The shifting of mankind's origins: paleoanthropology in and beyond the Southern Hemisphere

As mudanças das origens da humanidade: paleoantropologia no hemisfério sul e além

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Abstract: This article examines the works of the Argentinian naturalist Florentino Ameghino (1854-1911) and the German zoologist Hermann von Ihering (1850-1930) concerning the origin and classification of human 'races' and the development of human culture. The research is primarily founded on an analysis of letters exchanged between these two scholars, emphasizing the significance of skulls as tangible evidence in the reconstruction of human evolution. The article delves into Ihering's pivotal role in the formulation of a standardized craniometric system, following which it explores Ameghino's propositions regarding the origin and local development of the human species. Subsequently, the reception of Ameghino's ideas by Ihering and the latter's investigations into the origins of human culture are scrutinized. This investigation illuminates a network of local, transnational, and transatlantic connections, within which study objects, instruments, and epistemes were disseminated. The collective nature of anthropological practices is underscored, underpinned by the principles of collaboration, alliance, and competition at multiple levels. In conclusion, the authors argue that the relationship between Ameghino and Ihering demonstrates the extent to which anthropological knowledge evolved into a collective, transnational, and dialogical endeavor. Even theories and hypotheses that have subsequently become marginalized in the history of anthropology are recognized as crucial stepping stones in the construction of anthropological knowledge.

Keywords: Anthropology. Florentino Ameghino. Hermann von Ihering. Human species. Paleontology. Races.

Resumo: Este artigo examina os trabalhos do naturalista argentino Florentino Ameghino (1854-1911) e do zoólogo alemão Hermann von Ihering (1850-1930) sobre a origem e classificação das 'raças' humanas e o desenvolvimento da cultura humana, alguns dos temas centrais da antropologia da segunda metade do século XIX. Baseando-se sobretudo na leitura da correspondência trocada entre Ihering e Ameghino, discute-se primeiramente a importância dos crânios como evidência material a partir da qual se poderia reconstruir a evolução humana. Em seguida, analisa-se o papel de Ihering nas discussões sobre o desenvolvimento de um sistema craniométrico padronizado. Posteriormente, investiga-se as propostas de Ameghino sobre a origem e o desenvolvimento local da espécie humana, seguidas de um relato da recepção dessas propostas por Ihering e suas pesquisas sobre a origem da cultura humana. Ao fazê-lo, há a intenção de lançar luz sobre um relato de materiais e redes sociais locais, transnacionais e transatlânticas em que objetos de estudo, instrumentos e epistemes foram deslocados. Ao mesmo tempo, argumenta-se pelo caráter coletivo das práticas antropológicas, baseadas na lógica de alianças, cooperação e competição em vários níveis. Em conclusão, afirma-se que a conexão entre Ameghino e Ihering mostra em que grau o tecido do conhecimento antropológico tornou-se um empreendimento coletivo, transnacional e dialógico, e que mesmo teorias e hipóteses que se tornaram marginais na história da antropologia são passos importantes na construção do conhecimento antropológico.

Palavras-chave: Antropologia. Florentino Ameghino. Hermann von Ihering. Espécie humana. Paleontologia. Raças humanas.

Ballestero, D., & Petschelies, E. (2024). The shifting of mankind's origins: paleoanthropology in and beyond the Southern Hemisphere. *Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas*, *19*(2), e20230038. doi: 10.1590/2178-2547-BGOELDI-2023-0038.

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Recebido em 11/05/2023
Aprovado em 22/12/2023
Responsabilidade editorial: Márcio Couto Henrique

INTRODUCTION

"What I like to talk to you", wrote German zoologist Hermann von Ihering (1850-1930) to his friend and colleague Florentino Ameghino (1854-1911), a self-taught leading Argentinian naturalist, "is, if there is a difference of opinion, there is no personal difference, but this is a good sign for the both of us, because it demonstrates that what we want is the truth and the progress and not the demonstration of our infallibility".[1] In fact, they would agree and disagree on many topics during their intellectual relation, which lasted from 1892 until Ameghino's death in 1911. From mollusks to geological time scales, from the distribution of birds in geographical areas to middens, various were the subjects addressed by the scientist, but none of them was so controversial as the origin and age of man in South America. A major intellectual goal of Ameghino was to prove the origin of the human race in the Argentinean Pampas and the subsequent evolutionary diversification into different types of hominids, thus, to contribute to the theory of the autochthony of the American man (Ameghino, 1880).

This issue was discussed many times in their correspondence, and despite Ameghino's self-assured writing style, he had a tough time convincing his friend completely of his own theories, even if Ihering agreed with some of his ideas. They did not share the same opinion, for instance, about the evolution of mankind during the end of Pleistocene, a geological age that lasted from 2.5 million to 11.7 thousand years ago, and the beginning of the Holocene, the current geological epoch.[2] According to Ihering, archeological evidence demonstrates that in South America the linear improvement from Paleolithic to Neolithic age did not occur, and both types of technological development coexisted (H. Ihering, 1895). In two letters to his Argentinian colleague, Ihering justified the denial of the Neolithic Revolution by stating that "our arrowheads are chipped when made from quartz and flint, and are polished when made from agate or chalcedony".[3] He continues:

> The terms Paleolithic and Neolithic seem to be applied today in a very modified sense, the first one meaning the time in which men were contemporary to the great extinct mammals. Thus, the artifacts of the man of the Pampas are evidently Paleolithic and I want to know if we are in agreement in this sense. The Paleolithic man seems to be that of Lagoa Santa.[4]

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[1] Hermann von Ihering to Florentino Ameghino, 12 April 1892, cited in Torcelli (1935, p. 175). Usually, Ihering wrote in Portuguese and Ameghino answered in Spanish, even though a few letters are in French and English. The authors of this article are responsible for all the translations and so accept the responsibility for mistakes.

[2] Earth's history is divided into geological time units: eon, era, period, epoch, and age. The phanerozoic eon, which began 538.8 million years ago, is the current geologic eon and is divided into three eras, Paleozoic, Mesozoic, and Cenozoic. During the first one complex life on earth evolved, the Mesozoic is the era of the great reptiles, and the Cenozoic is marked by the rise of mammals. It is divided into Paleogene, Neogene, and Quaternary periods. Paleogene spans from 66 million years ago to 23.03 million years ago and consists of the Paleocene, Eocene, and Oligocene epochs. The latter covers a time from approximately 33.9 million to 23 million years ago. Neogene spans from 23.03 years ago to the beginning of the Quaternary period, 2.58 million years ago. Neogene is divided into two epochs, Miocene (23.03 to 5.3 million years ago) and Pliocene (5.3 million to 2.58 million years ago). Thus, the Quaternary is the current period, spanning from 2.58 million years ago to present day. Modern animals evolved in this period, which is divided in two epochs: The Pleistocene and the Holocene. The Pleistocene lasted until 11.700 years ago, when the Holocene began. The Pleistocene is marked by the ice ages, the megafauna, and the evolution of human species such as *Homo neanderthalensis* and *Homo sapiens*. The Holocene is, therefore, the current geological epoch and this time span is characterized, from a cultural point of view, by written history, major technological revolutions, and formation of societies. In terms of epochs, the sequence is: Miocene, Pliocene (Neogene), Pleistocene, Holocene (Quaternary). Nowadays it is accepted that the taxonomic tribe *hominini* (which includes genera *homo* and *pan* [chimpanzee and bonobo]) arose during the transition from the Miocene to the Pliocene. During this transitional time, a hominine genus evolved, namely the *Ardipithecus* and in the transition from Pliocene to Pleistocene the *Australopithecus* lived and became extinct. It was however in the Pleistocene when most archaic humans known so far evolved, such as *Homo erectus*, the Denisovans and the already mentioned Neanderthals and modern humans. Ameghino and Ihering discuss, therefore, the existence of human species in the Pliocene epoch, in which, according to current standards, ancestors of humans were much closer to early hominids than to modern humans.

[3] Hermann von Ihering to Florentino Ameghino, 06 September 1903, cited in Torcelli (1935, p. 135).

[4] Hermann von Ihering to Florentino Ameghino, 26 December 1903, cited in Torcelli (1935, p. 140).

Ameghino answered both letters a few weeks later:

> In the previous letter, you wrote to me that you do not believe in the existence of a Neolithic and Paleolithic epoch in Brazil, considering the carved or polished objects according to the stone classes which they are made of. In my opinion you are wrong on this point. The succession of the two epochs is regular in all parts of the world. The thing is, that the Neolithic period does not have the same antiquity everywhere. Moreover, in all parts, during the Neolithic or polished stone period, instruments made of simple carved stone as those of the Paleolithic era were used, but during the Paleolithic period, polished instruments were not manufactured. The questions or queries containing your latest letter are somewhat different or proposed in another way. Effectively: the Paleolithic period corresponds to the Quaternary and Pliocene, although the Neolithic period is very recent, but the limit between the two periods is very difficult to draw; it is an unfinished question, like all the ones about limits. It is unquestionable, however, that the carved stone period lasted a long time after the great mammals' extinction at the end of the Quaternary.[5]

Less than a month later, Ihering replied:

> With reference to the Paleolithic period, it seems to me that there is simply a misunderstanding between us. I have no doubt that the Pleistocene man from Lagoa Santa lived in the Paleolithic period, but as far as I know, artifacts have not yet been found along with the skulls (cited in Torcelli, 1935, p. 144).

And he concludes: "every object of Brazilian archeology has so far been exclusively from the Neolithic period. If there is geological data referring to the culture of Paleolithic man, I ask my friend to call them to my attention".[6]

This difference of interpretation raises some questions that will guide the following article. Ameghino's research and opinions were highly esteemed by Ihering, a university-trained zoologist with many interests beyond natural sciences, such as Ethnography, Physical Anthropology and Archaeology.[7] Ameghino was seen as one the leading figures in Anthropology and Paleozoology in South America and his works had a profound impact on several fields of knowledge. This explains why Ihering, even having access to his library as well as relations to Brazilian scholars, preferred to consult his colleague in another country. Ameghino's answer to Ihering remains in accordance to current paleoanthropological interpretations – at the end of the Pliocene (5.3 million to 2.58 million years ago) human ancestors began to manufacture stone tools and the Neolithic Revolution neither occurred at the same time all over the world nor had the same duration – but some of his scientific statements were considered fragile by his time and are nowadays completely disregarded (Potts, 1998).

Based on archeological findings and skull measurements, Ameghino sought not only to prove the existence of a pampean man, according to a polygenic model of human origins, but in this way also to carve his place among the leading scientist of the world who defended a multiple origin or evolution of the human species, such the English naturalist Alfred Russel Wallace (1823-1913), the German zoologist Ernst Haeckel (1834-1919) or the anti-Darwinian Swiss Geologist Louis Agassiz (1807-1873).

Ihering's approach to the origin and evolution of man was much more cautious and less ambitious from a theoretical perspective. He based his work on a strongly inductive and empirical ground, and despite his interest and respect for Ameghino's research, he showed skepticism towards some of his scientific discoveries. Nevertheless, he also sought to contribute to a debate on the American man and its races, connecting his epistemological concerns with Ameghino's and Haeckel's work, in addition to a wide range of studies, from Archeology to Ethnology.[8]

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[5] Florentino Ameghino to Hermann von Ihering, 04 January 1904, cited in Torcelli (1935, p. 143).

[6] Hermann von Ihering to Florentino Ameghino, 21 January 1904, cited in Torcelli (1935, p. 145).

[7] He studied medicine and natural sciences in Gießen, Berlin, Leipzig and Göttingen. At the latter university he completed his doctorate in 1876 in zoology.

[8] The connections of disciplines in the beginning of anthropology are discussed in Vermeulen (2015). Stocking Jr. (1996) also should be conferred. Díaz de Acre (2005) discusses the sciences of man in Berlin during the late 19th century and the beginning of the 20th century.

Therefore, this article examines Ameghino's studies on the origin of man, the classification of human 'races', as well as its reception in Europe and in Brazil, particularly in Ihering's writings. At the same time, it demonstrates how these scientists aimed to establish an international collaboration, as well as an interdisciplinary science, which would, at the same time, create an alternative local scientific discourse and launch a dialogue with European counterparts. Therefore, this article aims to contribute to the history of Social and Biological Anthropology, by discussing how a certain epistemological field was formed, as well as to the history of paleopathology in South America.

HERMANN VON IHERING: ANTHROPOLOGY AND ZOOLOGY

Ihering was born in Kiel (Germany) and studied Medicine and Natural Sciences in Gieβen, Berlin, Leipzig and Göttingen, where he completed his doctorate in 1876 in Zoology. After that he lectured in Zoology at the Universities of Erlangen and Leipzig. Between 1872 and 1880 he published several papers on the comparative morphology of mollusks, where he discussed the ideas of Haeckel on germ layers (Azevedo, 2000; Nomura, 2012). Moreover, he contributed significantly to the discussions within German anthropology on the establishment of a standardized craniometric methodology.[9]

Between 1872 and 1878, Ihering gathered extensive practical experience from his research on Johann Friedrich Blumenbach's (1752-1840) skull collections deposited in the Medical Faculty of Göttingen University. By that time, almost all scholars involved in the study of mankind's evolutionary history agreed that skulls offered material evidence material evidence to cross the thick temporal gap that separated present times from remote pasts, when humans originated (Díaz de Acre, 2005; Lubbock, 1865; Vermeulen, 2015).[10]

Along with his interest in the biological processes of skull formation, Ihering was also concerned with the development of new craniometric instruments and the establishment of a standardized craniometric system. These works took place in the context of intense discussions within German anthropology. Despite the agreement on the value of the skull as empirical evidence, there were profound differences over the establishment of the horizontal plane. This plane was used in determining the position of the skull for measurement, which conditioned the values of length, thickness, height, the maximum width of the forehead, the angle of inclination of the foramen magnum and the face profile and, finally, the values of the cranial and facial indices (Broca, 1873; Martin, 1893).[11]

Thus, in 1873, Ihering proposed to determine the horizontal plane from the lowest point of the orbital rim and the upper edge of the ear aperture (H. Ihering, 1873; Ottow, 1966; Virchow, 1891). In 1883 his method was assumed as a standardized craniometric system within German anthropology, becoming known as the "Frankfurt Convention" (Kollmann et al., 1883; Virchow, 1891). According to Virchow (1891) starting from this convention all skulls could be measured, whether they belonged to living or

[9] About the origins of anthropology in a wider sense, see Zammito (2002), in about the history of physical anthropology, especially in Germany, see Massin (1996) and Laukötter (2015).

[10] Although the antiquity of man and his coexistence with the extinct megafauna of the Quaternary was accepted, the origin and classification of human 'races' as well as their empirical method became a central debate in anthropology throughout the second half of the nineteenth-century. Scholars such as the physician Rudolf Virchow (1821-1902) in Germany and Paul Broca (1824-1880) in France agreed that the only objective evidence in the reconstruction of the evolutionary history of humankind could only be obtained from measuring skulls (Massin, 1996; Laukötter, 2015; Zammito, 2002).

[11] They argued that from several standardized measurements it was possible to mathematically determine a 'typical' skull and to establish racial types that could be compared with each other. Mathematical language guaranteed the neutrality and objectivity of the results. In this sense, Virchow remarked that skeletal elements, especially skulls, constituted an objective archive from which to investigate and contrast the subjective written sources (Virchow, 1891). Technical arguments also were considered: the stability, fixity and resistance of bone elements made them possible to be measured and compared from external observation (Blanckaert, 1991; Dias, 2004).

deceased individuals. In an international context where it was agreed that the purpose of anthropological practices was the study of 'races,' empirically feasible from the analysis of the skull, the discussions in which Ihering played a key role were constitutive of the professionalization and institutionalization of German anthropological practices.

Despite his important contributions to these processes, the competitive state of German academia led Ihering to move to Brazil in 1880.[12] In 1883, he was hired as a travelling naturalist by the National Museum of Rio de Janeiro.[13] Alongside his interests in craniometry, he also collected important zoological specimens that he sent to the various European scientific societies and museums of which he was a member (Lopes & Podgorny, 2014; Nomura, 2012; Ritz-Detch, 2015).

In 1892 he was invited to direct the *Museu Paulista*, in São Paulo, a position he held until 1916. As director, his main objective was the development and consolidation of local scientific discourses, autonomous from the North American epistemological influence (Lopes, 2000, 2001). Along with the increased visibility of Zoology, Archaeology and Anthropology, both through the collections he recruited to the museum and the increasing presence of these subject matters in the museum's publications such as the Journal of the Museu Paulista (Grola, 2014; Petschelies, 2023), Ihering established an international network with researchers in South America, such as the Argentinian scientists Francisco Moreno (1852-1919) and Juan B. Ambrosetti (1865-1917).

In contrast to the National Museum of Rio de Janeiro directed by the Brazilian botanist Ladislau Netto (1838-1894), which intended to exhibit natural and historical collections from all over the world due to its metropolitan motivation, the Museu Paulista pursued a more restricted focus by prioritizing South American Natural History and Palaeontology. To this end, Ihering entered into an epistolary exchange with the Argentinian naturalist Florentino Ameghino (1854-1911), whom he considered one of the main, if not the only, reference in South American Palaeontology. In 1890, he consulted Ameghino about his monograph "Contribución al conocimiento de los mamíferos fósiles de la República Argentina" (Ameghino, 1899). The intercourse was the beginning of a profuse epistolary exchange that lasted until Ameghino's death in 1911, creating a transnational network of exchange of objects and ideas on Archaeology, Anthropology, Paleozoology and Paleoanthropology.

As Ihering succeeded in obtaining a stable and secure academic position in Brazil, discussions about the classification and origin of 'prehistoric man' started influencing debates beyond the Old World. On that side of the Atlantic, in fact, the discovery of fossil remains supported innovative hypotheses about the origin, antiquity and evolution of man. In such an environment, Ihering and Ameghino helped to shape a local scientific discourse.

AMEGHINO: A SELF-TAUGHT BONE COLLECTOR

When Ihering contacted Ameghino, the Argentinian scholar was one of the leading figures in Anthropology, Palaeontology and Geology in South America. Ameghino was born into an Italian family that migrated to Argentina in 1854. He began collecting fossil remains of mammals and archaeological objects at an early age in his hometown of Lujan. Later he moved to Buenos Aires to study for preceptor, a situation he took advantage of to visit the local libraries and the collections of the Museum of Natural History assiduously. Throughout the 1870s he carried out stratigraphic excavations both in Luján and Uruguay, established reciprocal networks with local scholars and European museums (exchanging objects for publications) and published his first works on one of his main intellectual

[12] He had been determined to leave Europe for South America since 1874, when he almost accepted a position as professor of zoology at the University of Córdoba, Argentina (Lopes & Podgorny, 2014).

[13] About the history of museums in Brazil see Lopes (2009 [1997]), Sanjad (2005), and Schwarcz (1993).

goals: the theory of the autochthony of the American man , something for which he needed to prove the origin of the human race in the Argentinean Pampas and the subsequent evolutionary diversification into different types of hominids (Ameghino, 1880; Farro, 2009; Novoa & Levine 2010; Perazzi, 2010; Lopes & Podgorny, 2014).

On the basis of these works, he entered into discussions with scholars from local scientific circles such as Estanislao Zeballos (1854-1923) and Francisco Moreno. Both of them, like Ameghino, were concerned from the second half of the 1870s with the problem of the antiquity of man in Argentina, publishing several articles on archaeology, ethnography and palaeoanthropology in this regard. Zeballos was one of the founders of the Argentinian Scientific Society and the Argentinian Geographical Institute. He was active in politics, providing scientific legitimisation to the processes of territorial annexation and indigenous genocide carried out by the National State from the 1880s onwards. Moreno dedicated himself from an early age to the collection of archaeological objects, anthropological and palaeontological remains. These formed the basis of the Anthropological and Archaeological Museum of Buenos Aires (1877), which were subsequently transferred to the La Plata Museum (1884) of which Moreno was the director (Márquez Miranda, 1951; Mercante, 1913; Farro, 2009; Novoa & Levine, 2010; Perazzi, 2010; Lopes & Podgorny, 2014).

However, the local circles were reluctant to Ameghino's proposals, questioning the antiquity he attributed to the sediments. Faced with this situation, Ameghino decided to enter dialogue with French scholars, who had a great epistemological and methodological influence on his research. Thus, he wrote to the French paleontologist Paul Gervais (1845-1915) asking him to publish his findings on the human remains of Arroyo Frías in the Zoological Journal he edited, which became Ameghino's first article published in Europe. After this, and overwhelmed by the lack of recognition and legitimacy from local scholarly circles, Ameghino decided to pursue his goals and obtain recognition in the Old World. In 1878, Ameghino took part of his extensive collection of fossil remains and archaeological objects to the Universal Exhibition in Paris.

In Paris Ameghino presented his collection as a "real museum" that proved the coexistence of man with the megafauna of La Plata Basin's Quaternary and therefore in America (Ameghino, 1878, 1879). Ameghino argued that science had not been able to determine the exact point of man's origin or his precursor. However, there was extensive and heterogeneous evidence that allowed him to unquestionably assert that man had populated Europe and America since the beginning of the Quaternary. Without excluding the existence of migrations between the two continents, he suggested a Pampas origin for the American population, which he had already inferred in 1875 and 1877 on the basis of the presence of bone and archaeological remains from the Quaternary period (Ameghino, 1875, 1877, 1879, 1880).

Following the Universal Exhibition, Ameghino remained in Paris until 1881. During that time, he accumulated vast practical experience both in the field and in the laboratory, visiting the museums in Belgium, France, Italy and England and working at the Natural History Museum with Paul Gervais. He also participated actively in various scientific societies, debating with French scholars such as Broca, Paul Topinard (1830-1911), Gabriel de Mortillet (1821-1898) or the Portuguese geologist Carlos Ribeiro (1813-1882) about the Pliocene antiquity of the Pampean Formation and consequently of the human fossil remains. Encouraged by the cautious but favorable reception of this proposal, Ameghino sent copies of his publications to Zeballos and Moreno, persisting in his desire to contribute to and integrate the debates on this issue in Argentina.

Back in Argentina in 1881, he worked as a schoolteacher and university professor. In 1886, he was finally appointed vice-director and head of the paleontology section of the La Plata Museum. However, he resigned in 1888, due to deep epistemological and personal differences with Francisco Moreno (Farro, 2009). Until 1902, when Ameghino was appointed director of the Museum of Natural History of

Buenos Aires, the financial resources came from the fossil sales to foreign institutions, investments in real estate and family endeavors such as the bookshop in the city of La Plata. The latter was also one of the main material spaces for the study of South American Paleontology, for which Ameghino set up a family work structure. His brother Juan administered the bookshop and other family properties, his brother Carlos (1865-1936) was in charge of the fieldwork and the collection of fossils, which Florentino analyzed in one of the rooms of the bookshop that served as a laboratory and repository for the collections. Finally, his wife Leontine Poirier was in charge of correcting the manuscripts in French (Lopes & Podgorny, 2014; Podgorny, 2021). Due to this family-based network, Ameghino was able to continue and deepen his research, positioning himself as one of the main referents of South American Palaeontology.

From the 1890s onwards, he focused on proving the tertiary occupation of the Pampean territory, as well as the possibility for the local origin and development of human species. Based on archeological findings and skull measurements, Ameghino sought not only to prove the existence of a Pampean man, according to a polygenic model of human origins, but also to carve his place among the leading scientist of the world who defended a multiple origin or evolution of the human species, such as the English naturalist Alfred Russel Wallace (1823-1913), Ernst Haeckel or the Swiss geologist Louis Agassiz (1807-1873).

AMEGHINO AND THE QUATERNARY MAN IN THE LA PLATA BASIN

By the time he was contacted by Ihering, in 1890, Ameghino (1880) had published "La antigüedad del hombre en el Plata", where he affirmed the coexistence of man with the megafauna of the South American Quaternary, and "Filogenia" (Ameghino, 1884), proposing a transformist classification system based on four general evolutionary principles and a theoretical genealogical tree for human evolution (Figure 1).

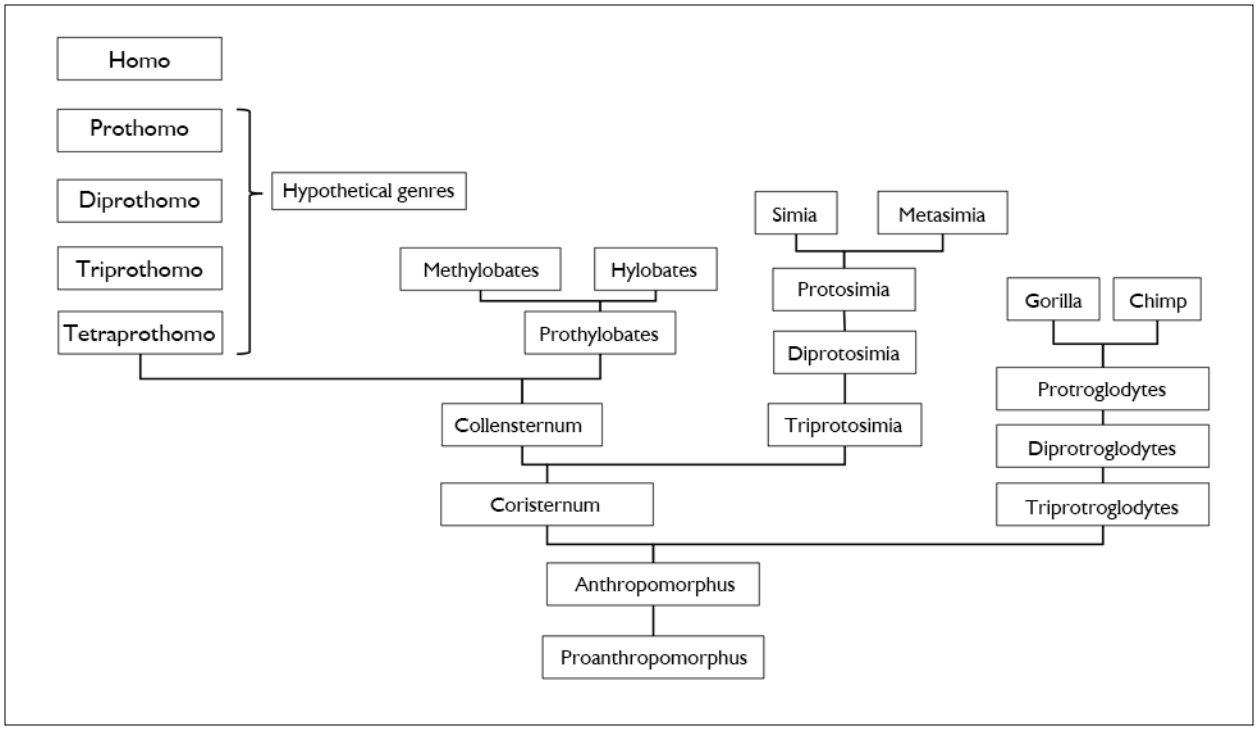

Figure 1. Phylogenetic tree of the human species according to Ameghino, 2023. Drawing by Ballestero and Petschelies.

In those years, the origin of the indigenous peoples was one of the central themes of American anthropology and ethnography, as defined at the Second International Congress of Americanists in 1877. Like other scholars such as Haeckel or the French palaeontologist Albert Gaudry (1827-1908), Ameghino proposed his phylogenetic tree as a graphical synthesis of the laws governing the evolution of the human species. Influenced especially by Haeckel's "Anthropogenie oder Entwicklungsgeschichte des Menschen" (1874), Ameghino excluded a direct lineage between humans and anthropomorphs, determining the proximity between their ancestors. As can be seen in (Figure 1), this phylogenetic tree implied evolutionary proximity between the ancestors of gibbons, orangutans and humans based on Proanthropomorphus. This would give rise to Anthropomorphus, the common ancestor of anatomically modern humans and anthropomorphic apes. Finally, we would have the Coristernum, which would give rise to the gibbons, the orangutan, and the anatomically modern human. This phylogenetic tree also suggested the continuous existence of primates in South America from the Upper Cretaceous to the present geological epoch.

In 1907, Ameghino wrote to Ihering about the discovery of a femur by Ameghino's brother, Carlos, and an atlas corresponding to the "true precursor of man".[14] Although both pieces showed similarities with those of modern humans, their anatomical peculiarities did not allow them to be classified within the genus Homo. Ameghino established a new genus and a new species: *Tetraprothomo argentinus*, which he assigned to the Miocene. On the basis of these discoveries, Ameghino proposed the South American genealogy of man (Ameghino 1879, 1884): humanity originated in the Lower Eocene of Patagonia with *Homunculus patagonicus*; the evolutionary line continued with the primitive Hominids (Oligocene), *Tetraprothomo argentinus* (Miocene) and *Triprothomo* (upper Miocene), which gave rise to two offshoots: *Pithecanthropus erectus* and *Diprothomo platensis* (Pliocene).

This new species was added to the genus that had already been created by Ameghino in 1884 on the analysis of an incomplete calotte found in 1896 in the port of Buenos Aires (Ameghino, 1909). From the latter one the *Homo pampaeus* evolved, the precursor that gave rise to the American 'races'. The oldest representatives come from the Lower Pliocene and were represented by a skeleton and three skulls discovered respectively in 1888 and 1909 on the Atlantic coast of Buenos Aires (Ameghino, 1898, 1909, 1917). To these were added two skeletons from which he established *Homo sinemento* and another skeleton from which he conceived *Homo caputinclinatus* (Ameghino, 1910). The remains from the Upper Quaternary were assigned to the so-called Lagoa Santa race (Ameghino, 1898, 1909, 1917).

All the other 'races', then, would have originated independently and because of a series of migrations to the Old World across continental bridges. Part of the Hominids crossed into Africa through the Archeelenis, an extinct continent proposed by Ihering (H. Ihering, 1907a). There they bestialized, giving rise to "the Old-World" apes, the Heidelberg and Java hominids (Ameghino, 1907). *Diprothomo platensis* migrated to Africa using the last vestiges of the Guiana-Senegal bridge and gave rise to *Homo afer*, the ancestor of the African, Asian, Negroid, and Australoid races (Ameghino, 1909).

As the *Homo pampaeus*, it diverged into two groups. One arrived in Asia and gave rise to the Mongolian race. The other arrived in Europe across the post-Pliocene bridge. Part of these *Homo pampaeus* became isolated, degenerating into *Homo primigenius*, whose representatives include Neanderthal. Another part, with greater evolutionary and adaptive plasticity, gave rise to the white race (Ameghino, 1917) (Figure 2).

[14] Florentino Ameghino to Hermann von Ihering, 10 July 1907, cited in Torcelli (1935, p. 257).

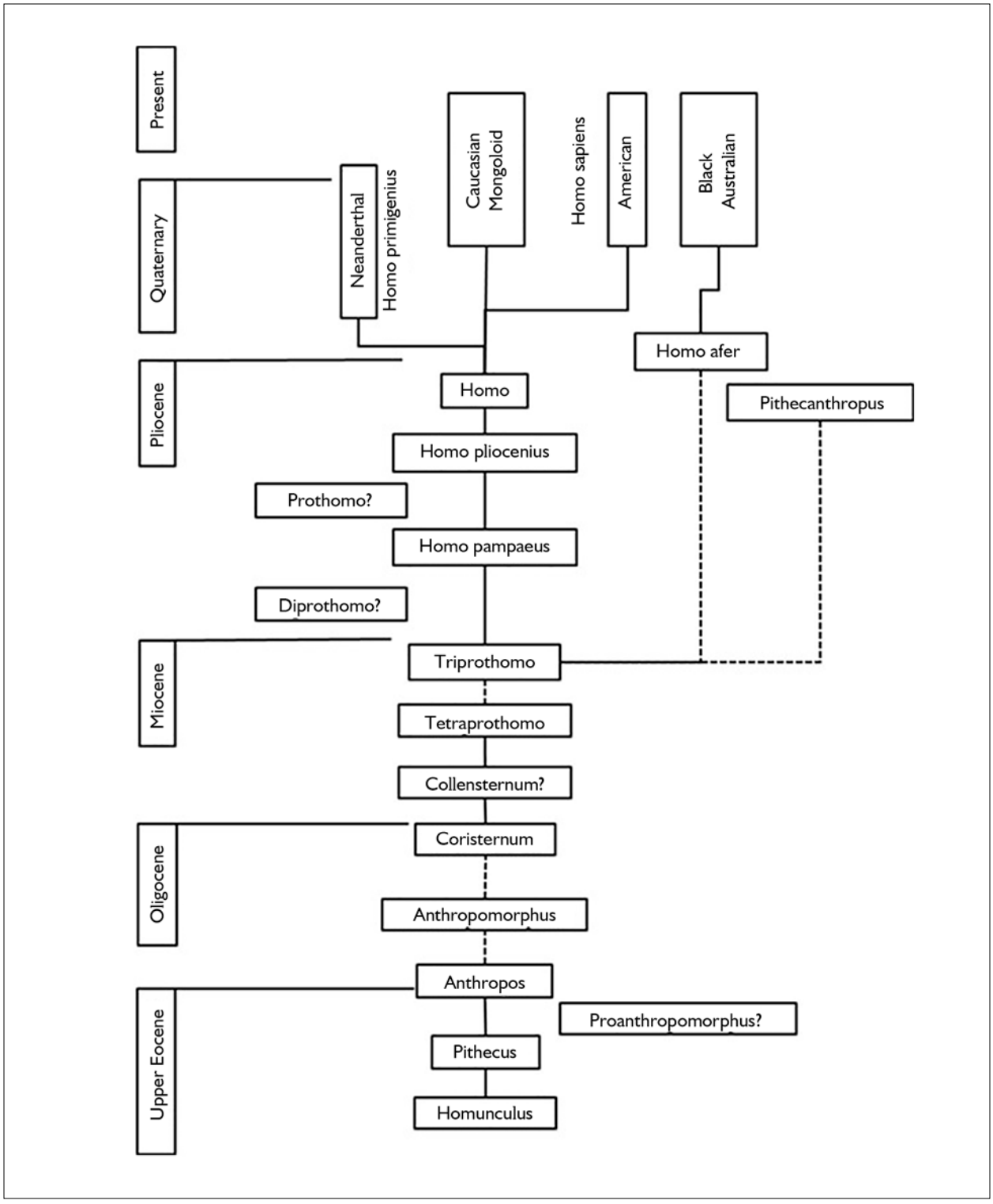

Figure 2. Phylogenetic tree of the human species according to Ameghino after 1907. Drawing by Ballestero and Petschelies, 2022.

In this new phylogenetic tree, Ameghino established a main evolutionary line from the fossil anthropomorphic primates to modern man. In the course of time, different lines diverged from the main one, becoming bestialised and giving rise to new species. It was precisely based on the degree of bestialisation that the degree of kinship was determined. In this sense, Ameghino's proposal challenged the established models not only by maintaining that the ancestral origin of mankind was located in South America, and specifically in Patagonia, but also by suggesting that the Anthropomorphs of the Old World were bestialized descendants of the first Hominids that arose in South America. The scheme also showed how modern man originated at least twice in different places: the black and Australoid races in the Old World from *Homo afer*, and the American, Caucasoid and Mongoloid races from *Homo pampaeus* in the New World.

"THEY NEED THE BONES TO BELIEVE": THE RECEPTION OF AMEGHINO'S THEORIES IN EUROPE IN BRAZIL

Ihering read with enthusiasm the aforementioned works of Ameghino, expressing to him his renewed interest in the question of mankind's origin and the antiquity of South American fossil remains, subjects on which he lectured in Cologne (R. Ihering, 1911). Ameghino's theories were also fundamental for a lecture about the antiquity of man that Ihering offered at the 'Museu Paulista' in 1909.[15] Ihering even asked Ameghino to send him molds from the femur of the Tetraprothomo and the skull of the Diprothomo, which Ameghino did.[16]

In fact, the Argentinian and German scholars also collaborated once in a more direct manner.[17] In 1909, the 'Museu Paulista' received skull bone fragments, which Ihering immediately classified as belonging to a "a Pleistocene man or perhaps even older".[18] The fragments were found inside a well at a depth of 33 meters in the city of São José do Rio Preto, 140 km from São Paulo. Ihering compared these findings with the major findings made by the famous Danish archaeologist and paleontologist Peter Lund (1801-1880) inside caves in the Lagoa Santa region, which were referred to by Darwin in his work. So Ihering wrote Ameghino: "Lund's human layers were not observed *in situ*. Here the case is different. You can imagine how impressed this question was to me".[19]

The zoologist Rodolpho von Ihering (1883-1939), who worked with his father at the Museu Paulista, traveled to São José do Rio Preto in order to investigate the archaeological site, and Ameghino offered help to investigate the bones.[20] During the investigations, Ihering wrote Ameghino stating that "for the moment there is no reason to doubt that we handle with a *homo sapiens*, from which, in my view, the Neanderthal, who they want to make a different species, represents only a race or subspecies".[21] A few weeks later, however, Ihering received Ameghino's analysis: "it is truly a pity that the flat bones embedded in the stoneware are not from a human skull, nor are they from mammals. They are small pieces of turtle shells (Testudinata)".[22] If on one side this event demonstrated how influential Ameghino was due to his deep knowledge in paleozoology and physical

[15] Hermann von Ihering to Florentino Ameghino, 23 September 1909, cited in Torcelli (1935, p. 313).
[16] Hermann von Ihering to Florentino Ameghino, 23 September 1909, cited in Torcelli (1935, p. 313); Florentino Ameghino to Hermann von Ihering, 08 October 1909, cited in Torcelli (1935, p. 313).
[17] See Ferreira (2009) about the relation of Ihering and Argentinian museums and Lopes (2000, 2001) to know more about the exchange between Brazilian and Argentinian museums.
[18] Hermann von Ihering to Florentino Ameghino, 07 March 1909, cited in Torcelli (1935, p. 295).
[19] Hermann von Ihering to Florentino Ameghino, 07 March 1909, cited in Torcelli (1935, p. 295).
[20] Florentino Ameghino to Hermann von Ihering, 22 March 1909, cited in Torcelli (1935, p. 296); Hermann von Ihering to Florentino Ameghino, 23 March 1909, cited in Torcelli (1935, p. 296).
[21] Hermann von Ihering to Florentino Ameghino, 01 April 1909, cited in Torcelli (1935, p. 298).
[22] Florentino Ameghino to Hermann von Ihering, 30 April 1909, cited in Torcelli (1935, p. 299).

anthropology even during the time his work received critical approaches, on the other, it buried Ihering's attempt to find a Pleistocene man of his own.

However, Ihering's approach to the origin and evolution of man was much more cautious and less ambitious from a theoretical perspective. He based his work on a strongly inductive and empirical ground, and despite his interest and respect for Ameghino's research, he showed skepticism towards some of his scientific discoveries. In a letter to Ameghino, he stated his criticisms of the work of his colleague on the same epistemological ground as scholars in Europe would do:

> Today I received your work on Diprothomo, which represents one of the most remarkable successes I know of in this field. I congratulate you on this sensational discovery and the clear and original way in which you explained the facts and conclusions (cited in Torcelli, 1935, p. 310).

However,

> the eoliths are not enough for me to admit man until the Miocene and Oligocene in Europe. To believe, I need bones. The numerous species of man that are currently being created are not accepted. All these European skulls do not come from a single species, *Homo sapiens,* with a single exception, *Homo heidelbergensis*! (cited in Torcelli, 1935, p. 310).

So Ihering concluded: "I am still not convinced that *H. pampeano* is a good species and I cannot form an idea about *Tetraprothomo*, although I recognize that my fear of a misclassification is more instinctive than based on arguments".[23]

The imperative of direct observation and study of the evidence was one of the central criticisms of Ameghino's work. Scholars questioned the accuracy of the material devices in the construction of the scientific evidence (Lehmann-Nitsche, 1907), the way in which he oriented the skulls, which accentuated the degree of prognathism and therefore the 'primitiveness' of the remains (Friedeman, 1910; Mochi, 1910; Schwalbe, 1910) or questioned the contextual information of the sites from which the remains originated (Hrdlička, 1912). The bottomline of these critics was the alleged superiority of the methodological and material devices of France, Germany and the United States, which, in the words of the German physician Gustav Schwalbe (1844-1916), offered undeniable and "demolishing" evidence that "archived" Ameghino's proposal (Schwalbe, 1910, p. 211).

Ameghino confessed in a letter to Ihering, that he believed that Lehmann-Nitsche's critical position towards his work derived from "personal animosity", like everything else produced in the Museo La Plata.[24] Lehmann-Nitsche's sharp critics crossed the ocean. After a conference held by Ihering at the zoological-botanical society of Vienna, about the origin of the South-American fauna, he heard from the German paleontologist Max Schlosser (1854-1932): "I do not trust Ameghino, since the communications we received from C. Burkhardt and just now from Lehmann-Nitsche, ridiculing Ameghino's tertiary and Miocene man".[25] The talk between the two scholars destroyed Ihering's hope "that we will soon see firm ground appear for the discussion of Patagonia's geology".[26]

For Ameghino, the 'European and North American scholars' limited or non-existent geological and paleontological knowledge of the Pampean Formation biased the value of their conclusions. Beyond any device that mechanized the observational process, Ameghino relied on the analytical depth of his gaze, claiming to be able to determine the age of a bone from a single glance, as he mentioned to Ihering: "You know that the great practice I have in handling fossil bones often enables me

[23] Hermann von Ihering to Florentino Ameghino, 11 August 1909, cited in Torcelli (1935, p. 310).
[24] Florentino Ameghino to Hermann von Ihering, 04 Januar 1901, cited in Torcelli (1935, p. 27).
[25] Hermann von Ihering to Florentino Ameghino, 14 June 1907, cited in Torcelli (1935, p. 255).
[26] Hermann von Ihering to Florentino Ameghino, 14 June 1907, cited in Torcelli (1935, p. 256).

to determine antiquity by simply examining the physical condition of the bone".[27] Ameghino also relied on the increasing amount of material evidence which his brother Carlos found in his fieldwork in Patagonia. In his opinion, the dismissal of this evidence showed that the criticism went beyond epistemological and methodological difference and was a manifest intention to segregate South American polygenetic theories, and this was merely an echo of a deeper issue (Ameghino, 1910). According to Ameghino, the problem was the denial of the European anthropological "old school" to accept the legitimacy and epistemological value of the theories of the Argentinian "modern school" that placed the origin of humanity in South America and thus solved one of the central questions of the discipline (Ameghino, 1935, p. 663).

Ihering expressed his disagreement regarding Ameghino's dating of human species a few times in the letters they exchanged. In 1910 the latter sent him a copy of works he had written recently. Ihering thanked him "for the interesting separate copies, which I read with interest. As for traces of man and their precursors in the ancient tertiary, I am more of a skeptic".[28] A few weeks later, Ihering commented on another writing of Ameghino: "I read with interest what you wrote about eoliths. I don't have studies and competence in the subject, but I can't believe that there were already precursors of man in the Oligocene".[29] In one of the last letters Ihering sent to his friend, he stated clearly: "You know that I don't accompany you on the *Diprothomo*'s cranial issue".[30] He reminded Ameghino that he was one of the scientists who established the craniometric system in Germany, but he gave up working with this:

> . . . the way each author, each country, etc. rejects the results of others because of the alteration of craniometric methods, it has taken away the desire to occupy myself with craniometrics and I hope that my good friend does not waste his precious time on this slippery terrain (cited in Torcelli, 1935, p. 332).

According to Ihering, the controversy over the antiquity and origin of man in the Plata could only be resolved on the basis of a global study of Geography, Archaeology and Paleontology. From this perspective, the relevant evolution of mammals in the Southern hemisphere made this area a key study site for the emergence, diversification, displacement, and extinction of hominids.[31] In this sense, Ihering concluded that the skeletal remains from the Pampean Formation were from the Pleistocene. Discarding a local origin, he postulated the possibility that man's predecessors migrated from East Asia in the Miocene. However, he pointed out that a definitive solution was far from being found, something for which more material evidence was needed (H. Ihering, 1911c).

Shortly after Ameghino's death, Ihering recalled the moment when he observed the skull of *Diprothomo platensis* and considered it to represent "a fragment of a human skull" (H. Ihering, 1914, p. 249) which revealed to be a misidentification. The fossils were actually from an ancient slot. This, to Ihering's disappointment, implied not only discarding part of the empirical evidence that supported Ameghino's scientific proposals and, ultimately, encouraged the positioning of South American Paleontology as an autonomous and emancipated *corpus* of knowledge, but also the critical confrontation of Ameghino's theories Ameghino's death and Ihering's change of perspective about the material evidence that supported his friend's

[27] Florentino Ameghino to Hermann von Ihering, 22 March 1909, cited in Torcelli (1935, p. 296).
[28] Hermann von Ihering to Florentino Ameghino, 22 August 1910, cited in Torcelli (1935, p. 326). The Tertiary is an obsolete term for the geological period from 66 million to 2.6 million years ago. Basically, it corresponds to the merged Paleogene and Neogene periods, respectively Early and Late Tertiary.
[29] Hermann von Ihering to Florentino Ameghino, 17 October 1910, cited in Torcelli (1935, p. 328).
[30] Hermann von Ihering to Florentino Ameghino, 13 February 1911, cited in Torcelli (1935, p. 332).
[31] Ihering, nevertheless, stated in his 1903 article that no evidence could be found in the archaeological material which demonstrated that humans coexisted with giant mammals in the megafauna (Ihering, 1903).

theories also coincided with the emergency of anti-German tensions in Brazil (which will raise during World War I [1914-1918]) and finally Ihering's dismissal from the Museu Paulista in 1916, leading to a progressive disappearance of Ameghino's theories in Brazilian Anthropology and Paleontology, considering that Ihering was the scholar who dialogued with them the most.

Despite Ihering's initial enthusiasm for Ameghino's theories and scientific results, which he accepted with some criticisms, after Ameghino's death, Ihering changed his position and publicly expressed his disagreement with his friend's statements (H. Ihering, 1914). This was despite the fact that Ameghino's proposal placed South America and its scholars at the center of the paleoanthropological debate, which was in line with Ihering's cosmopolitical approach to science as well as his practice as a museum director.

The universalist approach and the regional scale that Ihering aimed to imprint on the research conducted at the Museu Paulista reflect the cosmopolitan tradition of German science in which he was trained. This tradition argued that the only feasible method of constructing a complete knowledge of humanity, as a study object, was through the articulation of research carried out over a wide temporal range and on a transnational scale (Penny, 1999). For this Ihering established an international network, which included scholars from different fields of knowledge, such as Archaeology, Zoology and Anthropology, scientific institutions and companies that supplied the museum with zoological specimens and ethnographic objects, and also by hiring as many German immigrants and descendants of Germans for the museum staff as he could. In this way, Ihering created, such as the zoologist Emílio Goeldi (1859-1917) in the museum in Belém do Pará, a little German scientific colony dedicated the study of South American Zoology and Anthropology (Sanjad, 2005).

Just as Ameghino sought to resolve the origin and evolution of humankind on a physical level, Ihering wanted to tackle one major question of nineteenth-century anthropology: the "origin of human cultures" (H. Ihering, 1895, p. 33). By addressing this major anthropological issue to his South American empirical material, Ihering intended, on one side, to dialogue with European nineteenth-century scholars dedicated to this evolutionary problem, and to position South America in the center of the debate. Allying his little German scientific colony in São Paulo to his transnational contacts, through which he exchanged material, books and theories, Ihering sought to comprehend local ethnographic issues and to unveil one of the most relevant anthropological questions of his time.

Not only Ihering's but also Ameghino's anthropological practice illustrated that the knowledge may be locally instituted or applied, but is socially and globally constructed, demonstrating that these anthropological practices take place in complex material and social networks that articulated local, transnational and transatlantic levels in which objects of study, instruments and epistemes circulated. In recent years, studies have been stressing transnational approaches of the history of anthropology in order to elucidate a more complex history, in which different actors and institutions position themselves in a large network of relations aiming to handle with each other (Ferreira, 2009; Lopes, 2000, 2001; Petschelies, 2022), and in this sense the relation between Ihering and Ameghino, as well to their colleagues and counterparts in Europe and America, unveils that in the late nineteenth Century scholars from or residing in the Global South tried to manipulate the array of social relations from which science emerged.

FROM FOSSIL MAN TO AMERICAN MAN

Like Ameghino, Ihering fostered a deep interdisciplinary and empirically oriented investigation (Petschelies, 2023). In contrast to local research focused on one aspect or another, Ihering combined archaeological, ethnographic and historical data. According to him, this allowed for concrete material evidence, multiple recording and rigorous control of an intangible phenomenon such as culture (H. Ihering, 1904a, 1906). The use of a heterogeneous *corpus* of data

for the material study of culture was also related to a theoretical and methodological shift that other German ethnologist such as Franz Boas (1858-1942), Paul Ehrenreich (1855-1914) or Karl von den Steinen (1855-1929) introduced into anthropological research on Indigenous peoples of the Americas. Moving away from the almost exclusive focus on physical anthropology, Ihering's research proposed a philological perspective on the evolution and development of humankind.[32]

So, Ihering began his research on the cultural state of indigenous peoples of Southern Brazil (H. Ihering, 1895). He sought to continue those of von den Steinen, Ehrenreich and the naturalist Carl von Martius (1794-1868), which proposed a new classification and division of South American indigenous peoples based on an ethnic and interregional approach.[33] Ihering complemented these data with those from historiographical sources, reports, archaeological pieces (tools and shell mounds), and phenotypic descriptions in order to understand moral and cultural findings. In parallel, and in dialogue with Ameghino's research on the antiquity of man in South America, he established comparisons at a regional level (H. Ihering, 1904a, 1906, 1907b, 1911a, 1911b).

Data from heterogeneous sources provided Ihering with elements of comparison, contrast and control. However, the determination of the culture's origin required data with a specific temporal depth. Based on his participation in the craniometric debates within German anthropology and from his long lasting dialogues with Ameghino, Ihering knew that only skeletal remains could offer such depth. Thus, he was able to complement and back up archaeological, ethnological, and historical data on the Guarani Indigenous people with craniometric notes collected back in 1897 (H. Ihering, 1907b), concluding that craniometric analysis would help determine the belonging to specific ethnic groups, which means that cultural and ethnic differences would reflect phenotypical distinctions. Later, Ihering addressed the issue on a larger time scale, stating that comparing craniometric data of archaeological skulls and archaeological objects with those of present-day Amerindian populations would help ascertain their actual ethnicity. Focusing especially on the technological level, Ihering classified such populations as "prehistoric" men (H. Ihering, 1903, 1904b).[34]

This points to a major difference in relation to European anthropology and paleoanthropology: whilst Europeans were considered civilized versions of their prehistoric ancestors (men or hominids), Ihering – as well as many scholars of his time – proposed a continuity without cultural transformation between the "prehistoric" men and the indigenous societies (Petschelies, 2022). In this sense, his proposal, like those of Ameghino, aimed on the one hand, to "draw the attention of competent scholars" to the subject, on the other, and most importantly, to encourage the contribution of scholars from Brazil and Argentina to the resolution of this issue (H. Ihering, 1903, p. 161).

Ihering echoed the reluctance of American-based scholars to the internationalization of the Paleolithic time sequence promoted from Europe, and particularly from France. He was skeptical about the application of this nomenclature because of the absence of a regular succession of Paleolithic and Neolithic epochs in Brazil.[35] Ameghino reminded Ihering that, apart from the problems of reaching an international consensus on the terminology, the precise determination of the boundaries between two archaeological epochs was very difficult. On the other hand, he advised him

[32] For an analysis considering Ihering's relation to ethnography and indigenous people, see Petschelies (2023).

[33] Anthropological and ethnographic approaches can be seen in H. Ihering (1895, 1904a, 1906, 1907b, 1907d, 1911a, 1911b, 1912), archaeology in H. Ihering (1907c).

[34] It is unnecessary to consult the anthropological and ethnographic production at the end of 19th century, especially the Victorian anthropology, to notice that even the notorious ethnologist Karl von den Steinen referred to the indigenous peoples of Brazil as being stone age men in his first monograph of the Xingu River basin (von den Steinen, 1886). For specific details see Petschelies (2022).

[35] Hermann von Ihering to Florentino Ameghino, 6 September 1903, cited in Torcelli (1935, p. 135).

to use geological rather than archaeological indicators when ascribing this or that object to the Paleolithic or Neolithic, limiting the first to the Holocene, Pleistocene and Pliocene Epochs and the second to recent times.[36] Ihering agreed with Ameghino on this criterion. For example, he had no doubt that the Lagoa Santa skulls corresponded to a "Pleistocene man" who lived in the Paleolithic. Furthermore, this supported his proposals to ascribe the living indigenous groups of Brazil to the "stone age" (H. Ihering, 1907b, p. 242). In his article "Resíduos da edade da pedra, na cultura actual do Brazil," H. Ihering (1904b) intended to connect archaeological data with anthropological analysis in order to determine which pieces of Brazilian material culture are to be traced back to the 'stone age.' Denying their potential cultural transformation through time, Ihering stated that the craniometrics of the skulls found by Peter Lund in Lagoa Santa would correspond exactly to those of living Botocudo Amerindians (H. Ihering, 1907b, p. 242). In fact, he made the same conclusion in his 1903 article, adding that a skull found in a midden in Southern Brazil also would be from a Botocudo (H. Ihering, 1903).

Indigenous peoples in Brazil were considered as anachronistic representatives of an extinct past by many 19th century scholars dedicated to their study, such as Martius or the Brazilian historian Adolfo von Varnhagen (1816-1878). These populations were inserted therefore in a double and twisted relation with time by nineteenth and twentieth-century investigators: they coexisted physically in time and space with the so-called civilized nations but at the same time they were considered living fossils of an ancient and global past and thus did not share the same ontological existence. Thus, in their condition as contemporary evolutionary relics, Indigenous people offered scholars a way to study humankind's ancestors as well as propose a comparative framework to understand cultural differences. As Fabian already stated, late-nineteenth anthropologists, like Lubbock or the American Henry Lewis Morgan (1818-1881), denied pre-literate societies coevalness, considering them "people without history" (Fabian, 1983). For scholars, indigenous societies lived in the present, but not in the same as Europeans, and lived in the past, but not in their own singular historic past, rather the homogenous past of humanity. They existed within and without time.

Therefore, Ihering's aim to discover the origin of indigenous cultures in Brazil made him search for a 'Pleistocene man' in Brazil, stimulated by Ameghino's research in Argentina, to trace contemporary indigenous cultures back into 'prehistoric' times based on archaeological and ethnographic objects, but also by trying to comprehend indigenous societies as a totality based on criteria from natural sciences, mainly those proposed by Haeckel. Ihering knew Haeckel's work extremely well, not only because Haeckel was one of the most prominent evolutionists of his time, but also because Ihering tried to adapt Haeckel's evolutionary theory to his own empirical zoological material. In addition to that, both German zoologists exchanged letters for more than forty years. Ihering seems to have adopted two of Haeckel's evolutionary anthropology propositions.

Haeckel argued that humanity could be divided into ten "species" – or "races" –on the basis of physical appearance and cultural characteristics of living populations: *Homo americanus* or "American race" was one of them (Haeckel, 1868, p. 513). Ihering adopted this classification in his ethnographic and anthropological investigations on Brazilian indigenous peoples, which suggests that Ihering shared the idea of irreducible biological differences between ethnic groups. In "A questão dos índios no Brazil" (H. Ihering, 1911a), he confirmed that indigenous groups in conflict with certain segments of the national society should be fought militarily, but he also applied the idea of an American race and its relation to Brazilian citizens.

According to Ihering, the supposed paternalism of civil society towards the Amerindians would cause "danger"

[36] Florentino Ameghino to Hermann von Ihering, 4 January 1904, cited in Torcelli (1935, p. 143).

to the "upward march of our culture" and it would be necessary to stop this "abnormality" (H. Ihering, 1911a, p. 113). This is very much in line with Haeckel's anthropology. For him, the Indo-Germanic species "have, by means of the higher development of their brain, surpassed all the other races and species in the struggle for life, and have already spread the net of their dominion over the whole globe" (Haeckel, 1868, p. 510). In any case, on a large temporal scale, the defense of Indigenous peoples would be irrelevant, given that "the American race has no future. They are condemned to disappear" absorbed by the national society (H. Ihering, 1911a, p. 132). It is precisely in Haeckel that we read about the clash of races: while the superior races live a "progressive diffusion", the inferior races are doomed to "retrogression and extinction" (Haeckel, 1868, p. 520).

Despite Ihering's importance, he was neither the first scholar in Brazil to consider Amerindians as a race, nor did he invent the narrative of their extinction. In both cases the responsible was Martius, who stated in 1845: "the red race already bears visible the germ of its rapid disappearance" (Martius, 1982 [1845], p. 70 cited in Monteiro, 2001, p. 175). The nineteenth century Brazilian scientists were very much concerned about races and their mixture and put forth that Brazilian indigenous societies would be extinct within a few decades.[37] Nevertheless, as Monteiro (2001) analyzed, these scientists used the term race as a synonym for nation or ethnic group. Ihering himself confused race with ethnicity when he stated, for instance:

> . . . what gives a special interest to the anthropological examination of the races of southern Brazil, is the fact that the two different races that we find, already coexisted in the same area in prehistoric times, lacking, for the moment, any indication that they had been preceded in more remote times by any other of a different race (H. Ihering, 1903, pp. 68-69).

What differs Ihering from other scientists, however, is the fact that he later used the terms "American race" in an ethnographic and anthropological study (H. Ihering, 1911a, p. 132) to englobe the totality of the indigenous societies, not only attributing the concept of race to the two major indigenous linguistic groupings, called Jê and Tupi, as he did before. There is no evidence that he agreed with Haeckel's evolutionary distinctions, but it is conspicuous that he considered indigenous peoples to differ biologically from Caucasian people, according to his statements based on craniometrics, and that they therefore form a sociological and biological unity. Ihering also sought to establish a major evolutionary line for the totality of Brazilian society, trying to comprehend sociological relations in evolutionary terms, what led him to affirm that the extinction of an indigenous group would not make a significant difference for the totality of the Brazilian society in terms of evolutionary history (H. Ihering, 1911a). However, history proves him wrong: Amerindians did resist vanishing and still are fighting against sectors of Brazilian society, which intend to actualize the narrative of extinction.

CONCLUSION

The construction of anthropological knowledge regarding the origins and evolution of man as well as of the culture in the late 19th century and in the beginning of the 20th gives a glimpse about the science of man as a field in a broader way, in which ethnology, anthropology and archaeology dialogue with biological sciences. The relationship between Ameghino and Ihering took place in a foundational moment for anthropological practices, determined by their professionalization and institutionalization, the establishment of the most relevant North, South American and European museums and collections, the definition of protocols for observation and research on the material culture and remains of indigenous peoples (Ballestero, 2014).

[37] Especially after the publication of "On the origin of species" (1859) by the English naturalist Charles Darwin (1809-1882). According to Gould (2002, p. 127), "Biological arguments for racism may have been common before 1859, but they increased by orders of magnitude following the acceptance of evolutionary theory".

The relation between Ameghino and Ihering implied the establishment of a social infrastructure to generate, convey and process information, strategies and objects across national borders. This was possible thanks to the correspondence between Ameghino and Ihering, which in its condition of literary technology allowed the articulation of the most relevant scientific spaces of the time: the cabinet and the field. Carlos Ameghino dedicated himself to travelling around Patagonia, where, with the help of soldiers, peasants, indigenous people, foreign traders and state employees, he established a network for the supply of fossils. Once in La Plata, these were classified by Florentino, who was also in charge of establishing the geological sequences. In Brazil, Ihering determined the relative antiquity of the sedimentary formations based on the fossils and the data sent to him by letters and sea freight (Farro, 2009; Lopes & Podgorny, 2014; Podgorny, 2021). As museum director, Ihering also had access to a broad range of relations - travelling naturalist, local collaborators and traders – that provided him with empirical evidence based on which he could theorize about the continuity of the 'prehistoric' man and indigenous cultures, investigate the existence of a 'Pleistocene man' in Brazil and search for the origin of the indigenous culture.

The letters between Ameghino and Ihering also hinted at dissatisfaction with the local scientific context in which they both developed their activities. According to Ihering, the bureaucratisation of anthropological practices in Brazil resulted in a xenophobic labour policy that undermined the presence of individuals with academic training and professional experience (Schwarcz, 1993). Considering these qualities as indispensable for the sovereignty and epistemological legitimacy of the anthropological sciences in South America, he viewed himself as the only scholar in Brazil capable of achieving this goal. As he mentioned to Ameghino: "I am the one who in this respect has rendered the greatest services both in ethnology and archaeology", something for which he expected to have "a distinguished position in the same way as other famous colleagues from abroad".[38]

The lack of recognition was something Ameghino knew all too well. While some colleagues in Argentina had discussed and even accepted his proposals, major institutions such as the Museo Nacional de Buenos Aires and the Museo de La Plata took a hostile attitude, even accusing Ameghino of falsifying his evidence. Ihering described this as one of the "most miserable scientific boycotts".[39] Despite the reluctance, Ihering valued Ameghino's work because of his inductive method and the empirical results derived from fieldwork until he analyzed the same material as his colleague and was forced to review his opinions. For Ameghino, the criticisms of Argentinian and European counterparts were an expression of anthropologists' frustration that they could not tolerate "profane" individuals resolving issues that had remained unresolved for decades, such as the biological evolution of man and the origin of cultural differences (Ameghino, 1935, p. 665). For this, and like their European and American colleagues, Ameghino and Ihering articulated data from different areas. However, the processing of these data and the construction of empirical facts was guided by paleontological and zoological criteria (Ameghino, 1935).

The long collaboration between Ameghino and Ihering illustrates two cardinal elements when studying the history of Anthropology. Firstly, that it is fruitless to limit this study to the narrow margins of a specific geographical space. Secondly, beyond the local particularities of anthropological practices, these took place in complex material and social networks that articulated local, transnational and transatlantic levels in which objects of study, instruments and epistemes circulated.

Despite these methodological precautions, the case analyzed here reveals a dimension of the geopolitics

[38] Hermann von Ihering to Florentino Ameghino, 24 June 1909, cited in Torcelli (1935, p. 365).
[39] Hermann von Ihering to Florentino Ameghino, 27 July 1908, cited in Torcelli (1935, p. 281).

of knowledge that has so far received little attention in anthropological historiography: the individual and collective projects aimed at developing a specific and autonomous anthropological paradigm for the southern hemisphere, in this case linked to the epistemology of the Natural Sciences, which would dialogue on an egalitarian level with its European counterparts. As we have seen, this aroused strong resistance on the part of European and North American scholars.

Far from possible disagreements over methodology or the instruments used, the cause of this resistance must be sought in Ihering's and Ameghino's explicit challenge to the epistemological imposition of the Global North. Disrupting the direction and the biological and cultural origins of mankind was not looked upon favorably in those areas that had historically placed themselves at the center and beginning of human history. In this sense, the cooperation of Ihering and Ameghino can be understood as an attempt to decolonise the Anthropology of southern Latin American, proposing and constructing an autonomous knowledge emancipated from the epistemology of Western modernity in order to provide answers to universal problems from the forgotten margins of the New World.

ACKNOWLEDGEMENT

An earlier version of this article was presented under the title "Prehistoric 'Races' and the Fossil Man. Palaeoanthropological discussions in and beyond the Southern Hemisphere" at the joint conference of EASA's EuroNET and HOAN on July 21, 2021. The authors would like to thank Frederico Delgado Rosa, Han Vermeulen, Hande Birkalan-Gedik and Fabiana Dimpflmeier for their valuable insights. They also thank the two anonymous referees for their comments. Erik Petschelies held a post-doctoral grant (2019/18641-9) of the São Paulo Research Foundation (FAPESP). The opinions, hypotheses, conclusions or recommendations contained in this material are the sole responsibility of the author and do not necessarily reflect FAPESP's opinion. Petschelies also presented certain parts of this article in a few congresses, such as the conference of the Brazilian Association of Anthropology, EASA and the in-between-congress encounter of the working group *Fachgeschichte* of the German Association. He thanks Adam Kuper, Maria Margaret Lopes, Mariana Françozo, Marta Amoroso, Peter Schröder, Peter Rohrbacher and Katja Geisenhainer for their crucial inputs. As always, he is grateful to Héllen Bezerra for her patience and support.

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AUTHOR'S CONTRIBUTION

The authors declared active participation during all stages of preparing the manuscript.