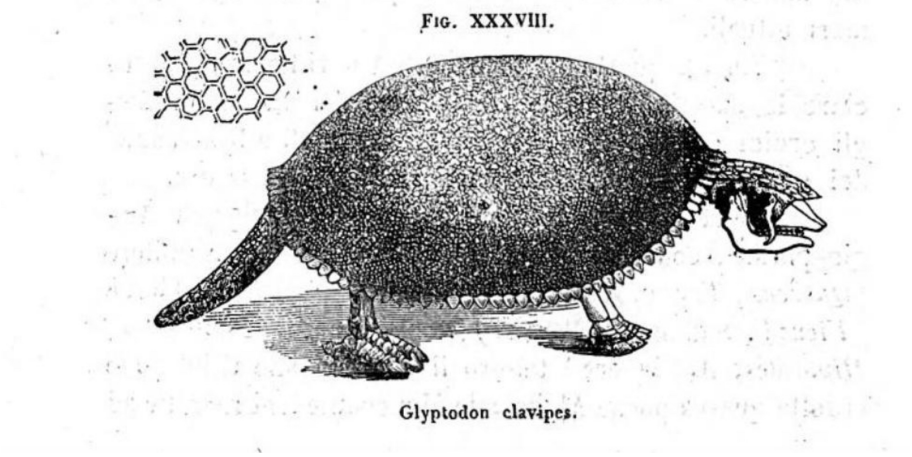


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Fig. 3 Extinct South American mammals according to Sismonda (1853). (A) *Megatherium cuvierii* and (B) *Glyptodon clavipes,* with details of the pattern of the bony armour.

In the 1850s, *Megatherium* and *Glyptodon* specimens were still scarce, and their anatomy and precise taxonomic classificationstill uncertain. In the case of *Megatherium,* only a few natural history museums (Madrid, Paris, Berlin, and London) possessed their bones, either real or cast. Given their mightiness and rarity, there was intense competition

for obtaining the specimens exhumed in the Rio de la Plata Provinces and Brazil. *Glyptodon* - given its anatomy and the difficulties related to shipping and remounting the shell- was even more challenging to obtain and display. In 1852, when it arrived in Turin, only the Royal College of Surgeons in London had a mounted specimen. Most importantly, its tooth was the critical element on which Owen erected the genus, a tooth which is missing in the specimen given to the Kingdom of Sardinia-Piedmont.

Today the fragments of those specimens lie in the stores of the natural science museum of Turin and their story has been forgotten in the convoluted paths of lost and dismantled collections. Maybe these lines, reconstructed from different sources and archives, will help in reconnecting what history put asunder.

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RIASSUNTO

Nicola Descalzi e i mammiferi fossili sudamericani: una storia transatlantica che collega Buenos Aires, Londra e il Museo Mineralogico dell’Università di Torino.

All’inizio del 1850, il Museo Mineralogico dell’Università di Torino ricevette due spedizioni da Buenos Aires, che contenevano uno dei primi esemplari di megateri e gliptodonti ad essere montati ed esposti in Europa. La prima parte di questo articolo, che si basa su ricerche d’archivio e su fonti secondarie, fa riferimento agli attori legati alla riesumazione degli scheletri, in particolare al genovese Nicola Descalzi (1801-1857) e al napoletano Pietro de Angelis (1784-1859). Dagli anni Venti del XIX secolo entrambi vissero a Buenos Aires, dove cercarono di diventare fornitori di dati, mappe, manufatti ed esemplari museali per collezionisti e collezioni europee. Descalzi a Buenos Aires esumò e sistemò le ossa di un mammifero estinto che chiamò *Mulita elefantina*, l’esemplare che arrivò a Torino nel 1852 e sul quale, nel 1839, Richard Owen aveva creato il nuovo genere *Glyptodon* sulla base diuno schizzo e un dente inviati da Buenos Aires. La seconda parte dell’articolo, facendo riferimento ai dibattiti anatomici sulla forma e sul modo di vita della megafauna sudamericana, discute di come Eugenio Sismonda, responsabile delle collezioni mineralogica torinesi, riflettesse tali dibattiti nel processo di sistemazione dello scheletro di *Megatherium*, sistemazione che andò perduta con il bombardamento del Museo durante la Seconda Guerra Mondiale. Questo articolo discute il ruolo dell’esemplare di gliptodonte torinese nell’anatomia comparata di quegli anni, mostrando gli eventi che si stavano verificando contemporaneamente in varie parti del mondo.

Parole chiave: Pietro de Angelis, Nicola Descalzi, *Glyptodon*, *Megatherium*, Henri Picolet d‘Hermillon, Eugenio Sismonda.

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APPENDIX

Nicola Descalzi. Necrologia. - Gazzetta Piemontese, 225, 1857, mercoledì 23 settembre (attribuita a Marcello Cerruti)

Il giorno 14 maggio 1857, alle ore 5 pom. cessava di vivere in Buenos Ayres Nicola Descalzi, nativo di Chiavari e da lunghi anni dimoranti nelle regioni del Plata.

Era egli uno de quegli uomini eletti, i quali ovunque si rechino, si attraggono la pubblica stima ed onorano il paese che loro fu patria.

Educato da giovane nello studio delle matematiche e della nautica, il Descalzi professò poi sempre un vivo amore alle scienze esatte, e fu annoverato fra quegli scienziati che l'illustre presidente Rivadavia aveva chiamati d'Europa e specialmente d'Italia, come Mazzotti per fondare un osservatorio astronomico, Zucchi per aprire una scuola d'architettura, Ferrari ede Angelis per instituire cattedre di chimica e di statistica, ecc.

Rivadavia nell'intento di facilitare le comunicazioni colla Bolivia, aveva concepito il disegno de far esplorare il rio Vermejo, il quale prende le sue sorgenti in quella vasta repubblica e mette foce nei Paraguay; e trattandosi di missione difficile, a cui si richiedeva esimia intelligenza congiunta a pari energia, ne affidava la direzione al Descalzo, l'unica persona capace a tale compito,

Partito questi il 28 luglio 1825 da Buenos Ayres, si avviò per terra a Salta, une delle provincie confederate della Repubblica Argentina, e percorrendo le vaste selve di quella contrada, costruisse un piccolo naviglio e due zattere, colle quali discese quel gran fiume Vermejo, tenendo un esatto giornale ricco di osservazioni astronomiche et meteorologiche, e disegnando una carta del fiume in diversi fogli, corredata delle più accurate note idrografiche. Ma allo sboccare nelle acque del Paraguay, la spedizione venne arrestata dalle forze del d'orrore Franza, in allora dittatore della repubblica di quel nome, ed il Descalzi spogliato di tutti i suoi lavori, e perfino dei libri e degli strumenti, venne relegato alla Concezione del Paraguay et ivi per cinque lunghi anni sostenuto prigioniero. Tornato quindi privi d'ogni risorsa a Buenos Ayres, si diede a tracciare alcune reminiscenze di quel viaggio per cui non ebbe altra ricompensa che l'ammirazione dei piccoli numeri dei cultori delle scienze.

Nel 1833 il governatore Rosas avendo determinato di uscire in campo per respingere le orde del salvaggi indigeni che infestano la provincia Patagonia, condusse seco come astronome della spedizione Nicola Descalzi, ed allora si fu che il medesimo fece l'esplorazione del Rio Negro, lavoro inedito e destinato ad arricchire la scienza d'un acquisto importante.

Quando la vasta penisola patagonica, la quale è dotata e di feracità di suolo e di mitezza di clima, sarà popolata da una laboriosa immigrazione, quando sulle sponde del Rio Negro si vedranno sorger città e villaggi, si comprenderà tutta l'importanza dei lavori del nostro concittadino.

Né il Descalzo limitò a questi soli lavori l'opera sua, perché si applica costantemente a fissare i punti astronomici dei luoghi che andava percorrendo ne suoi viaggi; si che la maggior parte delle carte geografiche pubblicate in Inghilterra ed altrove su quella parte dell'America meridionale sono ricche d'indicazioni dovute al Descalzi, il quale come uomo di scienza, non fu mai geloso d'altrui, e comunicò sempre liberalmente il risultato delle sue osservazioni agli studiosi ed ai viaggiatori.

D'eguale generosità le fece prova nel donare due grandi fossili da lui scoperti, cioè il Megaterio ed il Cliptodonte (sic) al regio incaricato d'affari in Buenos Ayres, perché il inviasse al museo nazionale di cui fanno ora l'ornamento.

Attaccato da una malattia, resultato di fatiche fatte in campagna per lavori d'agrimensura, vide giungere il suo ultimo momento con rara serenità d'animo. Un'ora prima di morire godeva ancora parlare cogli amici di cose scientifiche, e di doleva, ma senza fiele, che più d'uno avesse voluto usurpare il frutto delle lunghe sue fatiche,

Il cuore del Descalzi si distinse sempre per sentimenti caritatevoli, ed il suo nome figura fra i benemeriti che concorsero e concorrono tuttavia alla costruzione della Ospedale Italiano, al quale da due anni a questa parte pagava letteralmente il decimo de' suoi guadagni, che versava ogni mese nella cassa dell'ospedale.

Sappiamo che per cura di un funzionario il quale poté altamente apprezzare i lavori dell'estinto, si stanno ora coordinando tutti i manoscritti di lui per essere deposti in un solo volume in luogo tale che consti in futuro e de le fatte scoperte, e della data a ciò si riferiscono, affinché nessuno possa coll'andare del tempo usurpare all'Italia i meriti di queste importanti indagini della scienza.

Assistettero alla sua tumulazione, che ebbe luogo il 15 maggio, vari Italiani suoi amici e l'agente di S.M. cogli impegnati da lui dipendenti,

Il signor avv. Clemente Pinoli pronunzio sulla toma del trapassato un breve discorso, ultimo tributo di un'amicizia pura e sincera come la virtù che seppe inspirarla.

I giornali di Buenos Ayres fecero di lui un conciso e meritato elogio, chiamandolo figlio adottivo di quel paese ove la memoria di questo nostro concittadino non sarà per perire.

Fra i titoli del Descalzi trovano molte lettere del governatore D. Manuel Rosas in allora generale comandante la spedizione contre i Patagoni, e vari autografi di Manuelita Rosas, fra i quali uno del 12 settembre 1839, nel quale gli annunziava che in compenso della spedizione dell'anno 1833-34, sup padre, lo allora già governatore di Buenos Ayres, gli aveva fatto spedire la patente di maggiore di cavalleria nell'esercito dello Stato. Egli fu pure decorato della medaglia d'onore conceduta a colerò che si erano distinti in quella spedizione. [22]

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[22] Nicola Descalzi. Obituary. *Gazzetta Piemontese*, No. 225, 1857, Wednesday, September 23 (attributed to Marcello Cerruti). On the 14th of May 1857, at 5 o'clock in the afternoon, Nicola Descalzi passed away in Buenos Aires. A native of Chiavari, he had resided for many years in the regions of the Río de la Plata. He was one of those distinguished men who, wherever they go, earn public esteem and bring honor to their homeland. Educated in his youth in mathematics and nautical science, Descalzi maintained a lifelong passion for the exact sciences. He was counted among the scholars whom the illustrious President Rivadavia had summoned from Europe - particularly Italy - including Mazzotti to establish an astronomical observatory, Zucchi to open a school of architecture, and Ferrari and de Angelis to found chairs of chemistry and statistics, among others. With the aim of improving communications with Bolivia, Rivadavia conceived a plan to explore the Río Bermejo, which originates in that vast republic and flows into the Paraguay River. Given the difficulty of the mission, which required exceptional intelligence and determination, he entrusted its leadership to Descalzi, the only man capable of such a task. Setting out from Buenos Aires on July 28th, 1825, Descalzi traveled overland to Salta, one of the federated provinces of the Argentine Republic. Traversing the dense forests of the region, he constructed a small vessel and two rafts, with which he descended the great Bermejo River. He kept a meticulous journal rich in astronomical and meteorological observations and drafted a detailed map of the river in multiple sheets, accompanied by precise hydrographic notes. However, upon reaching the waters of the Paraguay, the expedition was halted by the forces of the dictator Francia, then ruler of that republic. Descalzi was stripped of all his work - even his books and instruments - and confined for five long years in Concepción, Paraguay. Upon his return to Buenos Aires, deprived of all resources, he set down some recollections of that journey, for which he received no reward other than the admiration of a small circle of scientists. In 1833, Governor Rosas, determined to repel the indigenous raids plaguing Patagonia, took Descalzi along as the expedition's astronomer. It was then that he conducted his exploration of the Río Negro - an unpublished work destined to enrich science with a significant contribution. When the vast Patagonian peninsula - fertile and blessed with a mild climate - is populated by industrious immigrants, and when cities and villages rise along the banks of the Río Negro, the full importance of our fellow citizen's work will be understood. Nor did Descalzi limit himself to these endeavors. He consistently worked to establish the astronomical coordinates of the places he visited, so that most of the maps of southern America published in England and elsewhere bear the mark of his observations. As a man of science, he was never possessive of his knowledge, freely sharing his findings with scholars and travelers. He demonstrated equal generosity in donating two large fossils he had discovered - a *Megatherium* and a *Glyptodon* - to the royal chargé d'affaires in Buenos Aires, who sent them to the national museum, where they remain prized exhibits. Afflicted by an illness resulting from his strenuous fieldwork as a surveyor, he faced his final moments with remarkable serenity.

Even an hour before his death, he took pleasure in discussing scientific matters with friends, lamenting - though without bitterness - that some had sought to claim credit for his lifelong labors. Descalzi's heart was always marked by charitable sentiments, and his name is counted among the benefactors who contributed -and still contribute - to the construction of the Italian Hospital. For the past two years, he had literally tithed a tenth of his earnings, depositing it monthly into the hospital's fund. We understand that an official who deeply appreciated the deceased's work is now compiling his manuscripts into a single volume, to be preserved in a place where his discoveries - and their dates - may be safeguarded, ensuring that no one can, with time, deprive Italy of the credit for these important scientific investigations. Several Italian friends, along with the agent of His Majesty and his staff, attended his burial on May 15th. Attorney Clemente Pinoli delivered a brief eulogy at the graveside, a final tribute to a pure and sincere friendship, inspired by the virtue of the departed. The newspapers of Buenos Aires paid him concise yet deserved praise, hailing him as an adoptive son of that land, where the memory of our fellow citizen will endure. Among Descalzi's papers are numerous letters from Governor Don Manuel Rosas - then general commander of the expedition against the Patagonians - as well as autographs from Manuelita Rosas. One, dated September 12th, 1839, informs him that, in recognition of his service in the 1833-34 campaign, her father - then Governor of Buenos Aires - had granted him a commission as cavalry major in the state army. He was also awarded the honorary medal given to those who distinguished themselves in that expedition.