Decolonial Perspectives on Fieldwork and Collections in Mexican Palaeontology

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Abstract. The ways in which we produce scientific knowledge are not objective and are subject to systemic biases with colonial roots. Here, we evaluate the different dimensions of colonialism in Mexican academia, reviewing two historical cases (in Biology and Archaeology) and a recent one (in Palaeontology) through a review of grey literature. Epistemic colonialism occurs when a hegemonic power validates knowledge produced only by certain institutions. Internal colonialism refers to a
15 nation formerly subjected to a foreign power replicating colonial structures. In Mexico, epistemic colonialism manifests itself in the ways we talk about palaeontology by focusing only on the knowledge produced by Eurocentric institutions that were part of a eugenic project that stemmed from the need to build a national identity in the early 20th century. These two types of colonialism are alive in the present and generate asymmetric collaborations that perpetuate the system. However, we conclude here that current mechanisms put in place by journals and palaeontologists could have identified and prevented colonial
20 practices. The cases discussed in this paper show that because colonialism means violence, decolonisation means justice; scientists need to consider the socioeconomic and political contexts of their subjects of study in order to identify and prevent violence.

1. Introduction

Palaeontologists have started to reckon with the colonial past and legacies of palaeontology in recent years. Much of the recent
25 discussion, both outside and inside academic spaces, revolves around the ethical considerations on parachute science, on working with material under private ownership, and on historical collections in large museums in the Global North from former colonial territories in the Global South. However, these discussions have shied away from including the historical, social and political dimensions of these situations as these topics are not considered aligned with the editorial practices of palaeontological-themed journals (Chacon-Baca et al., 2023). In this work, we explain the background of why certain scientific
30 practices have been labelled as scientific colonialism by exploring the historical, social and political dimensions of the exploitation of the outcrop in Vallecillo, Nuevo Leon, Mexico through grey literature.

Although the role of palaeontology in colonialism has recently been discussed (Raja et al., 2022), the role of the development of science in colonialism gained attention in the 1980s and 1990s (Quintero Toro, 2006). This has led to a recent debate in palaeontology about how colonialism has shaped the field and created inequity in research between countries from the Global
35 North and the Global South. In palaeontology, this new debate has replaced the academic discourse of the previous decades that centred mostly on the legislation around geological heritage and how the fossil record can be studied in compliance with local, regional, and national laws (Liston, 2013, 2014) or that has questioned the value of legislation in preserving geological heritage (Martill, 2011, 2018). Furthermore, some formal and informal discussions in scientific congresses and social media have portrayed this as weariness towards international collaboration and have equated this new debate to a call for isolation
40 and nationalism e.g., (Anon, 2016).

In this contribution, we posit that strict adherence to purely legal or nationalistic thinking is an inherently colonialist approach to science. We consider that the case of the *curandera* Maria Sabina in southern Mexico (Case 1) and the extraction of the Tlaloc monolith in the State of Mexico (Case 2) are good examples that showcase the consequences of scientific colonialism in the affected communities. Most of the colonial context is reported in grey literature, which makes it difficult to discuss in academic publications that emphasise traditional commercial publishing. The cases have clear historical, political and social axes that show an asymmetric relationship between the scientists and the communities embedded in their object of study. We discuss two definitions of colonialism: one that considers the phenomenon as an asymmetrical transfer of knowledge that creates epistemological dependence (scientific colonialism) and another one where the colonised communities use the language of the coloniser to understand their reality (internal colonialism). However, both definitions are underscored by processes of violence, and it is the identification of this violence that needs to guide our approach to decolonisation. The case of Late Cretaceous marine fossils from Vallecillo is interesting because it is on the margins of legality, and from a distance, it is not clear that it has the features of parachute science that have been described in the literature. However, the political, social and historical axes of the fossil extraction in Vallecillo are all linked to violence that stems from institutional structures that are colonial in nature. Because colonialism eventually leads to violence, the decolonial discourse converges on the need for a call for justice, which cannot be resolved within any academic community. However, it could be mitigated.

1.1 The long-lasting consequences of scientific colonialism

Johan Galtung (1967) described how academia serves as a way to perpetuate the colonial *status quo*: data and knowledge are extracted from a region, imported raw at a low price into the metropole, processed into manufactured goods, and then reimported into the colony at a higher price. Understood this way, the manufactured goods produced by academia are part of a system that ensures an asymmetrical relationship between the coloniser and the colonies in producing scientific knowledge. Galtung proposed that correctives to this process could produce more symmetric relationships. However, the consequences of scientific colonialism can have a long-lasting impact on communities, so these correctives need to address the underlying issues.

Frantz Omar Fanon (1925-1961) was a political philosopher and a psychiatrist who first established that the mind cannot be dissociated from colonial socioeconomic architecture (Fanon, 1965). Thus, the colonized understand themselves through the eyes of the colonizer (Pérez Flores, 2022). The language used in Europe to understand oppression cannot simply be translated to the context of the colony, where, for instance, the proletariat is privileged, and the revolutionary party is a colonial entity (Pérez Flores, 2022). One such colonial institution is academia. The scientific knowledge produced by the European metropoles informed itself about the natural world through local knowledge of the colonized territories (Lafuente, 2000; Quintero Toro, 2006; Raj, 2000). The European powers then reprocessed this knowledge and imposed it upon the colonized subjects to exert control (Quintero Toro, 2006).

Western knowledge thrived and became hegemonic in Latin America, where the institutions built by the Spanish and Portuguese crowns continued to look towards Europe for knowledge production in the 19th century (Figueirôa and da Silva, 2000; Lafuente, 2000; Lopes and Podgorny, 2000). A story that exemplifies this case is that of New Spanish naturalist José Mariano Mociño y Losada, the first taxonomist in the New Spain territory that would later become Mexico after the Civil War of Independence (1810-1821) (Guevara Sada, 2018). In 1803, Mociño left New Spain and joined the Botanical Garden of Madrid. The Peninsular War broke out four years later when Napoleonic France invaded Spain. This event has traditionally been considered one of the main catalysts of the independence movement in Mexico. Mociño supported the new French king imposed on Spain, Joseph Bonaparte, and after the war, when Spain regained its sovereignty, Mociño was imprisoned for espousing French ideals. After Mociño managed to leave Spain, he exiled himself to France, where he became a professor at the University of Geneva with the help of the botanist Agustin Pyramus de Candolle (Fuertes Olavide et al., 1999). Epistemic

colonialism requires that hegemonic knowledge be aligned with certain political ideas; thus, decolonisation is not an apolitical endeavour and necessitates consideration of the political dimension.

If we add Fanon's lens to Galtung's (1967) definition: any regulation applied to this system will be inherently colonialist. The
85   case of Maria Sabina could only happen because the Mexican institutions marginalised her and her community. On the one hand, the regulations would ensure a standard for collecting, processing, exporting, and importing data, whose ethical framework would be limited by the political system at the time. On the other hand, there is a risk of creative compliance, where scientific knowledge is produced under what seems to be strict control, despite circumventing the regulations (Yates, 2022). Galtung acknowledged that knowledge accumulation could be inherently asymmetrical. In many instances, the correctives
90   proposed towards the end of Galtung require looking outside the system of colonial scientific production, such as allowing one nation to freely access the other's knowledge, effectively removing the costly reimportation of goods.

It is important to bring about the sociopolitical context in which Galtung and Fanon lived, i.e. during the height of the Cold War. Galtung addressed Project Camelot, the codename for a military-funded project whose title was "Method for Predicting and Influencing Social Change and Internal War Potential", led by the Special Operations Research Office (SORO) at
95   American University. The project aimed to study counterinsurgency movements in target countries, several of which were in Latin America, to predict and influence social developments (Galtung, 1967). When scientists from Latin America were made aware of the research funding and the United States' intentions to intervene in the political affairs of target countries, they denounced the project and refused to collaborate. Although the backlash led the U.S. Department of Defense to cancel Project Camelot on 8th July 1965, the project continued discreetly. Galtung (1967) suggested that measurements could have been put
100 in place to make Project Camelot equitable. However, with the privilege of hindsight, it is clear that the project intended to be a colonialist endeavour to counteract the rise of socialist movements in the hemisphere. Galtung and other social scientists acknowledged this when, on 28th April 1965, the United States invaded the Dominican Republic and fostered a civil war that ended with the deposition of Juan Bosch, the first democratically elected socialist-leaning president of the Dominican Republic, and the imposition of the authoritarian leader Joaquín Balaguer, under whose regime 11,000 people were either tortured,
105 forcibly disappeared or murdered (Anon, 2013a). Galtung's optimism in 1967 needs to be contrasted with the regime changes orchestrated by the United States in the subsequent decade—Bolivia (1971), Chile (1973), and Argentina (1976)—and his stance to denounce "structural fascism" in the United States [1].

This framework allows us to understand how the scientific development in Latin America differed from that in the United States. After gaining independence in 1776, the U.S. territory was initially constrained to a small strip along the Atlantic, with
110 the rest occupied by other European powers. As westward expansion began, the United States relied on scientific knowledge produced and validated by its institutions, which explored and extracted geological resources without depending on the needs of a metropole across the Atlantic (Monarrez et al., 2022). The role that science played in the development of the colonial project is evident when looking at Thomas Jefferson, who was not only the third president of the United States but also an important naturalist who challenged Georges Leclerc de Buffon, considered to be one of Europe's greatest minds (Dugatkin,
115 2016). Palaeontology played a key role in developing independent academic institutions in the United States and helped consolidate them as bodies of knowledge to the same level as those in Europe.

1.2 The historical asymmetry between scientific production in the Global North and the Global South

Scientific knowledge, as we think of it now, was not the only way to produce knowledge. For instance, the scientific developments in British India during the 19th century managed to incorporate much of the local knowledge produced by the

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[1] Reading Galtung's works, it is clear that in the 1970s Galtung radicalized to defend authoritarian and imperialist regimes that fell under the 'socialist umbrella', and lately, to espouse anti-globalist views that are antisemitic in nature.

120 colonised in India and then processed through the institutions of British academia (Quintero Toro, 2006; Raj, 2000). Epistemic colonialism involves the concomitant questioning of the validity of local empirical knowledge, which is then replaced by expertise deemed "superior" from the Global North, even if the scientific knowledge of academia confirms local knowledge (Petrakaki et al., 2023). Thus, fossils, for instance, have epistemic value in the societies that have encountered them. In ancient Greece, the epistemic value of fossils comes from the different metaphysical interpretations (cosmogony) that Ancient Greek

125 societies had about the origins of the world (Papavero et al., 1997; Sour-Tovar and Quiroz-Barroso, 2004). Similarly, this knowledge is as "pre-scientific" as the knowledge in other regions and by other societies that had their cosmogonies but that are now deemed inferior and labelled as folklore (Guerrero Arenas and Jiménez-Hidalgo, 2023). However, this empirical knowledge has been sidelined, and the Eurocentric narrative has been inserted into the academia of the Global South as the only starting point, a situation that has been identified as epistemic colonialism (Ibarra-Colado, 2006).

130 A shift in how we conceive scientific knowledge occurred during the 1990s when ethnographers started to understand that Western knowledge was a type of regional knowledge that had become hegemonic (Geertz, 1983). Many societies, including the European ones, had pre-scientific notions of the fossil record. For instance, when recounting the history of palaeontology, it is likely to start with the idea that Leonardo da Vinci was the first to recognise that fossils were evidence of life in the past (Rudwick, 1976). Nevertheless, a similar conclusion can be reached in the works of the Chinese philosopher Shen Kuo (1031-

135 1095) nearly four hundred years earlier (Sivin, 1985). In Africa, indigenous communities have been discovering fossils and recognising them as the remains left by living organisms of some kind (Benoit et al., 2024). There was written evidence in ancient Mexico that the large megafauna fossils found in the Valley of Mexico were recognised as evidence of past organic life (Díaz del Castillo, 1632: Ch. 78). For instance, the Nahua people believed that the remains belonged to the giants that built the abandoned city of Teotihuacan (De Sahagún, 1540). The fact that fossils are evidence of life that existed in the past is

140 scientific knowledge because it is falsifiable, verifiable, objective, predictable, reproducible, and reliable. Therefore, it is unsurprising that several societies have independently reached the same conclusions before da Vinci.

Western knowledge used the different institutions of academia as a validation process to consolidate its hegemonic status over other forms of knowledge, for instance, by presenting the history of science as beginning during the Enlightenment or the Renaissance whilst devaluing all other types of knowledge. For scientific knowledge to develop, it is important to keep track of ideas. Thus, Western knowledge monopolises this process through publishing mechanisms by restricting the people who

145 can access them. Even today, there is a common belief that for scientific knowledge to be produced, it needs to have undergone scholarly peer review, a process that was not commonplace until the 20th century as a mechanism of accountability (Baldwin, 2018; Tan, 2018; Wagner and Steinzor, 2006).

If collections, databases, and archives are scientific goods, achieving a more symmetrical relationship between the data source (colonised) and the good manufacturer (coloniser) requires considerations of how to make collections, databases, and archives

150 freely accessible. Under the current system, regions in the Global South are more likely to engage in producing raw data for import rather than investing in costly infrastructure, which could otherwise be outsourced to the Global North. This lies at the core of the calls for the repatriation of type material (the scientific good) to its region of origin. If a valuable holotype in the Global North is returned to its origin, the region of origin could develop valuable collections that attract researchers elsewhere

155 and serve as leverage to invest in costly infrastructure for data production and generate manufactured goods locally. Repatriation would not diminish the value of the collection that originally hosted the holotype, typically an institution in the Global North, but it could significantly enhance the manufacturing capabilities of the country of origin (Cisneros et al., 2022b).

1.3 Internal colonialism – building the Mexican nation

The concept of internal colonialism was developed in the late 1950s as a way to understand social dynamics in recently

160 independent states, such as South Africa (Marquard, 1957). The concept was then expanded to explain the dynamics of other

former colonies by Mexican sociologist Pablo González Casanova in 1965. According to González Casanova (1965) internal colonialism occurs when "the notion of domination and exploitation of natives by natives" replaces the "direct domination of foreigners over natives." Thus, the process of decolonising science requires considering the dynamics of internal colonialism and identifying the ways in which scientific endeavour could perpetuate violence. For instance, Alpaslan-Roodenberg et al.

165 (2021) suggested that the imposition of policies to protect indigenous communities in the United States can feel "paternalistic at best and colonialist at worst" to other researchers from abroad (Alpaslan-Roodenberg et al., 2021, p.42). This feeling is in line with what we discussed above about how the language to understand oppression in the United States cannot simply be translated to the context of the colony. However, Alpaslan-Roodenberg et al. (2021) put forward the case of Mexico, where it is largely assumed that institutions have fully embraced their indigenous heritage in a way that has not occurred in the United

170 States. However, following González Casanova's analysis, this statement is a manifestation of internal colonialism (see for instance: Moreno Figueroa and Saldívar Tanaka, 2016).
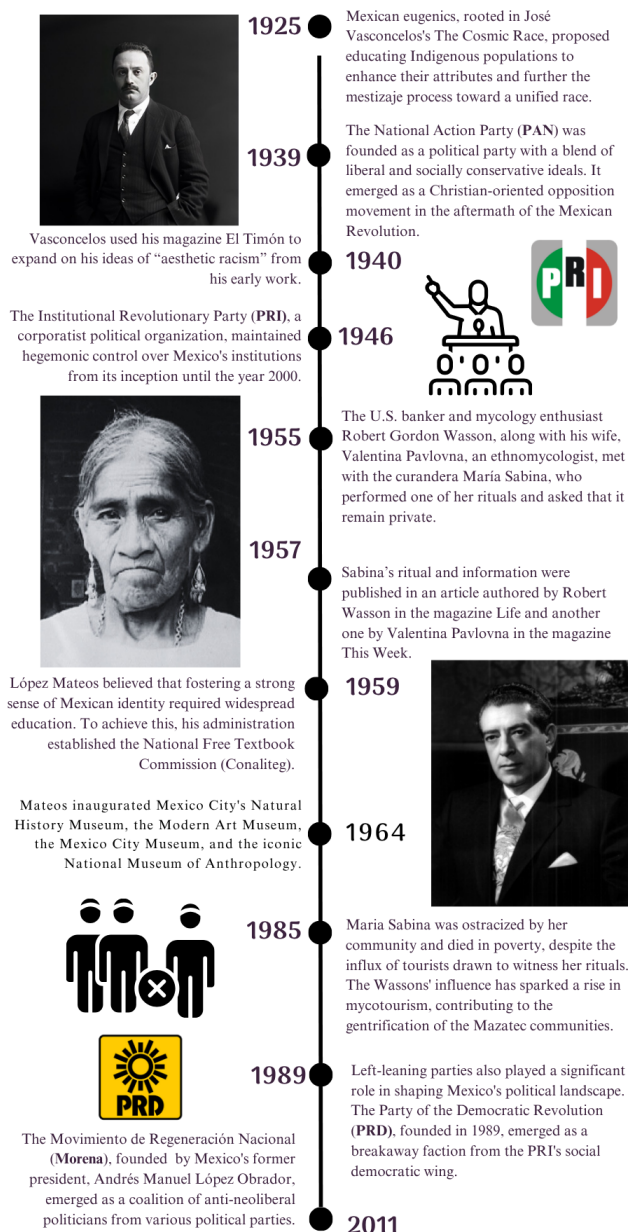
Figure 1. Timeline of key events in Mexican history that constitute the background for Case 1 and Case 2. Image credits (top to bottom): Portrait of José Vasconcelos (ca. 1920) [Public domain]. Portrait of María Sabina Magdalena García taken by Don Juan Peralta, uploaded to Wikimedia Commons by Juan Carlos Rangel [Public domain]. Official portrait of President Adolfo López Mateos [CC BY 4.0, https://creativecommons.org/licenses/by/4.0/deed.en]. The logos of the Partido Revolucionario Institucional (PRI, above), and Partido de la Revolución Democrática (PRD, below), are not subject to copyright according to Mexican Federal Copyright Law (Article 14, §VII, https://indautor.gob.mx/documentos/marco-juridico/LFDA.pdf). All other icons came from Canva Library.

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González Casanova (1965) described the different ways in which Mexico had become a dominant centre, exerting political,
economic, commercial, and cultural control over indigenous communities. This assessment came after evaluating the impact
of the administration of President Adolfo López Mateos between 1958 and 1964. López Mateos was president of Mexico
during a period of economic boom, low inflation and inward-looking policies that have been dubbed the "Mexican miracle"
(Villalobos López, 2023). During his administration, cultural institutions also benefited given the influence of the Mexican
philosopher, writer and politician José Vasconcelos – López Mateos's administration created the National Free Textbook
Commission (Conaliteg) in 1959 (Reyes Espinosa, 2018), opened Mexico City's Natural History Museum, the Modern Art
Museum, the Mexico City Museum, and the National Museum of Anthropology in 1964, and rehabilitated the College of San
Francisco Javier as the National Museum of the Viceroyalty of New Spain in Tepoztlán, State of Mexico, which also opened
in 1964 (Arnaiz y Freg, 1974; Reyes Espinosa, 2018). López Mateos considered, as did so his political mentor José
Vasconcelos, that to consolidate a sense of Mexican identity, it was necessary to educate as many people as possible (Moreno
Figueroa and Saldívar Tanaka, 2016; Reyes Espinosa, 2018). Nevertheless, González Casanova (1965) reported several aspects
in which Indigenous communities were not benefiting from this cultural resurgence, namely the general lack of services such
as schools, hospitals, and infrastructure, the low levels of literacy, the manipulation through magico-religious culture, the
reinforcement of traditionalism from the government, and the continuation of exploitation systems that existed since colonial
times.

Even from 1965, it was clear that the institutions were embracing the past of the Native Mexicans as a sort of *heroic past*
whilst ignoring the communities in the present. In the aftermath of the Mexican Revolution, philosophers like Antonio Caso,
Alfonso Reyes and José Vasconcelos considered that there was a lack of identity to fuel a nationalist sentiment (Morales,
2017). José Vasconcelos had a stronger influence on the development of this identity at an institutional level, given his political
career. The need to develop a Mexican identity is what would create a new type of conservatism in the country, where
traditional values were redefined (Morales, 2017; Moreno Figueroa and Saldívar Tanaka, 2016). Today, although the ideals of
Vasconcelos can be found in all institutional levels and in political parties of all political leanings that portray a sense of
patriotism (Moreno Figueroa and Saldívar Tanaka, 2016), this type of conservatism is core to right-leaning parties, namely the
National Action Party (PAN), a party with liberal and social conservatism leaning that originated as a Christian opposition in
the aftermath of the Mexican Revolution (1939), and the Institutional Revolutionary Party (PRI), a corporatist party founded
in 1946 and that held the hegemonic control of institutions between 1946 and 2000. The sense of national identity as professed
by Vasconcelos can also be found in other parties at more local governments and also in the left-leaning parties, such as the
Party of the Democratic Revolution (PRD), founded in 1989 as the excision of the social democratic branch of the PRI, the
centre-left Movimiento Ciudadano, founded in 1999 by former members of PRI and PAN, and the Movimiento de
Regeneración Nacional (Morena), founded in 2011 by the former president of Mexico, Andrés Manuel López Obrador, as an
agglomeration of anti-neoliberal politicians from all the other parties.

When read through the internal colonialism framework, José Vasconcelos's ideas were akin to the eugenic movement. As a
social construct, the notion and purpose of the concept of race vary from society to society. Mexican eugenics was built on a
thesis that Vasconcelos first developed in 1925 in his book "The Cosmic Race" and later on in the summer of 1940 through
several pieces in the magazine *El Timón* (Bar-Lewaw, 1982; Morales, 2017; Pilatowsky, 2014) (Figure *1*). Vasconcelos
considered that the social Darwinism developed in Europe was focused on the notion of fitness, suggesting a hierarchy of races
(Pilatowsky, 2014); instead, Vasconcelos deemed that through the "mixture" of races, the agglomeration, the "ugly" traits
would become diluted and lost, favouring the "beautiful" traits from all races to flourish (Pilatowsky, 2014). Thus, Mexican
eugenics considers that the "superior race" is the agglomeration of the European, Asian, African and Native Americans into
the *mestizo,* although by the end of the 1940s, the concept became anti-Semitic, anti-Black and anti-Asian (Bar-Lewaw, 1982;
Moreno Figueroa and Saldívar Tanaka, 2016; Pilatowsky, 2014). This type of eugenics has been denominated as "aesthetic

eugenics" (Pilatowsky, 2014) and has had an everlasting influence on the build-up of Mexican academic and cultural institutions.

Whereas neocolonialism refers to the notion of a state that historically has been a colonial power, exerting power over another independent state that inherited a colonial past, internal colonialism refers to the effects of uneven development of a community or region. Internal colonialism posits that the exploited minority group is put in a relationship with a centralised power that resembles the metropole-colony relationship. For instance, between 22nd February and 15th June 1940, Vasconcelos used his magazine *El Timón* to expand his ideas of "aesthetic racism" from his early work. The magazine aligned itself with the ideologies promoted in Nazi Germany, Fascist Italy and Franco-Spain (Bar-Lewaw, 1982; Morales, 2017; Pilatowsky, 2014). Vasconcelos's primary goal was to portray Nazism as a catholic-friendly movement in a clear attempt to align Mexican social policies with Nazi Germany (Bar-Lewaw, 1982; Pilatowsky, 2014). Along with the anti-Semitic tones of Vasconcelos's pieces, there is a strong anti-Indigenous sentiment, where Indigenous populations are portrayed as needing to be educated to improve their racial attributes and continue the *mestizaje* process towards one race (Pilatowsky, 2014). The urge to educate the rural and impoverished areas where most of the indigenous communities lived came from a desire to reduce their identity and lead to their assimilation into the Mexican nation. This is at the core of the anti-Indigenous narratives that González Casanova (1965) denounced in his concept of "internal colonialism".

Furthermore, Vasconcelos's ideas were consolidated in the identity of the Chicano community in the United States. Aided by the Mexican government, activists of Mexican nationality achieved the consideration of "Hispanic" as its own race, removed from its African roots and closer to the concept of whiteness developed during the racial trials for citizenship in the United States (Barreto and Lozano, 2017; Fernández et al., 2021; Molina, 2014). This background resonates with many in academia, even if inadvertently, as seen in Alpaslan-Roodenberg *et al.* (2021).

2. Methods

The social, political, and economic contexts of the cases in Mexico described here have been reported in newspapers and grey literature through mostly journalistic efforts documenting the impact of extractivist practices on the communities. Moreover, this grey literature is consumed by the researchers in their communities and constitutes the zeitgeist of the local, national and regional academic societies. It is important to bear in mind that, even in the case some of these are allegations or have never been brought up to the competent authorities to issue legally binding resolutions or definitions, they form the body of knowledge people are aware of at the time, and in turn inform them about the current affairs. Unless the sources confirm that legal resolutions, actions or judgments have taken place, everything in this paper is taken as an allegation or speculation and only used to understand the optics of the cases and elucidate the potential cultural, social, economic and political dimensions of the three selected cases. Moreover, we build a case on the importance of consulting grey literature to understand the panorama surrounding our study subjects, in this case outcrops and fossils, intending to avoid perpetuating or possibly committing acts of violence against communities.

Case 1 (biocultural heritage) and Case 2 (archaeological heritage) were selected because they represent well-documented scenarios, albeit in the grey literature, illustrating the long-lasting consequences of the internal scientific colonialism in Mexico. From these two cases, we build a framework for understanding fossils as pieces with cultural, social, economic and political value, which is then applied to Case 3 (palaeontological heritage). The grey literature on Case 3 is mostly focused on the climate of violence during the war on drugs in Mexico. The sources were found by looking at local newspapers and the localities in search engines (Google and Ecosia). The breakdown of the sources (including those indexed but published by academic public institutions) used for this review is as follows.

260 **Case 1. Ethnomycology and mycotourism**

Locality: Huautla de Jiménez, Sierra Mazateca (or Sierra de Huautla), Oaxaca, México.

Table 1. Annotated bibliography of the grey literature consulted for Case 1: "Ethmycology and mycotourism".

Type of source	Reference	Description
Book chapter	Thome-Ortiz, Humberto. 'Turismo rural y sustentabilidad. El caso del turismo micológico en el Estado de México'. In *Ambiente y patrimonio cultural*, edited by Fermín Carreño-Meléndez and Alicia Yaneth Vázquez-González, 1st ed. Ciudad de México, México: Universidad Autónoma del Estado de México, 2016.	The book "Ambiente y patrimonio cultural" was published by the Autonomous University of the State of Mexico. The chapter outlines the characteristics of tourism motivated by the consumption of endogenous psychedelics (entheogens) produced by mushrooms (mycotourism).
Book chapter (grey literature)	Irvin, Jan. R. Gordon Wasson: The Man, the Legend, the Myth. Beginning a New History of Magic Mushrooms, Ethnomycology, and the Psychedelic Revolution. In *Entheogens and the Development of Culture*, edited by John Rush, 565–619. Berkeley, California: North Atlantic Books, 2013.	Book chapter archived by the Multidisciplinary Association for Psychedelic Studies (MAPS) with the following comment: "Abstract: An interesting chapter that speculates about ethnobotanist and banker R. Gordon Wasson (1898-1986) and his connections to publisher Henry Luce, Skull and Bones [a Yale University secret society], the CIA (Central Intelligence Agency), propaganda pioneer Edward Bernays, the CFR (Council on Foreign Relations), and the psychedelic revolution of the 1960s."
Journalistic Piece	Santiago, Aldo. 'Ciencia, extractivismo y despojo en la sierra Mazateca'. Avispa Mídia, 28 June 2023. https://avispa.org/ciencia-extractivismo-y-despojo-en-la-sierra-mazateca/ [all accessed on 03 May 2025]	Avispa Mídia is an independent media: "focused mostly on political, ecological, and social conflicts in Latin America. The team at Avispa Mídia works to expose the interests behind these conflicts, rather than simply describing the problems. In doing so, we are on the ground in territories where very few media projects are, prioritizing research as our mode of journalism." [avispa.org/about-avispa].
Biography	Estrada, Álvaro. Vida de María Sabina. La sabia de los hongos. 2nd ed. Siglo XXI Editores, 1979.	Álvaro Estrada, also from the Mazatec community, wrote María Sabina's biography through conversations with the shaman, who did not speak Spanish.

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Case 2. La Piedra de los Tecomates

Locality: San Miguel Coatlinchán, State of Mexico, Mexico; Museo Nacional de Antropología, Mexico City, Mexico

270 *Table 2. Annotated bibliography of the grey literature consulted for Case 2: "La Piedra de los Tecomates"*

Type of source	Reference	Description
Book	Tovar Santana, Alfonso. ¿Cómo llegó Tlaloc a Chapultepec?, Instituto Politécnico Nacional, 1993.	As of 2014, this account of the episode in San Miguel Coatlinchán was the only document narrating the details of the extraction of the monolith. According to a report in the newspaper *La Jornada*, this book, published by the Instituto Politécnico Nacional, had a print run of only 1000 specimens (Espinosa, 2014a). Alfonso Tovar is credited as the engineer who performed the weight determination to move the monolith from San Miguel Coatlinchán to Mexico City.
Conference proceeding	Jennie Arllette Quintero Hernández, '"La Piedra de Los Tecomates" ¿Tláloc o Chalchiutlicue?', Tlaloc ¿qué?, Entidades acuáticas en América: las primeras sociedades, 13 (2014): 8–17.	Published in the trimestral bulletin of the Seminar "Aquatic Entities in America: the earliest societies", a Research Project funded by the Dirección de Desarrollo Académico, Dirección General de Asuntos del Personal Académico, UNAM (Project number IN401614). More details in the profile of the project [https://datosabiertos.unam.mx/DGAPA:PAPIIT:IN401614]
Journalistic piece	Guillermo G. Espinosa, 'A Coatlinchán sólo le quedó el orgullo de ser sitio original de Tláloc', La Jornada, 21 April 2014, sec. Cultura.	An interview by journalist Guillermo Espinosa with the chronicler of San Miguel Coatlinchán, Salvador Suárez, who was a teenager back in 1964 when the Mexican Army organised the transport of the monolith.
Journalistic piece	Arturo Cruz Bárcenas, 'Tláloc sigue enterrado aquí; se llevaron a Chalchiuhtlicue: Guadalupe Villarreal', La Jornada, 5 April 2014, sec. Espectáculos.	An interview by journalist Arturo Cruz Bárcenas with Guadalupe Villarreal, a retired secondary school teacher from San Miguel Coatlinchán, who witnessed the removal of the monolith.
Documentary	La Piedra Ausente. 2013	The documentary is based on the doctoral thesis by Sandra Rozental, who spent a one-year-long stay in San Miguel Coatlinchán; the documentary was co-directed by Sandra Rozental and filmmaker Jesse Lerner. Sandra Rozental's PhD dissertation was titled "Mobilising the Monolith: Patrimonio and the

		Production of Mexico through its Fragments" and was presented at New York University in 2012.
Journalistic piece	Páramo, Arturo. '50 aniversario del viaje del dios Tláloc'. Excélsior, 16 April 2014, sec. Expresiones. [accessed on 03 May 2025]	A chronicle recounting the removal and arrival of the monolith from San Miguel Coatlinchán to Mexico City, and the subsequent government acknowledgement of the violent removal in commemoration of the 50th anniversary of the event.
Report	Claudia Blas Rojas, 'Tláloc de Coatlinchán. Informe de análisis microquímicos para identificación y distribución de sales', Chemical analysis, Tláloc de Coatlinchán (Ciudad de México: Laboratorio de Conservación, Museo Nacional de Antropología, October 2012), https://mna.inah.gob.mx/detalle_huella.php?pl=Restauracion_y_conservacion_del_Tlaloc_de_Coatlinchan [all accessed on 03 May 2025]	Report carried out by the Conservation Laboratory at National Museum of Antrhopology, Mexico City, on the status of conservation of the monolith from San Miguel Coatlinchán after exposure to the environment, pollution and vandalism.

Case 3. The Vallecillo Quarry

Locality: Vallecillo, Nuevo León, Mexico; San Pedro Garza García, Nuevo León, Mexico; Saltillo, Coahuila, Mexico.

It is not possible to do a systematic review that looks at the political leanings of the sources given that on 24th March 2011, after consultation with the then Mexican President Felipe Calderón Hinojosa, representatives from 715 news organisations from Mexico gathered in the National Museum of Anthropology to sign the Agreement for News Coverage of Violence, which was an attempt to self-regulate and standardise the news coverage around organised crime and the role of the state (Lozano Rendón, 2016). There were only seven reports by the Observatory of the Processes of Public Communication of the Violence on how much the news sources followed through with their agreed-upon guidelines, between May 2011 and February 2013 (Lozano Rendón, 2016). In the column "Description" of Table 3, we indicate with an annotation "ANCV" the media consortia that signed the Agreement for News Coverage of Violence in 2011.

Note 1: a tangent case regarding a scandal where the Museo del Desierto in Saltillo, Coahuila, Mexico, and associated with the government of San Pedro Garza García, was reported in two newspapers: *Zócalo* and *Palabra*, but there are no online versions of this coverage are available. Thus, in Annexe 1 in this paper, we have included the clippings and translations of from *Palabra* that reported the alleged smuggling of fossils from Mexico to Germany.

Note 2: To understand Mauricio Fernández Garza's political career and government in San Pedro Garza García, Nuevo León, we also consulted grey literature and journalistic pieces regarding his public persona. However, this bibliography is only cited in the relevant sections but not annotated here to keep the chronology as tidy as possible.

Table 3. Annotated bibliography of the grey literature consulted for Case 3: "The Vallecillo Quarry". The note "ANCV" indicates that the media belongs to a consortium that signed the "Agreement for News Coverage of Violence" (see text).

Type of source (Language)	Reference [all accessed on 03 May 2025]	Description

Journalistic piece (Spanish)	Proceso, 'Criminalizan a trabajadoras domésticas en el municipio de San Pedro', Proceso, 20 April 2011, https://www.proceso.com.mx/nacional/2011/4/20/criminalizan-trabajadoras-domesticas-en-el-municipio-de-san-pedro-86233.html	*Proceso* is a weekly magazine, focused on opinion and political analysis founded in 1976. The outlet, owned by Comunicación e Información, became popular as an antagonistic source to the government of Mexican president Luis Echeverría, from the PRI; the outlet has since adopted a contrarian position against national governments regardless of their party affiliation, although it is regarded as a left-leaning outlet. This piece, redacted by the Editorial Team, exposes the controversy around Mauricio Fernández Garza, at the time mayor of San Pedro Garza from PAN, and the attempt of his government to create a registry of domestic workers in the city after his cabinet linked this workforce to the increase in home burglaries. The city government launched the program "De Ti y Por Ti" (in English, "From you and for you") on 11 April 2011 with an annual budget of 120 thousand pesos (around 10 thousand USD at the time), and although the State Commission of Human Rights approved it since it was a volunteer programme, it was reported that most of the domestic workers were accompanied by their employer.
Government Press Release (Spanish)	Congreso del Estado de Nuevo León, 'Abogan en favor de empleadas domésticas', Press Release, 4 May 2011, https://web.archive.org/web/20180211055325/https://www.hcnl.gob.mx/sala_de_prensa/2011/05/abogan_en_favor_de_empleadas_domesticas.php	A month after the launch of the programme "De Ti y Por Ti", a domestic workers registry, proposed by the government of San Pedro Garza García, the State of Nuevo León ordered the suspension of the registry as it was considered discriminatory. The motion was put forward by State Deputy María de Jesús Huerta, from PRI, who was chair of the Commission of Social Development and Human Rights at the time.
Journalistic piece (Spanish)	El Economista, 'Mueren 22 Zetas en persecución de Nuevo León', El Economista, 17 October 2011. https://www.eleconomista.com.mx/ultimas-noticias/Mueren-22-Zetas-en-persecucion-de-Nuevo-Leon-20111017-0159.html	El Economista is a Mexican newspaper with national distribution headquartered in Mexico City ("ANCV"). It was founded in 1988 and has been owned by Nacer Global, a technological consultancy firm, since 2008. The outlet focuses mostly on economics, finances, and politics. This reportage confirms that the Mexican Army confronted the drug cartel Los Zetas in San Carlos, a community in the municipality of Vallecillo, following the detention of

		the cartel's local leader and a state leader in the neighbouring state of Coahuila.
Journalistic piece (Spanish)	*Infobae*, 10 November 2011, sec. Sociedad,América, https://www.infobae.com/2011/10/24/1036452-desmantelaron-mexico-el-mayor-centro-entrenamiento-los-zetas/	Infobae is an Argentine online news outlet created in 2002. It is headquartered in Buenos Aires, Argentina, Miami, United States, and Mexico City and part of a homonymous conglomerate, Grupo Infobae. The outlet is considered conservative and neoliberal-leaning, and often anti-communist. This piece reports on the dismantling of a large training campsite operated by Los Zetas in the locality of Vallecillos (sic) using information gathered by the Spanish international news agency Agencia EFE.
Journalistic piece (Spanish)	Juan Alberto Cedillo, 'Un "narcocampamento" Con Billares, Cabezas de Venados y Muebles Elegantes', El Mundo, 26 October 2011, https://www.elmundo.es/america/2011/10/24/mexico/1319491499.html	El Mundo is a Spanish newspaper headquartered in Madrid, Spain, founded in 1989 and considered a centre-right leaning media. The chronicle reports on the aftermath of the confrontation between the Mexican Army and the drug cartel Los Zetas in San Carlos, Vallecillo (although the geotag on the website correctly identifies it as Vallecillo, throughout the piece it is referred to as Vallecillos). The chronicle also documents that the ranches where the cartel was headquartered were abandoned as their owners migrated to the United States, and reports that Vallecillo is the region of origin of many of the migrants from Nuevo León to the US. Here, they report on a large campsite used by Los Zetas.
Journalistic piece (Spanish)	Ioan Grillo, 'REPORTE ESPECIAL - Zetas, de guerra narco a insurgencia en México', Reuters, 29 May 2012, sec. Americas, https://www.reuters.com/article/idUSSIE84S0H4/	Reuters is a news agency owned by Thomson Reuters Corporation, headquartered in London. This special report was published a year after the confrontation in San Carlos, Vallecillo, between Los Zetas and the Mexican Army. The chronicle recounts the story of Los Zetas, which can be traced to 1998, formed by retired Mexican soldiers. The report puts forward comparisons between Vallecillo and other areas of Nuevo León, with active war zones and compares the drug cartel to an insurgent group, albeit without a political motivation.
Journalistic piece (Spanish)	Eduardo Padilla Sada, 'Mauricio Asegura Que CEDH Participó En Padrón de Empleadas Domésticas', *Milenio*, 29 June 2012, https://archive.ph/ohSh	*Milenio* is a national newspaper owned by Grupo Multimedios ("ANCV"). It was founded in 1974 and has its headquarters in Monterrey, Nuevo León. It is published in 11 Mexican cities (9 of them state

		capitals). This reportage by Eduardo Padilla Sada exposes that Mauricio Fernández Garza sent the draft of the programme to the State Commission of Human Rights, contradicting the earlier report that the State Government was not aware of it, as declared by the then-chair of the State Commission of Human Rights, Minerva Martínez Garza.
Journalistic piece (Spanish)	Juan Alberto Cedillo, 'Dinosaurios En Territorio Narco', Proceso, 15 August 2013, https://www.proceso.com.mx/reportajes/2013/8/15/dinosaurios-en-territorio-narco-122155.html	This chronicle, published in *Proceso*, outlines the state of the localities of Mesozoic outcrops in the northern area of Mexico following interviews with representatives of the Consejo de Paleontología, a branch of the INAH. The chronicle gathers that several municipalities from Nuevo León with fossils of scientific interest for vertebrate palaeontology were disputed at the time between the drug cartels Cártel del Golfo and Los Zetas, including Vallecillo, China, Aramberri and Mina. This report confirms that the quarry of Vallecillo is located in the same area as the campsite discovered two years before, in 2011. The note highlights that, due to the climate of violence, INAH suspended its activities in the area.
Journalistic piece (Spanish)	Telediario, 'Cerca del 90 de mujeres indígenas son empleadas domésticas en NL', Multimedios, 1 April 2014, sec. Noticias, https://www.multimedios.com/telediario/local/cerca-del-90-mujeres-indigenas.html	Telediario, also known as Multimedios Televisión or Canal 6, is a public television channel owned by Grupo Multimedios. Its headquarters are in Monterrey, Nuevo León. The report cites statistics from the National Institute of Statistics and Geography, an autonomous agency of the Mexican government, indicating that a large proportion of the domestic workers in Nuevo León are from an Indigenous community and are underage. The reportage confirms that by 2014, the registry of domestic workers in San Pedro Garza was suspended.
Journalistic piece (Spanish)	La Silla Rota, 'Alcalde de San Pedro propone registró de empleadas domésticas', La Silla Rota, 13 July 2016, https://lasillarota.com/estados/2016/7/13/alcalde-de-san-pedro-propone-registro-de-empleadas-domesticas-106134.html	La Silla Rota is an independent communication media company that originated in 1998 in Mexico City and launched in its current form in 2010. This report covers Mauricio Fernández Garza's intention to relaunch his governmental plan for a registry of domestic workers despite the State Commission of Human Rights' opposition. It expands it with a proposal to ban street vendors.

Streaming of a legislative session	*Comisión de Educación. 23/10/20*, YouTube video (Nuevo León, 2020), https://www.youtube.com/watch?v=IbOx-D9Lm9o&t=5270s Transcript: H. Congreso del Estado de Nuevo León, 'Diario de Los Debates', Minute, LXXVI-S.O. (Congreso del Estado de Nuevo León, 4 November 2020), 26, https://www.hcnl.gob.mx/trabajo_legislativo/pdf/lxxv/DD%20232%20LXXV%20SO.doc	Luis Alberto Susarrey Flores, Deputy from PAN for the 75th Legislature, argued before the State Education Commission that the fossils of Vallecillo should not be classified as fossils since their lack of calcium phosphate, proposing instead that they be categorised as "unusual engravings". Luis Susarrey mentions that this assessment came from consulting Dr Wolfgang Stinnesbeck from Heidelberg University.
Journalistic piece (Spanish)	Gustavo Mendoza Lemus, 'Comercializarían fósiles en Vallecillo si aprueban reforma', Grupo Milenio, 23 October 2020, sec. Cultura, https://www.milenio.com/cultura/comercializarian-fosiles-en-vallecillo-si-aprueban-reforma.	This report by Milenio ("ANCV") exposes that although the text of the Law Reform to the State Law on Cultural Heritage in Nuevo León does not explicitly allow the commercialisation of fossils, it would enable collectors to remove the specimens from the State for purposes if they are not deemed fossils by the Scientific Committee on Unusual Engravings.
Government newsletter (Spanish)	Secretaría de Cultura, 'El INAH llama al Congreso del Estado de Nuevo León a dialogar sobre la protección del patrimonio paleontológico de la Nación', Press Release, 30 October 2020, http://www.gob.mx/cultura/prensa/el-inah-llama-al-congreso-del-estado-de-nuevo-leon-a-dialogar-sobre-la-proteccion-del-patrimonio-paleontologico-de-la-nacion.	A press release issued by the Instituto Nacional de Antropología e Historia calls for a dialogue with the Congress of the State of Nuevo León after a reform at the state-level legislature that creates the heritage figure of "unusual engravings" and considers fossils from the Vallecillo Quarry as such, excluding them from federal protection as property of the nation.
Journalistic piece (Spanish)	Jesús Padilla. 'Hacia La Comercialización de Fósiles En Vallecillo', Reporte Índigo, 30 October 2020, sec. Reporte, https://www.reporteindigo.com/reporte/hacia-la-comercializacion-de-fosiles-en-vallecillo-reforma-patrimonio-cultural/	Reporte Índigo is a Mexican newspaper owned by Capital Media, a media production and distribution company focused on current affairs and sports headquartered in Mexico City. This reportage breaks the story of the reform to the State Heritage Law that introduces the concept of "unusual engravings" to exclude from federal protection the fossils quarried from Vallecillo. The piece highlights that opposition to this reform came from groups outside Nuevo León, including letters addressed to the Chair of the Local Congress from researchers associated to the Colectivo Estudios del Patrimonio Biocultural, from the central State of Morelos, and researchers from the Earth Sciences Department from the

		Auntonomous University of Chihuahua, from the northern State of Chihuahua. Similarly, reports on the Instituto Nacional de Antropología e Historia call to open working tables to discuss the new law that opens up the commercial sale of material from Vallecillo.
Law (Spanish)	Ley del Patrimonio Cultural del Estado de Nuevo León. Amendment published on 21 December 2020. https://web.archive.org/web/20250124090849/https://www.hcnl.gob.mx/trabajo_legislativo/leyes/leyes/ley_del_patrimonio_cultural_del_estado_de_nuevo_leon/	The amendment to the Law of Cultural Heritage of Nuevo León includes the introduction of a new legal category for heritage. "III Bis. Unusual engravings in limestone: Historical assets consisting of pieces or fragments with unusual engravings of living beings that inhabited the planet in the Cretaceous period, taken from limestone sedimentary rocks whose engraving contains calcium carbonate, except for those considered fossils by the applicable legislation on the subject." The amendment also includes the legislation to create a Scientific Committee on Unusual Engravings that would decide which material are not fossils and are, thus, able to leave the State for any reason.
Journalistic piece (Spanish)	Gustavo Mendoza Lemus, '"Milarca", la nueva joya paleontológica de Vallecillo para el mundo', Grupo Milenio, 19 March 2021, sec. Política, https://www.milenio.com/politica/milarca-joya-paleontologica-vallecillo-sp-mundo	Piece published in the newspaper *Milenio* ("ANCV"). This piece, authored by Gustavo Mendoza Lemus, breaks the news on the publication in *Science* and brings to the fore the conflict that Mauricio Fernández Garza has with INAH. The piece also highlights that, at the time of publication, Mauricio was contending for the mayoral election of San Pedro.
Journalistic piece (Spanish)	Perla Martínez, 'Presenta Mauricio tiburón planctívoro', Mural, 19 March 2021, sec. Vida, https://www.mural.com.mx/presenta-mauricio-tiburon-planctivoro/ar2147063	This piece was published in *Mural*, a newspaper founded by Grupo Reforma ("ANCV") at the end of 1998 in Guadalajara, Jalisco. This piece by journalist Perla Martínez breaks the news on the publication of *Aquilolamna milarcae* and reminds the readership of the discovery of *Mauriciosaurus fernandezi* in 2017.
Journalistic piece (Spanish)	Perla Martínez, 'Ahora presenta Mauricio tiburón llamado "Milarcae"', El Norte, 20 March 2021, sec. Local, https://www.elnorte.com/ahora-presenta-mauricio-tiburon-llamado-milarcae/ar2147343	This piece was published in *El Norte*, one of the main newspapers in Monterrey, Nuevo León, owned by Grupo Reforma ("ANCV"). *El Norte* has been considered an independent media since its foundation in 1938, and between 1970 and 1990, it became popular for exposing corruption in Mexico. The piece by Perla Martínez makes public that the

		holotype of *Aquilolamna milarcae* would be on display in the Museo La Milarca, and interviews Mauricio Fernández.
Journalistic piece (Spanish)	David Casas, 'Nuevo León: feudo de Los Zetas donde crearon 7 campos de exterminio', La Silla Rota, 2 November 2021, https://lasillarota.com/estados/2021/11/2/nuevo-leon-feudo-de-los-zetas-donde-crearon-campos-de-exterminio-303012.html	This chronicle, published in La Silla Rota, looks back at the period between 2009 and 2013 of the violence caused in Nuevo León by Los Zetas and the aftermath. The piece highlights that a Non-Governmental Organisation called *Fuerzas Unidas por Nuestros Desaparecidos de Nuevo León* (Spanish for United Forces for Our Disappeared Loved Ones in Nuevo León) documented six extermination camps allegedly created by the organised crime in several municipalities in Nuevo León, including Vallecillo, totalling the findings of 867,556 human remains.
Journalistic piece (Spanish)	Agencia Reforma, 'Está lista La Milarca, un gabinete de curiosidades; es museo de Mauricio Fernández', *Periódico Zócalo*, 3 November 2023, sec. Arte, https://www.zocalo.com.mx/esta-lista-la-milarca-un-gabinete-de-curiosidades-es-museo-de-mauricio-fernandez/	The newspaper *Zócalo* ("ANCV") is a news organisation based in the Mexican state of Coahuila with branches in the state's main cities. In this interview to Mauricio Fernández Garza, he confirms the opening of the Museum La Milarca and that the museum will exhibit 500 pieces from his private collection. The interview reiterates that La Milarca replicates Mauricio Fernández Garza's mansion.
Journalistic piece (Spanish and English)	*Los Angeles Times en Español*, 19 January 2022, sec. México, https://www.latimes.com/espanol/mexico/articulo/2022-01-19/multimillonario-mexicano-impulsa-polemica-replica-de-mansion-con-recursos-publicos; Marcos Martínez Chacón, 'Mexican Millionaire Builds Controversial Replica of Mansion' *Los Angeles Times*, 19 January 2022, sec. World & Nation, https://www.latimes.com/world-nation/story/2022-01-19/mexican-millionaire-builds-controversial-replica-of-mansion	Los Angeles Times is a newspaper from Los Angeles, California, U. S. founded in 1881. This reportage, also from the Associated Press, was published in English and Spanish, and outlines how Mauricio Fernández Garza used public funds to build the museum La Milarca as a replica of his mansion. The reportage alleges that the construction was approved during Fernández Garza tenure as major in San Pedro Garza between 2015 and 2018. The following administration, led by the independent major Miguel Treviño, suspended the project and only restarted it after the public contribution was reduced. The reportage also recounts an episode from 2009 in Fernández Garza tenure where he confirmed the death of an alleged kidnapper hours before his body was found in Mexico City. Finally, the piece highlights the

		renewed presence of the at the time retired politician on social media.
Judicial Resolution	Contorversia Constitucional 13/2021. https://www.scjn.gob.mx/sites/default/files/acuerdos_controversias_constit/documento/2021-02-25/MI_ContConst-13-2021.pdf	Resolution on the Constitutional Controversy against the Legislative and Executive branches of the State Government of Nuevo León, whereby the Supreme Court declares invalid the amendments regarding the category of "unusual engravings" created by the State of Nuevo León in 2020.
Journalistic piece (Spanish)	Sanjuana Martínez, 'La Milarca, nuevo museo del coleccionista Mauricio Fernández Garza', *La Jornada*, 20 February 2024, sec. Cultura. https://www.jornada.com.mx/noticia/2024/02/20/cultura/la-milarca-nuevo-museo-del-coleccionista-mauricio-fernandez-garza-534	This reportage was published in *La Jornada*, a Mexican newspaper with major circulation in Mexico City. The newspaper has a clear ideological leaning (social democracy and left-wing) and is owned by DEMOS Desarrollo de Medios and hosted online by the Universidad Nacional Autónoma de México. The reportage is a description of a guided tour hosted by Mauricio Fernández to a journalist from *La Jornada*, where he describes all the contents of La Milarca, a new museum in Monterrey, Nuevo León, that will exhibit his private collection; in the reportage, Mauricio explains how he has acquired several of the pieces in the market. The Museum is confirmed as a replica of Mauricio's mansion, also known as La Milarca, located in the National Reserve of Chipinque. The collection includes not only Mexican fossils but also international fossils, such as a pregnant ichthyosaur acquired from a German collector and fossils from the United States; moreover, it details several archaeological and historical collections. Journalist Sanjuana Martínez worked in Proceso, from which she was wrongly fired, according to a legal resolution in February 2015. From March 2019 to December 2023, she was director of the defunct Notimex, the official government news agency.

3 Using a decolonial framework

When discussing ethics in science and questioning extractivist practices, we think limiting the discussion to national boundaries and laws will leave cases insufficiently analysed. In this paper, we posit that a decolonial framework that integrates the notion of scientific colonialism with that of internal colonialism is better for identifying the points where communities have not benefited from the research they helped to produce or, worse, where they have experienced violence. Whereas the opening

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case of Maria Sabina illustrates the outreach and long-lasting impact of scientific colonialism from the Global North to the Global South, the situation of Maria Sabina and her community was built around them because of internal colonialism of an anti-Indigenous state.

300   We propose that any decolonial approach to research in any field of science needs to have a two-pronged approach: on one hand, it is important to ensure that the manufactured goods will be equitably shared so that the region from which data are collected has access to all the manufactured goods, and such an equitable relationship leads to developing the ability of the region to manufacture its own goods; on the other hand, researchers need to bear in mind that their research program could be embedded in a colonial project. Cases of the latter have started to come to light in recent years, such as the role that research

305   in amber from Late Cretaceous deposits played in the 2021 Myanmar coup d'etat, which has resulted in approximately 2,000 deaths and the imprisonment of nearly 10,000 others (Dunne et al., 2022; Pérez Ortega, 2022b).

3.1. Case 1: Ethnomycology and mycotourism

Annotated bibliography in Table 1.

In 1955, the U.S. banker and mycologist enthusiast Robert Gordon Wasson and her wife, Valentina Pavlovna, an
310   ethnomycologist, travelled to the Mazatec region in Mexico after learning of the use of psychedelic mushrooms by the communities in the Sierra Mazateca (Estrada, 1979) (Figure *1*). The Wassons met with *Curandera* Maria Sabina in the town of Huautla de Jiménez, who performed one of her rituals in front of them: locating missing people and important items. Maria Sabina requested that the photos that the Wassons took be kept private; despite this, in 1957, Sabina's ritual and information were published in an article authored by Robert Wasson in the magazine *Life* and another one by Valentina Pavlovna in the
315   magazine *This Week* (Irvin, 2013). These articles attracted much attention from the U.S. public (Irvin, 2013), leading to an increase in mycotourism, the type of tourism motivated by the experience of trying psychedelics (Thome-Ortiz, 2016). Although there was a positive economic impact in the region, Maria Sabina was ostracised by her community, and she died in poverty despite the influx of tourists who came to see her and perform the ritual (Estrada, 1979; Irvin, 2013). It was later revealed that Robert Gordon Wasson was unwittingly part of an illegal human experimentation program funded by the Central
320   Intelligence Agency (CIA) of the United States between 1953 and 1973 (Irvin 2013). Currently, the impact of the Wassons' ideas has increased mycotourism and led to a gentrification of the localities where Mazatec communities live, where foreigners and upper-class Mexicans self-appointed as *shamans* continuously displace the original communities (Ramírez Meléndez and Reyes de la Cruz, 2023; Santiago, 2023).

The example outlined above is a case of scientific colonialism, where the lack of ethics in carrying out scientific research led
325   to disastrous consequences for people embedded in the subject of study of the researchers. When talking about colonialism, it is important to highlight that, down the road, we will find cases of violence. Robert Gordon Wasson's and Valentina Pavlova's academic interests in the mycology of the Sierra Mazateca were circumscribed by a context of asymmetry between the researchers and the communities, which ensured that the latter would endure more violence (social, economic, political, and physical) in the future, and the consequences of this unethical practice can be felt today. However, Wasson's and Pavlova's
330   lives were not affected by the affair in any way.

3.2 Case 2: La Piedra de los Tecomates

Annotated bibliography in Table 2.

The entrance to the National Museum of Anthropology currently showcases the largest surviving monolith ever produced in the Americas, towering 7 m and weighing around 168 metric tonnes (Espinosa, 2014b; Quintero Hernández, 2014; Tovar
335   Santana, 1993). It was transported from the locality of San Miguel Coatlinchán, in the State of Mexico, to its current place in

Mexico City in 1964, under the instructions of President Adolfo López Mateos (Espinosa, 2014b; Tovar Santana, 1993) (Figure *2*). The monument is currently known as "Tlaloc's Monolith", but it was locally known as "La Piedra de los Tecomates" (Quintero Hernández, 2014). The word *tecomate* is a calque from the Classic Nahuatl *tecomatl*, meaning stone gourd-shaped vessel, and refers to the concavities carved on the mouth of the statue. The statue was discovered by the inhabitants of San

340 Miguel Coatlinchán in the mid-19th century at the base of a glen, la Cañada de Santa Clara, facing upwards and incomplete (Chavero, 1903; Espinosa, 2014b; Quintero Hernández, 2014; Sánchez, 1886). The town of Coatlinchán is at the base of Mount Tlaloc, an inactive shield volcano (4120 m altitude) that was considered sacred by the Aztecs, and on top of which a shrine was built to honour the Nahua god of rain, Tlaloc, between 350 and 900 CE (Popovici, 2022).

Before it was described in 1903 by one of the first archaeologists of Mexico, León Batres, the monolith was interpreted by the

345 locals as the Mexica goddess of surface waters, Chalchiuhtlicue (Chavero, 1903; Quintero Hernández, 2014; Sánchez, 1886) (Figure *2*. León Batres was the first person to propose that the monolith represented the Mexica god of rain, Tlaloc (Quintero Hernández, 2014). It is not clear who made this rock and whether the supinate position in the glen was intentional (Quintero Hernández, 2014). The National Institute of Anthropology and History suggests that the Teotihuacans likely carved the monolith between 100 BCE and 750 CE as a water deity (Tovar Santana, 1993). Thus, this paper will refer to this monolith as

350 "La Piedra de los Tecomates."

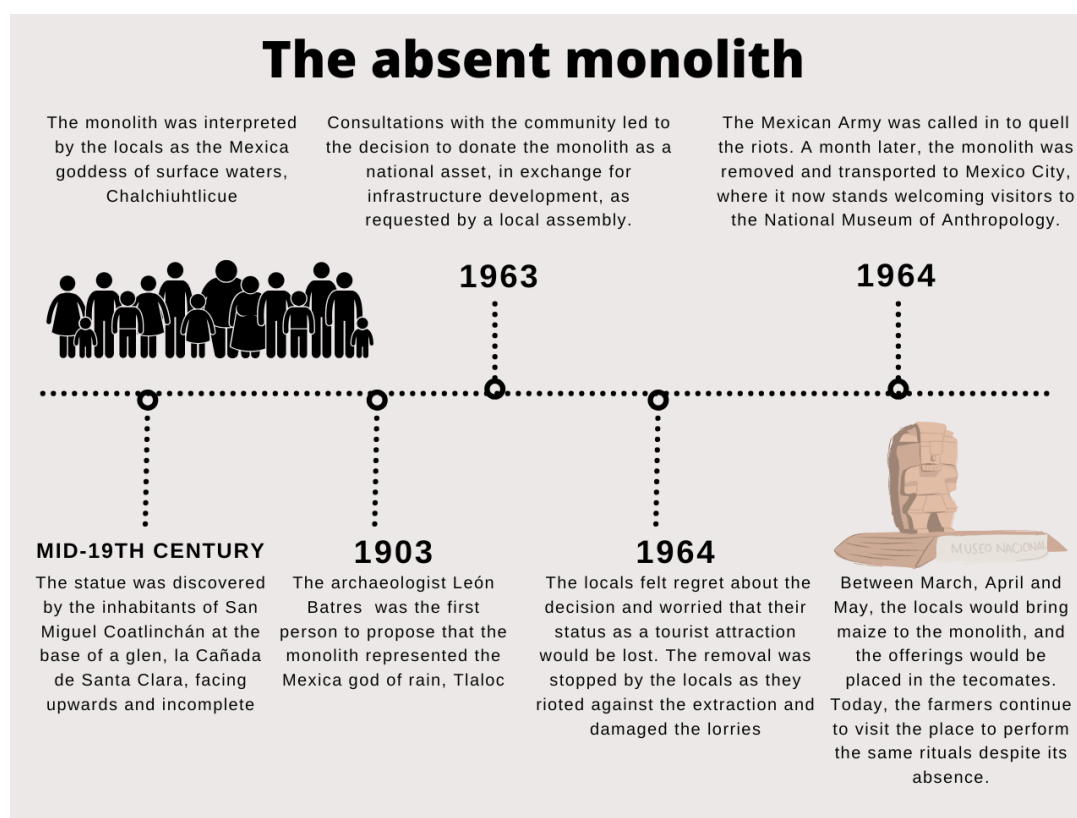



Figure 2. Timeline of the removal of the Piedra de los Tecomates from San Miguel Coatlinchán. Image rights: Canva Library.

The removal in 1964 (Figure *2*) of la Piedra de los Tecomates from San Miguel Coatlinchán to Mexico City was a violent act since the locals opposed it, and the Army was needed to keep them away during the excavation (Rozental, 2022; Tovar Santana,

355 1993). The removal damaged the glen and the surrounding landscape and had a direct impact on the local economy that had

been built around archaeological tourism (Espinosa, 2014b). The feat of excavating and transporting la Piedra de los Tecomates required consultation with scientists from the United States, and the initial setting of the museum followed traditional European museography (Medina González, 2015; Rozental, 2022; Tovar Santana, 1993).

On the surface, this case does not seem to meet the definition of scientific colonialism since it was the Mexican government deciding over territory it claims jurisdiction over and being part of a larger service towards the country. Repatriation, under the frameworks used in the extensive literature on known cases such as the Elgin Marbles or the Benin Bronzes (Greenfield, 2007), cannot be achieved since the object is already "home". Following the guidelines in Alpaslan-Roodenberg et al. (2021), the situation outlined above would meet the requirements to be done ethically and have no colonial nature. All the agents involved in the removal of la Piedra de los Tecomates had embraced their indigenous identity as part of the process of building a museum to showcase their past. Under the commonplace frameworks to discuss heritage, the removal was legal, as it was ordered by the highest authority of the executive branch of Mexico, who is also the Commander in Chief of the Army, and since its removal, municipal and state governments have not challenged the ownership. Yet, the act of violence is clearly there.

Let us consider the different dimensions that made removing la Piedra de los Tecomates a colonial act. Politically, the decision to remove the monolith from its place came from a sense of admiration for the ancient Native Mexicans who carved it. The political motivation had deep ideological roots, as Adolfo López Mateos continued the legacy of José Vasconcelos of forging a new Mexican identity that embraced both the glorious Native Mexican past and the modernising effect of the Spanish Crown (Cruz Bárcenas, 2014). However, embracing this heritage was done despite any heritage claims that the inhabitants of San Miguel Coatlinchán had. When the inhabitants discovered the monolith, they recognised their symbolic value in the same way that the formally educated people from Mexico City would do (Quintero Hernández, 2014).

Furthermore, they recognised that the monolith represented a water deity, to the extent that they considered the water accumulated in the *tecomates* to have healing properties or that the presence of humidity in the *tecomates* could forecast precipitation conditions in the near future (Quintero Hernández, 2014). The oral tradition of Coatlinchán considered that the monolith had rolled over from the Tlaloc Mountain to its place at the base of the glen, and the elders considered that during the 16th century, the monolith was in a temple on top of the Mount Tlaloc that was removed from the shrine to the base of the mountain fearing the Spaniards would destroy it (Quintero Hernández, 2014)This shows that the inhabitants of Coatlinchán saw the monolith as a historical piece at odds with the narrative and vision of the López Mateos administration.

Socially and economically, there were consultations with the inhabitants of San Miguel Coatlinchán to have the community donate the monolith to the National Museum of Anthropology (Espinosa, 2014b). The initial talks with the community took place in 1963, first when some inhabitants of the community considered that the monolith, as a national good, could be donated, and later on through a Local Assembly that asked for the development of infrastructure in exchange from the removal: "paving of the junction with the Mexico-Texcoco highway, primary school up to sixth grade, health centre, water wells and pumping equipment" (Espinosa, 2014b). A few weeks later, the locals felt regret about the decision and worried that their status as a tourist attraction would be lost (Anon, 2013b). Through 1963, the inhabitants and the federal government were at a stalemate; nevertheless, the federal government had removed sections of the glen to enable the passage of two lorries (Cruz Bárcenas, 2014; Espinosa, 2014b). On 23rd February 1964, the removal was stopped by the locals as they rioted against the extraction and damaged the lorries (Espinosa, 2014b). The Mexican Army was called to stop the riots, and the military action was concealed in the news (Cruz Bárcenas, 2014; Espinosa, 2014b; Tovar Santana, 1993). A month later, under military inspection, the monolith was finally removed and paraded into Mexico City on 16th April 1964 (Cruz Bárcenas, 2014). On April 17th, a delegation from Coatlinchán travelled to Mexico City to make the donation official and hope for the development of infrastructure (Espinosa, 2014b).

Culturally, la Piedra de los Tecomates had a place in the daily life of the inhabitants of San Miguel Coatlinchán, whose inhabitants considered it a spirit to whom they would pray to ask for good harvests (Quintero Hernández, 2014). Between March, April and May, the locals would bring maize to the monolith, and the offerings would be placed in the tecomates (Quintero Hernández, 2014). Today, the farmers continue to visit the place to perform the same rituals despite its absence

400 (Quintero Hernández, 2014). Coincidentally, on the day la Piedra de los Tecomates was paraded into Mexico City, a strong storm fell upon the city and linked the monolith to the identity of the god Tlaloc, albeit in a more folkloric way than religiously (Páramo, 2014). To date, the inhabitants of Coatlinchán feel bereft, as the infrastructure they were promised was, firstly, the constitutional responsibility of the government and, secondly, slow to come (Espinosa, 2014b).

Moreover, decades later, the same infrastructure promised to Coatlinchán was also provided to the neighbouring towns without

405 the need to donate heritage (Espinosa, 2014b). The sense of loss impacted the town's identity, and even before the case became widely known after the documentary *La Piedra Ausente*, several symbolic reparations were made by the Municipal Government of Texcoco. In the year 2002, Colombian sculptor Oscar Ramírez Quintero was commissioned a life-sized replica of la Piedra de los Tecomates, whose production was closely followed by the inhabitants of Coatlinchán and that was finally erected in the Central Town Square in 2009; in 2007, a commemorative plaque was erected where the monolith is reidentified

410 as Chalchiuhtlicue. The inhabitants of Coatlinchán still feel that the rains in the town changed after the removal of the stone (Espinosa, 2014b).

Finally, scientifically, the monolith has been resignified as an ornamental piece that welcomes visitors to the National Museum of Anthropology. According to the National Museum of Anthropology, in its current position, the pollution from one of the highways with the densest traffic in Mexico City, Reforma, is damaging the volcanic stone (Blas Rojas, 2012). La Piedra de

415 los Tecomates is still known as Tlaloc's monolith, despite the recent archaeological work questioning this assessment and confirming the identity as Chalchiuhtlicue. The assessment is important because it highlights the religious dual feminine-masculine nature that water has in the Nahua religion (Quintero Hernández, 2014). As the largest surviving monolith from the Americas, its current position is more a powerful symbol of honouring the past whilst neglecting the modern communities whose heritage we claim to have embraced.

420 **3.3 The epistemic value of fossils and asymmetric relationships**

Building on Galtung's suggestion, achieving a balance of knowledge requires considering equal access of the region from which data were collected to the knowledge of the region that sponsored the collection, i.e., the manufactured goods (Galtung, 1967). Although we often perceive colonial relationships overtly, such as between former colonies and their former colonial powers, scientific colonialism also refers to creating a new relationship that maintains colonialist dynamics. For instance, the

425 independent countries of Latin America may have moved away from their epistemological dependence on Spain. However, a new colonial relationship has replaced it with the United States, where social, economic and political conditions dictate epistemic development in the region. This aspect is often overlooked in discourse that assumes that colonial relationships are constant. Nevertheless, looking at the history of colonised territories, it is common to find that the land constantly changed hands. Thus, a country in the Global North can establish a new research relationship with a country in the Global South that

430 maintains colonial characteristics (internal colonialism), even if there is no prior political, historical, social or cultural colonial background between them.

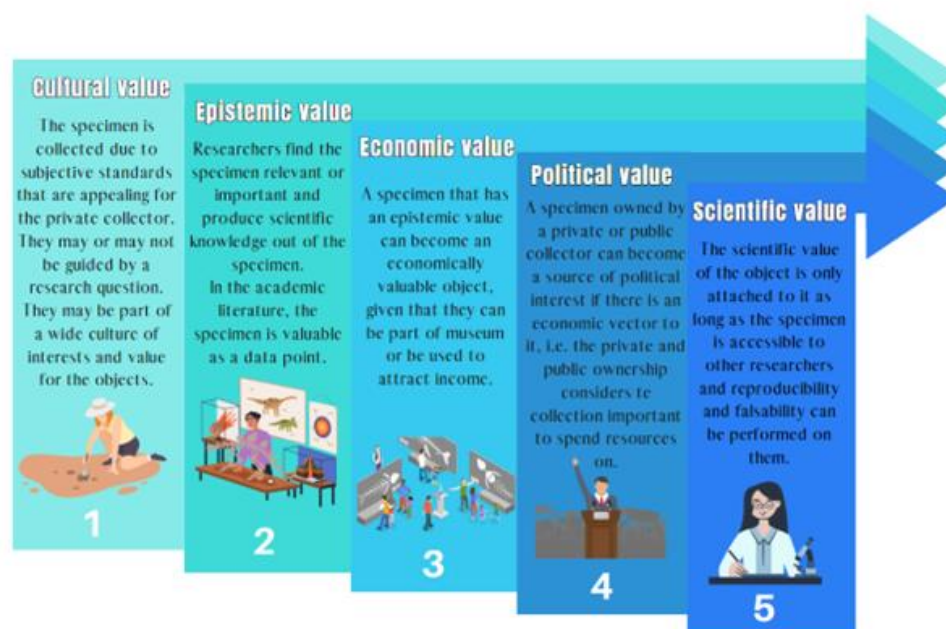



Figure 3: A schematic hierarchy of how fossils acquire different values in a collection. Fossils always start as cultural objects, given that
their collection is subjective. Based on a subjective criterion or set of criteria, the researcher or collector decides what objects to collect,
given that time and money are limited resources. Cultural value can be scientific culture, i.e., there is a need for certain fossils to be
collected or for mere aesthetic appreciation. The first production of knowledge gives the object an epistemic value, and it is when it
becomes a valuable object to science. The ability to differentiate between a valuable fossil and others hinges on its epistemic value—which
provides unique evidence distinct from more common fossils. Both public and private collections have a political dimension insofar as
they are considered worthy of receiving private or public resources. Whereas private collections have their existence conditioned to a
private source of income, public collections rely on governments who understand and appreciate the epistemic value of the objects and can
exploit their economic value. Scientific value can only be attained if the specimen is available to other researchers and the hypothesis can
be continuously tested. Image Rights: Canva Library.

When thinking of the scientific enterprise, it might be assumed that such manufactured goods are limited to scientific
publications, such as papers, monographs, or textbooks. In this regard, initiatives such as subsidised open access bring
symmetry to the research relationships. However, the list of manufactured goods includes other products, such as museum
collections, databases and archives. In palaeontology, when a fossil is described and named, the bearer of the name -the type
material- must be deposited in a collection where practitioners have guaranteed access to build on the previous knowledge.

A fossil by itself, without fieldwork data, a name, or a description, is not a scientific good; fossils are simply mineral objects.
They become valuable when a collector or a researcher adds epistemic value to them, and the object's worth increases when
additional economic, cultural, and social values are attached to it (Figure *3*). This includes scenarios where a country designates
an outcrop or area of scientific interest or value. Fossils are collected, during an expedition, assuming some will yield epistemic
or cultural value. Most excavations produce material that will generate scientific goods for many years to come. Thus, museum
collections play a crucial role in preserving material that continues to generate value. A collection gains value by successfully
preserving and producing knowledge. This is why collections are considered manufactured goods: they require infrastructure
and knowledgeable personnel to maintain.

Similarly, databases are manufactured goods that require infrastructure and skilled people for maintenance (Smith et al., 2023).
The Global North can sustain idle collections, where specimens may remain unstudied for decades or centuries. In contrast,
the Global South generally requires deliberate investment in museums that can maintain collections, ensuring continuous

production of epistemic goods. Nevertheless, in both the Global North and the Global South, public or private sponsors must
460   be willing to fund these capabilities.

The other aspect we want to bring forward in this contribution is that the scientific enterprise of manufacturing epistemic goods
does not occur in isolation; it is intricately tied to its colonial context. It serves the purpose of keeping public and private
sponsors as willing collaborators. Thus, researchers should be aware of the interests at play in funding their research in a
particular region. On the one hand, governments in the Global South may be replicating colonial practices in the building of
465   their research institutions (internal colonialism). Private actors may be taking advantage of colonial mechanisms and systems
to reach their own goals at the expense of the community from which data are collected.

Under this framework, it is also possible to understand people's reaction to the case of "Ubirajara," which led to a strong
campaign for its return to Brazil. The paper by Cisneros et al. (2022a) focused on the historical context behind two scientific
goods, the type material of *Aquilolamna*, a shark from the Agua Nueva Formation in Vallecillo (Mexico), and "Ubirajara", a
470   dinosaur from the Crato Formation. As type material, "Ubirajara" has an epistemic value that initially ensured that Brazil
would have a colonial relationship with Germany for years to come. Given that the fossil of "Ubirajara" was unique, any
researcher in Brazil who wanted to study the material would have to travel to Germany to analyse it. Generally, studies
conducted on a local scale tend to have a lower profile than those conducted nationally or internationally or on specific
biological groups, such as vertebrates. The scientific publishing industry has since added value to "Ubirajara". In Germany,
475   research projects that include a sampling site from Brazil and a sampling site in Germany can be performed, allowing high-
profile research to be conducted in Germany at local costs.

Likewise, suppose researchers in Brazil wish to study the Crato Formation, which is inherently local research. In that case,
their results need to add much more to the scientific literature to be accepted in journals that appeal to a wider audience,
necessitating greater investment of time and resources. If the researchers wish to include the specimen housed in Germany,
480   they must cover costs such as visas, travel, and accommodation. Consequently, conducting local research in Brazil becomes
more expensive, which could be mitigated through collaboration with German researchers. While Brazil has no option but to
collaborate with Germany to reduce research costs, Germany retains the option to opt out of such collaboration. It is, therefore,
understandable that Brazil has opted to regulate scientific production by adding the conditions that exporting countries, such
as Germany, collaborate with Brazilian scientists. This legislation aims to achieve symmetry, though it is largely reactive.

485   **4 Case study 3: Vallecillo in Mexico**

With this vocabulary, let us analyse the colonial nature of Vallecillo, which was first described in Cisneros *et al*. (2022a). For
this, we will examine the context that each of the actors had and how this dimension sparked a constitutional controversy in
Mexico concerning geological heritage (Secretaría de Cultura, 2020). The reception of Cisneros *et al*. (2022a) in recent years
serves as a good starting point. Media coverage around the publication focused on the fact that scientific colonialism was
490   denounced to have occurred between Germany, Brazil, and Mexico. It was alleged that the United States seemed to have
received a free pass in the paper (Pérez Ortega, 2022a). Investigating the histories of *Aquilolamna* and "Ubirajara" revealed
that certain actors and institutions from Germany were mainly involved in inequitable research relationships, where both
Mexico and Brazil were seen as mere sources of data. Cisneros *et al.* (2022a) underscore what we discussed above – although
it would be expected that the asymmetry would occur with Spain, the United States, or Portugal, the former occupying or
495   colonial powers with which both Mexico and Brazil share a historical background, scientific colonialism was established
instead between these two countries and a new colonial power, Germany. The case of *Aquilolamna* differs from "Ubirajara"
in that the specimen remained in Mexico. In this case, the colonial relationship is less evident than in the case of "Ubirajara",

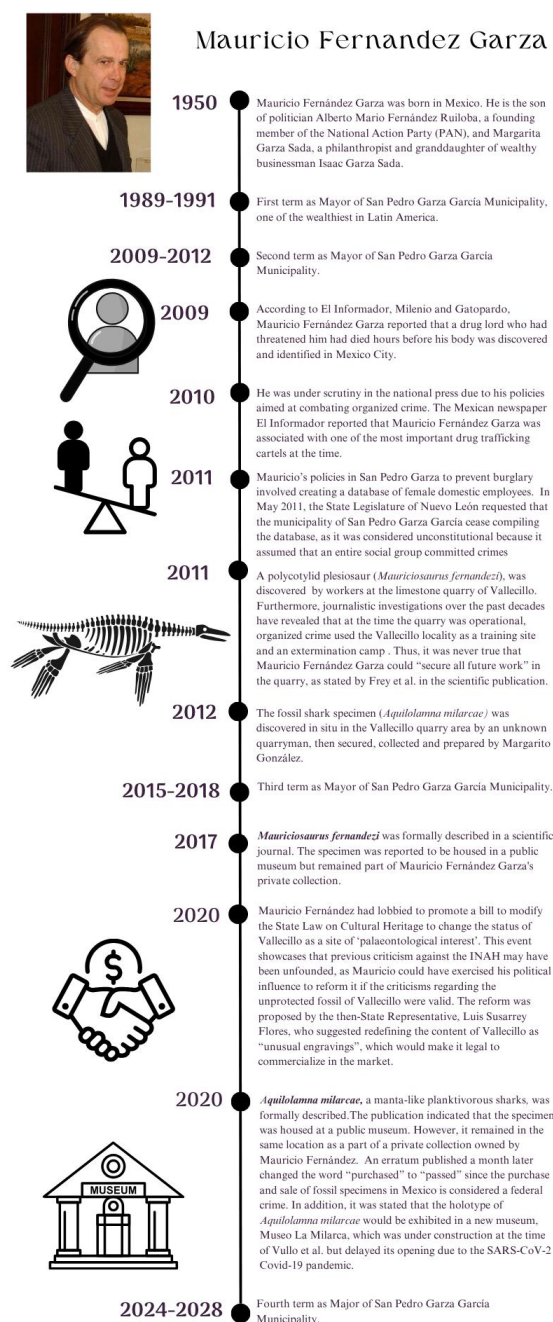
as detailed above, and to explain this, we need to look at the cultural, social, economic and political context of the quarry of Vallecillo (Figure *4*).

500

Figure 4. Political career of Mauricio Fernández Garza from 1989 to 2020. The key events outlined in this timeline also originate from grey literature and journalistic pieces, as cited in the text; however, an annotated bibliography is not provided in the section "2. Methods". Image Rights: Portrait of Mauricio Fernández Garza, by Ariel Gutiérrez Vivanco [Public Domain]; all other images come from Canva Library.

4.1 Cultural context

505 When discussing private collections, we often refer to amateur palaeontologists who have their collections for personal use or collectors who create collections that may eventually be donated to museums or form their own museums (González-Rodríguez et al., 2023). Fossils in a private collection hold cultural or aesthetic value, reflecting the reason why the collector kept them. For a private collection of fossils to acquire epistemic or scientific value through the production of scientific knowledge, formal research is necessary.

510 Mauricio Fernández Garza is currently the mayor of San Pedro Garza, one of the wealthiest cities in Latin America; he first held this position in 1989. Aside from his political ambition, he has accrued a private collection of fossils and anthropological, archaeological and art pieces that have cemented his reputation as a patron of culture. Thus, he has continuously claimed that the National Institute of Anthropology and History (INAH), which by law ensures public access to all the Mexican palaeontological, anthropological, archaeological and historical heritage, interferes with the study of his private collection in

515 Nuevo León (Lemus, 2021). This statement is misleading because INAH only requires private collections to be registered as cultural heritage in a centralised catalogue, the *Sistema Único de Registro Público de Monumentos y Zonas Arqueológicos e Históricos*[2], to issue a Use License that details the rights and obligations acquired by the private collector. However, all the available online guidelines emphasise that by law (Federal Law on Archaeological, Artistic and Historical Monuments and Zones), the ownership of the fossils belongs to the nation even when they are under private custody. Thus, as long as the fossils

520 are registered, INAH does not interfere with their study or publication.

The supplementary material of Vullo *et al.* (2021) specified that the specimen of *Aquilolamna* was prepared and secured by one of the authors of the paper and later purchased by Fernández Garza at the time when he served his second term as mayor of San Pedro Garza. By increasing the scientific value of his collection, Fernández Garza used his own administration to secure public funds to build a museum to house it. Because the specimen was, at the time of Vullo *et al.* (2021), not deposited in a

525 public collection, and the deposit elsewhere was subject to Mauricio's political interests, there is an undisclosed conflict of interest between the parties. The lack of mention of INAH's procedures in Vullo *et al.* (2021) aligns, even if inadvertently, with Fernández Garza's political goal to portray INAH as an obstacle to the development of palaeontology in Mexico and boost his own public image as one of the few patrons in the country. This situation only exists because Fernández Garza has a strong political influence and has already attempted to diminish the role of INAH in the state of Nuevo León (see 3.4 Political

530 Context). Furthermore, the scenario created by Fernández Garza around INAH matches the other narrative in palaeontological academic circles, suggesting that the regulation of geological heritage has more downsides than advantages (see 1. Introduction). Moreover, INAH's lack of transparency on how private collections are managed, surveyed or overseen benefits

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[2] The Sistema Único de Registro Público de Monumentos y Zonas Arqueológicos e Históricos Autenticación (https://registropublico.inah.gob.mx/index.php/autenticacion/autenticacion) can be accessed after creating an account as an user and it is managed by INAH and the Secretaria de Cultura. The database was created in 2011 by the Directorate-General for Computing and Information and Communication Technologies (DGTIC following its abbreviation in Spanish,Dirección General de Cómputo y de Tecnologías de Información y Comunicación) of UNAM, commissioned by INAH and Secretaria de Cultura. According to INAH guidelines published online [Cómo registrar bienes arqueológicos, históricos o paleontológicos muebles bajo custodia de particulares (https://inah.gob.mx/inah/como-registrar-bienes-arqueologicos-historicos-o-paleontologicos-muebles-bajo-custodia-de-particulares), seen on 01/09/2024]. The registry in this database is compulsory (Articles 22 and 23 of the Federal Law on Archaeological, Artistic and Historical Monuments and Zones and Articles 10, 11, 12, 17, 21, 23 and 28 of its Regulations). The application is available online [Solicitud para la inscripción de monumentos arqueológicos, históricos y de comerciantes en monumentos históricos; en el registro público de monumentos y zonas arqueológicas e históricas. (https://tramites.inah.gob.mx/INAH-00-021%20(A).html)] and for fossils it requires the form INAH-00-021. The registry can be done by nationals and foreigners, providing the latter provide residence documents. Following the registry, INAH issues a Use License that determines the conditions and obligations the collectors acquire after the registration. In the published guidelines it is always clearly stated that all fossils are national property even if they are registered with a private collection.

Fernández Garza's narrative on the disadvantages of having a national registry of national goods regardless of whether they are deposited under public or private repositories.

535   Disclosure of the conflict of interest would have shown that the construction of this museum was conditioned to Fernández Garza's continuous tenure as mayor of the city, and that the description of this specimen carried political and epistemic significance. Since in the same year that Vullo *et al.* (2021) was published, Mauricio Fernández Garza was running for a fourth term as mayor of San Pedro Garza. Mauricio Fernández Garza used the cover of *Science*, which featured a reconstruction of *Aquilolamna*, as a political tool, claiming that "being featured on the cover of *Science* is like winning the Nobel Prize in

540   palaeontology" (Martínez, 2021a, b). Inadvertently, the journal *Science* took the promises of a political campaign of a politician as a guarantee of replicability and failed to inquire about the implications of a billionaire and a politician being involved in the discovery (Martínez, 2024). The mechanisms that INAH has put in place to allow individuals to accrue private collections do not guarantee that ethical guidelines can be followed. The conditions under which the quarriers extract the material before Fernández Garza acquires it have never been explained. Under current Mexican legislation, the fossils found by the quarriers

545   belong to the nation and should not be sold to a private owner.

4.2 Social context

González-Rodríguez *et al.* (2023) emphasised the significant amount of "hidden" labour involved in Mexican fossil collections. *Aquilolamna milarcae*, a ray-like elasmobranch, was collected in 2012 by an "unknown quarryman" in Vallecillo (Vullo et al., 2021). The fossils extracted from the Vallecillo quarry originate from local knowledge that has been ignored by Mauricio

550   Fernández Garza and by foreign researchers. Although *Aquilolamna*'s holotype was widely known to researchers and was mentioned at conferences, it remained undescribed until 2021. Given that the specimen is not available for further study, it is not possible to know if the erection of a new name has a scientific value or if it is motivated by political purposes due to the lack of transparency and the inaccessibility to the material.

There is no evidence that the people involved in the Vallecillo Quarry showed interest in understanding the colonial structures
555   that enabled Fernández Garza to accrue his fortune and his collection. For instance, the Materials Design Analysis Reporting (MDAR) Checklist for Authors, implemented by the journal *Science*, in Vullo *et al.* (2021) indicates that no permit was required, given that the "quarry area […] is legally exploited by the Vallecillo ejido (communal land)". However, based on the current legal framework, a Use License granted by INAH should have been provided, specifying the conditions under which the fossil was registered and evidence that INAH registered the material should have been provided as well. In the

560   supplementary material, Vullo *et al.* also indicated that "Fernández Garza (San Pedro Garza García) purchased the specimen in order to assign it an [INAH] registration number and to house and display it in a new public museum (Museo La Milarca in San Pedro Garza García MMSP, Nuevo León State, Mexico; scheduled opening in 2021), where it will be accessible upon request." The discovery process in the quarry, excavation, and acquisition is not outlined.

The specimen of *Mauriciosaurus* was also discovered in the Vallecillo quarry. Although initially it was meant to be housed in
565   the new museum in San Pedro Garza García, now known as La Milarca, it has been deposited in Museo del Desierto, in the capital city, Saltillo, Coahuila, 196 km south of Vallecillo, but only 76 km west of San Pedro Garza García. The municipality of Vallecillo, a primarily rural municipality governed by the left-leaning party Movimiento de Regeneracion Nacional (Morena), whose inhabitants are mostly quarry workers and farmers, has not seen the cultural benefits to the scale experienced by the developed cities, governed by opposition parties, right-leaning and centre-right leaning governments: Partido Accion

570   Nacional (PAN) (San Pedro), Partido de la Revolución Institucional (PRI) (Saltillo) and Movimiento Ciudadano (Monterrey). Whereas the municipality of San Pedro Garza has an HDI of 0.903, Vallecillo has an HDI of 0.709 (PNUD México, 2022). A temporary exhibition showcasing several specimens from Vallecillo has been set up in Museo del Noroeste in Monterrey, the

capital city of the State of Nuevo León, 121 km south of Vallecillo. Vallecillo has a local museum, Museo Casa de la Plomada, but it is reported that specimens found in its collection are treated as "discoveries" that are then deposited in the other larger

575 museums (Stinnesbeck et al., 2008).

4.3 Economic context

According to Luis Susarrey, current Local Deputy and cabinet member of the Fernández Garza administration between 2010 and 2018, the material from Vallecillo was never covered by either the law of Nuevo León or federal legislation. Susarrey stated that the material came from quarries destined to extract limestone for building purposes and not from an expressly

580 designated palaeontological site: "[…t]he sediments from Vallecillo consist mainly of calcium carbonate ($CaCO_3$), while its shale content is just 5 to 15%. The sand (quartz, SiO_2) contributes a maximum of 3% of the sediment. According to the studies carried out by Prof. Dr. Wolfgang Stinnesbeck, there is no evidence that the bone material from marine vertebrates that originally populated the Cretaceous Sea remains in the sediments of Vallecillo, Nuevo León. Rather, they are fossils that have been crushed to millimetric thickness by the pressure of the rocks on locations and the tectonic forces that generated the eastern

585 Sierra Madre. In this way, you could even say that only the "prints" of these fossils are left, very different from other sites in the world where the fossils, under similar circumstances, were preserved as 3-dimensional bodies, with soft tissues and bones preserving calcium phosphate. Unfortunately, those sedimentary rocks are processed in the construction industry by cutting them into sheets to use them as floors and facades for domestic trade, and they are sold in square meters of stone for construction, which are sent to the United States of America without having registered control of them, and this has resulted

590 in a considerable loss of parts that represent great scientific, educational, and economic value for our country. Therefore, to rescue these vestiges of great scientific value, it is proposed to reform the cultural heritage law of the state of Nuevo León to safeguard them" (H. Congreso del Estado de Nuevo León, 2020, translated from Spanish by the authors). This was part of a debate to rewrite the Nuevo León constitution and open the fossils from the Vallecillo outcrop to the market since they were not fossils and thus exempted from federal protection (Lemus, 2020).

595 Susarrey mentioned that this assessment came from consulting Stinnesbeck, one of the authors who frequently published papers on material owned by Fernández Garza (Anon, 2020, time stamp 1:28:30). The bill retroactively proposed that the items in the collection of Fernández Garza were never fossils *per se* but *unusual engravings* not subject to the protection of the law, even though the data availability statement in Vullo *et al.* (2021) indicated that "[p]rior to that, starting 1st May 2021, the **fossil** will be available to researchers for scientific purposes at the Museo del Desierto in Saltillo, Mexico" and had Stinnesbeck as

600 an author. The bill was passed by the State Congress, creating a constitutional clash between state and federal law.

The constitutional controversy was solved when the new reform was invalidated by the Supreme Court of Justice, which declared "the exclusive competence of the Congress of the Union to legislate on fossil remains and archaeological monuments is absolute and does not require any conditions, so there is a national interest that obliges the federation to take charge of its regulation exclusively" (Murillo, 2023). The epistemic value of manufactured scientific goods served a political purpose in

605 Mexico.

4.4 Political context

In Frey *et al.* (2017), the etymology of the name *Mauriciosaurus* states, "Genus and species name in honor of Mauricio Fernández Garza, who not only made the specimen accessible for scientific research, but also secures all future work in the quarry area at Vallecillo and supports public education in Earth- and biological sciences predominantly in the state of Nuevo

610 León." This statement, albeit short, adds political value to the specimen and is a misconstruction of the facts that could potentially be repurposed as a political campaign (Figure *4*). The paper should have acknowledged that Fernández Garza has a commercial relationship with the communal land where the quarry is and that he is the mayor of a nearby town. As construed,

the statement conflates his philanthropism and activism with his constitutional responsibilities as a mayor, e.g., providing public education in the city he governs. It is phrased in a manner that enhances the political value alongside the epistemic value of the specimen (Figure *3*).

Journalistic investigations over the past decades have revealed that, allegedly, at the time the quarry was operational, organised crime used the Vallecillo locality as a training site and an extermination camp (El Economista, 2011). Thus, it is hard to understand how Mauricio Fernández Garza could "secure all future work" in the quarry, as stated by Frey *et al.* (2017).

The epistemic value of the fossils owned by Fernández Garza quickly transformed into political value. The year *Mauriciosaurus* was published marked the beginning of a new social media campaign aimed at promoting Fernández Garza's image as a scientific sponsor, which he also used to attempt to revitalise his political standing (LPO, 2023). In several reports during that period, Fernández Garza and Stinnesbeck stated the need to reform federal laws, as the restrictions put in place were not allowing people to excavate in Nuevo León (Campos Garza, 2017). In 2018, *Reporte Indigo* reported that Fernández Garza had used public money to make a replica of his mansion, intending to house his art and fossil collections (Padilla, 2018). He lost the re-election later that year.

5. Moving forward

These connections eroded the trust in contacting the State Museum of Natural History of Karlsruhe or the Ruprecht-Karl University of Heidelberg for solutions or explanations regarding Mexican fossils. The mixture of political interests in Mexico necessarily implies the belief that dealing with the material from Vallecillo or with the MUDE requires interaction with powerful political actors in the region. Researchers in the Global North are acutely aware of funding tied to political conditions in their countries, and it is considered a good practice to acknowledge conflicts of interest between researchers and public or private sponsors (Resnik, 2007; Shamoo and Resnik, 2009). Nevertheless, foreign researchers tend to disregard local, state, and national politics, creating a situation that transcends the mere production of scientific knowledge. When researchers look at the Global South as a laboratory or a data collection site, it is clear that there is a disregard for the conflicts of interest that will lead to social, economic, or political problems.

As Fernández Garza prepared to run again for a fourth term as mayor of San Pedro Garza (LPO, 2023; Magno, 2023; Villasana, 2024), there was an uptick in his presence on social media, where he showed the specimens from Vallecillo on display in his home and portrayed himself as a patron of scientific research (Anon, 2023). As an elected official, Fernández Garza has contributed to the propagation of a system of inequality within the country, where the whiter a person is perceived, the better opportunities within academia they can access and attain successful careers (Moreno Figueroa and Saldívar Tanaka, 2016). Fernández Garza's private collection has greater political than epistemic value because the reports in the literature are dependent on his interests, thus making them untestable and reducing their scientific value (Barrett and Munt, 2014).

We propose that the Vallecillo example could have been prevented if the scientific community in Mexico had been allowed to actively collaborate in the whole process. The approach of giving locals authorship does not ensure a symmetrical collaboration, and we identify these measurements as the elements that were not implemented or enforced that led to this problem.

1. Palaeontology-oriented journals should have inquired about the provenance of the specimens and recommended a comprehensive account of their collection, ensuring that the material is ultimately placed in a public or publicly accessible repository. This information is essential for assessing the scientific value of the fossils, specifically their ability to falsify, verify, or reproduce the original conclusions. Regarding the specimens from Vallecillo, the mere

promise of building a museum should not have satisfied the requirements for accessibility and reproducibility. Instead, the publication should have either awaited the completion of the museum or requested the placement of the specimens in a temporary public repository.

2. Journals should be transparent about conflicts of interest, and researchers should embrace declaring them in their publications. While conflicts of interest may be inevitable, concealing them and declaring them later can harm trust in the scientific process and between scientific communities. For example, if researchers disclosed that the owner of a private collection was also the mayor of a wealthy town in Mexico and that the museum construction was part of a re-election campaign, the editors would have had more information on how to proceed.

3. When dealing with creative compliance and researchers purposefully hiding known conflicts of interest, editors need to seek local researchers as reviewers of the manuscripts and include the judgement on the conflict of interest as part of the material up for review.

4. When materials such as the MDRA implemented by *Science* exist, this part of the publication needs to be taken as seriously as the rest of the paper. The MDRA for *Aquilolamna* would require that the authors provide a citation for the legislation that waived them from needing a permit. To the best of our knowledge, the exception listed in the MDRA does not exist. Asking for clarification should not be equated with making an accusation.

5. Local researchers should review a paper's legal declarations to confirm or clarify its specifics. If a journal confirms that everything was done legally, the reasoning is clearly outlined and available for future scrutiny or revision. This transparency could lead to consultation teams at the legislative level, creating the opportunity to develop more actionable, operational, and suitable laws.

6. Researchers from outside and inside Mexico should have actively encouraged the publication of high-impact research in Mexican scientific journals rather than in what can be perceived as merely tokenistic to increase the profile of the national scientific institutions.

7. As scientists, reviewers must scrutinise the data collection and provenance of the material as much as academic misconduct, such as plagiarism or missing citations. Editors need to consider involving local researchers who are familiar with the legal and political context of the material's country of origin. For instance, in the supplementary material, Vullo *et al.* (2021) state, "Finally, Mauricio Fernández Garza (San Pedro Garza García) purchased the specimen in order to assign it an Instituto Nacional de Antropología e Historia (INAH) registration number and to house and display it in a new public museum […] where it will be accessible upon request." The use of future tense in this statement should have raised concerns about the availability of the specimen. This could have been spotted if local reviewers had been given the chance to review the manuscript and if the editors had explicitly asked about Fernández Garza's reputation, given that his name was mentioned.

8. Institutions such as INAH need to establish clearer procedures for the registration of collections and ensure that type materials do not remain in private collections that cannot guarantee access to the scientific community. INAH needs to make these regulations transparent to have clear, actionable guidelines on how to treat specimens that hold epistemic and scientific value. The type specimens must be transferred to a public collection that complies with the rigorous curation processes required to preserve the palaeontological or geological heritage properly.

9. Local geoscientists are responsible for actively formulating national and local policies that impact geological and palaeontological heritage, thereby affecting our field of study. Politicians must recognize the importance of consulting national experts in the same manner as foreign experts are invited for consultation. Local geoscientists also have the responsibility to voice concerns when academic activities have a negative impact on societal well-being and

Researchers need to be more diligent regarding the impact of our research in the communities adjacent to it, and should push for changes at institutional levels within individual and institutional capacities. María Sabina, the town of Huautla de Jiménez,

695 the town of San Miguel Coatlinchán and the municipality of Vallecillo have been failed by the academic institutions, local and foreign, they interacted with. The underlying question to ethics in palaeontology should not be "is this fossil legally extracted?" or "was the export of this fossil legal?" but "how could our research affect the communities we are engaging with?". Sabina's life was ruined because of scientific curiosity, the community of Coatlinchán has reforged their identity around an absent monolith, and to this date we have no idea of what the full impact of organized crime in the municipality of Vallecillo and the

700 many crimes has been committed against civilians there. A decolonial framework, thus, needs to acknowledge that colonial structures exist and that they can lead to violent acts against people. As researchers whose primary income comes from public budget, we need to get comfortable with asking uncomfortable questions to ourselves, to our colleagues and to our collaborators.

We should address post-colonial complexity with a decolonial framework that considers scientific and internal colonialism.

705 For instance, fossil sales in Morocco may be an economic necessity for some families but can also lead to exploitation due to deregulation. Some countries cannot secure or preserve their fossils; previous governments, like in Lebanon, have kept collections abroad. Researchers must recognize their political roles and ensure legal and ethical accountability when dealing with private collectors and fossil acquisitions. Laws and regulations should enforce accountability and reparations, not just serve as steps towards publication.

710 **6. Conclusion**

In this work, we have outlined how scientific colonialism cannot be viewed from traditional lenses such as national, historical, or legal backgrounds alone. Scientific colonialism is a system that ensures that one community that has been put in the position of colony is made dependent on producing scientific knowledge by another community that has amassed wealth through colonialism. Colonialism, as a phenomenon, can be traced back in time to before the modern concepts of diplomacy and nation

715 emerged. Therefore, explaining scientific colonialism solely through the lens of nationalism is reductive *per se*. On the other hand, thinking that colonialism requires a history to back it up is also a reductionist approach. The situation of a colony is not attached to a specific power (coloniser) but rather to a situation built around the institutions and systems that perpetuate asymmetry. Although we tend to think of colonies as territories under European powers, namely, Mexico as a former colony of the Spanish Crown, it is important to remember that land and its inhabitants often changed hands.

720 We posit here that the decolonisation of palaeontology is an endeavour that requires more active thinking of the scientific process and acknowledgement that although scientific knowledge aims to be objective, scientific production is entirely subjective. Within any nation, powerful actors may utilise colonial structures to subjugate those actors without power (internal colonialism). A decolonial approach to scientific endeavour in palaeontology requires all parties to think of each stage of the collaboration, understand the socioeconomic and political contexts of the collaborations as much as possible (to avoid

725 perpetuating narratives rooted in eugenic, racist or discriminatory policies), and ensure that their collaborations are free from ulterior interests and motives. This means that a solution that solves all problems cannot be produced since every collaboration is unique, and not all potential consequences can be foreseen at any given moment. Nevertheless, it is clear from this review that the recognition of certain indicators could have prevented collaboration that was clearly influenced by a specific agenda, such as furthering the political career of the Mexican billionaire through research on Vallecillo. Finally, conflicts of interest

730 and data collection need to be made transparent from the beginning and subject to the same rigorous peer review; the process

needs to ensure reproducibility, verifiability, and falsifiability; and at the core of our research, we need to prevent violence towards any community.

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Disclaimer

In this contribution, we want to outline the reasons behind our weariness as palaeontologists that stem from the involvement
740   of powerful political actors in Mexico. The recently published specimens collected from Vallecillo, Mexico, are part of a private collection owned by Mauricio Fernández Garza, a powerful politician and billionaire who has allegedly played a key role in the current climate of violence in Mexico. In this paper, we are trying to raise awareness about a discussion that has not reached the commercial publishing that academia considers "valid", and we, as authors of the paper, are not levelling accusations against anyone.

745   The present work was initially conceived as an invited response to a now-retracted paper in The Geological Curator. The paper was titled "Crying Ubirajara: Bad faith actors & weaponizing outrage in post-Trump palaeontology" (Liston, 2023), and centred around the social media campaign to repatriate the dinosaur fossil "Ubirajara" to Brazil. The central thesis of the retracted paper was that the social media campaign delayed the repatriation of the specimen, which was already under discussion. However, the tone of the paper suggested that an organic social media campaign that had no leadership was, in
750   fact, used by the authors of (Cisneros et al., 2022a) to weaponise outrage into aggression. Furthermore, it missed the point of Cisneros *et al.* 2022, which focused on how "Ubirajara" and other fossils were found, collected, and exported out of their countries of origin without oversight. In the view of Cisneros *et al.* 2022, the repatriation of one specimen was not the solution to a widespread systemic problem. Shortly after the publication of Liston (2023), we approached the Editorial Board of The Geological Curator to highlight the language used in the paper, namely its very personal and emotional tone. However, we
755   also wanted to challenge one of the theses of the paper: that we were not engaging in talks and discourse with the main actors.

The Geological Curator withdrew Liston (2023) when they noticed that it did not follow the journal's guidelines and invited the author to submit a revised version. Along with this revised version, The Geological Curator proposed to publish our account as a response to his. As we were crafting our response, we were notified that the author had not sent his revised paper, and The Geological Curator considered the paper withdrawn. Our invited response then evolved into this longer contribution. However,
760   we noticed contradictions in this story. The blog Retraction Watch, owned by the Center for Research Integrity, covered the retraction and published an interview with Liston in December 2023 (Joelving, 2023), where the author is under the impression that external pressure led to the retraction from The Geological Curator that he links to "stochastic terrorism". After we got the reviewer report on our contribution, we noticed a heavy-handed editorialisation that contradicted the reviewers' comments and requested a contribution substantially different from the one the reviewers assessed. We withdrew the present work from
765   consideration in The Geological Curator due to the contradictory claims that led to retraction, the length of the process and the constant change of goals the editors gave us. The entire process showed that the problem was not the unscholarly nature of the content of "Crying Ubirajara…" but that it did not follow editorial guidelines. After experiencing their review process, it is not clear to us how the oversight from the journal occurred and why the accounts on the retraction differ substantially.

Our main criticism of the paper "Crying Ubirajara…" is that it contained several misunderstandings of what "decolonisation"
770 means. It proposed that for the concept of scientific colonialism to be useful, it needs to comply with the definition proposed
by Galtung (1967) and highlighted that "colonialism as a term is locked in the past, rooted in the historical exploits of former
European powers and ignoring modern imperialistic ventures". This definition is not scholarly insofar as modern imperialistic
ventures are still considered colonial. The paper suggests that another term, "neoimperialism", is better suited than scientific
colonialism: "thus, where 'scientific colonialism' has become a problematic term due to its very real limitations as a simplistic
775 lens fixed in history through which to view the contemporary world, 'neoimperialism' proves better, as it is cognizant of a
changing world wherein former colonies themselves can be guilty of illegally appropriating material from former homes of
imperialism, as demonstrated by a recent presentation which featured Moroccan scientists objecting to attention being focused
on removed Brazilian fossils, as they felt that Brazilian scientists themselves were appropriating material from Morocco".

The view that former colonies cannot be colonial has been repeated in conferences and casual chats about the topic, and it is a
780 misunderstanding that conceives colonialism as a past phenomenon. Neoimperialism is widely recognised as a type of colonial
expansion that characterised the 20th century, as having different motivations from 19th-century imperialism (Louis, 2006).
Furthermore, the definition of colonialism that "Crying Ubirajara…" tried to convey as being the best one is, in fact, the
definition of "neocolonialism", where a state exerts control over another independent state (Nkrumah, 1965). The situation
outlined in the retracted paper "Crying Ubirajara…" highlights that scientific colonialism is one way in which one state (like
785 Brazil) can exert epistemic control over another (Morocco) within the context of neocolonialism. This neocolonial lens enables
us to understand the colonial dimension of the case in Mexico, which many in our field overlook.

References

Alpaslan-Roodenberg, S., Anthony, D., Babiker, H., Bánffy, E., Booth, T., Capone, P., Deshpande-Mukherjee, A.,
Eisenmann, S., Fehren-Schmitz, L., Frachetti, M., Fujita, R., Frieman, C. J., Fu, Q., Gibbon, V., Haak, W., Hajdinjak, M.,
790 Hofmann, K. P., Holguin, B., Inomata, T., Kanzawa-Kiriyama, H., Keegan, W., Kelso, J., Krause, J., Kumaresan, G.,
Kusimba, C., Kusimba, S., Lalueza-Fox, C., Llamas, B., MacEachern, S., Mallick, S., Matsumura, H., Morales-Arce, A. Y.,
Matuzeviciute, G. M., Mushrif-Tripathy, V., Nakatsuka, N., Nores, R., Ogola, C., Okumura, M., Patterson, N., Pinhasi, R.,
Prasad, S. P. R., Prendergast, M. E., Punzo, J. L., Reich, D., Sawafuji, R., Sawchuk, E., Schiffels, S., Sedig, J., Shnaider, S.,
Sirak, K., Skoglund, P., Slon, V., Snow, M., Soressi, M., Spriggs, M., Stockhammer, P. W., Szécsényi-Nagy, A., Thangaraj,
795 K., Tiesler, V., Tobler, R., Wang, C.-C., Warinner, C., Yasawardene, S., and Zahir, M.: Ethics of DNA research on human
remains: five globally applicable guidelines, Nature, 599, 41–46, https://doi.org/10.1038/s41586-021-04008-x, 2021.

Anon: 11,000 víctimas en Doce Años de JB, Listin Diario, 10th March, 2013a.

Anon: La piedra ausente, 2013b.

Anon: Symposium 'Fossillegal,' 2016.

800 Anon: Comisión de Educación. 23/10/20, 2020.

Anon: Un mecenas mexicano y un palacio lleno de descubrimientos, Cadena SER, 20th October, 2023.

Arnaiz y Freg, A.: Los Nuevos Museos Y Las Restauraciones Realizados Por El Presidente Lopez Mateos, Artes de México,
62–67, 1974.

Baldwin, M.: Scientific Autonomy, Public Accountability, and the Rise of "Peer Review" in the Cold War United States,
805 Isis, 109, 538–558, https://doi.org/10.1086/700070, 2018.

Bar-Lewaw, I. M.: La revista "Timón" y la colaboración nazi de José Vasconcelos, in: Actas del Cuarto Congreso
Internacional de Hispanistas, Cuarto Congreso Internacional de Hispanistas, Salamanca, 151–156, 1982.

Barreto, A. A. and Lozano, K.: Hierarchies of belonging: intersecting race, ethnicity, and territoriality in the construction of
US citizenship, Citizenship Studies, 21, 999–1014, https://doi.org/10.1080/13621025.2017.1361906, 2017.

810   Barrett, P. M. and Munt, M. C.: Private collections hold back science, Nature, 512, 28–28, https://doi.org/10.1038/512028a, 2014.

Benoit, J., Penn-Clarke, C. R., Rust, R., Groenewald, D. P., Vickers-Rich, P., and Helm, C. W.: Indigenous knowledge of palaeontology in Africa, Geological Society, London, Special Publications, 543, SP543-2022–236, https://doi.org/10.1144/SP543-2022-236, 2024.

815   Blas Rojas, C.: Tláloc de Coatlinchán. Informe de análisis microquímicos para identificación y distribución de sales, Laboratorio de Conservación, Museo Nacional de Antropología, Ciudad de México, 2012.

Campos Garza, L.: Ponen a fósil nombre del alcalde panista de San Pedro, Proceso, 27th February, 2017.

Chacon-Baca, E., Moreno, K., Sterli, J., Buldrini, K. E., Chacaltana Budiel, C. A., Echevarría, J., de Araújo Júnior, H. I., Ghilardi, R. P., Tejada-Medina, L. M., and Zurita-Altamirano, D.: Perspective on the Role of Academic Journals on 820   Scientific Colonialism in Paleontology, PaleoAmerica, 9, 1–6, https://doi.org/10.1080/20555563.2023.2174829, 2023.

Chavero, A.: El monolito de Coatlinchán. Discusión arqueológica, Anales del Museo Nacional, 2a, 281–305, 1903.

Cisneros, J. C., Raja, N. B., Ghilardi, A. M., Dunne, E. M., Pinheiro, F. L., Regalado Fernández, O. R. R., Sales, M. A. F., Rodríguez-de la Rosa, R. A., Miranda-Martínez, A. Y., González-Mora, S., Bantim, R. A. M., de Lima, F. J., and Pardo, J. D.: Digging deeper into colonial palaeontological practices in modern day Mexico and Brazil, Royal Society Open Science, 825   9, 210898, https://doi.org/10.1098/rsos.210898, 2022a.

Cisneros, J. C., Ghilardi, A. M., Raja, N. B., and Stewens, P. P.: The moral and legal imperative to return illegally exported fossils, Nat Ecol Evol, 6, 2–3, https://doi.org/10.1038/s41559-021-01588-9, 2022b.

Cruz Bárcenas, A.: Tláloc sigue enterrado aquí; se llevaron a Chalchiuhtlicue: Guadalupe Villarreal, La Jornada, 5th April, 8, 2014.

830   De Sahagún, B.: Historia General de las Cosas de la Nueva España (Tomo Primero), 1829th ed., Imprenta del Ciudadano Alejandro Valdés, México, 350 pp., 1540.

Díaz del Castillo, B.: Historia verdadera de la conquista de la Nueva España, Digital., edited by: León Portilla, M., Himali, 1367 pp., 1632.

Dugatkin, L. A.: Thomas Jefferson Versus Count Buffon: The Theory of New World Degeneracy, 1, 2016.

835   Dunne, E. M., Raja, N. B., Stewens, P. P., Zin-Maung-Maung-Thein, and Zaw, K.: Ethics, law, and politics in palaeontological research: The case of Myanmar amber, Commun Biol, 5, 1–10, https://doi.org/10.1038/s42003-022-03847-2, 2022.

El Economista: Mueren 22 Zetas en persecución de Nuevo León, El Economista, 17th October, 2011.

Espinosa, G.: La Jornada: Cómo llegó Tláloc a Chapultepec, único registro del episodio, La Jornada, 21st April, 8, 2014a.

840   Espinosa, G. G.: A Coatlinchán sólo le quedó el orgullo de ser sitio original de Tláloc, La Jornada, 21st April, 7, 2014b.

Estrada, Á.: Vida de María Sabina. La sabia de los hongos, 2nd ed., Siglo XXI Editores, 164 pp., 1979.

Fanon, F.: A dying colonialism, First., Grove Press, New York, NY, 181 pp., 1965.

Fernández, C. R., Silva, D., Mancias, P., Roldan, E. O., and Sánchez, J. P.: Hispanic Identity and Its Inclusion in the Race Discrimination Discourse in the United States, Academic Medicine, 96, 788, 845   https://doi.org/10.1097/ACM.0000000000003904, 2021.

Figueirôa, S. and da Silva, C.: Enlightened Mineralogists: Mining Knowledge in Colonial Brazil, 1750-1825, Osiris, 15, 174–189, https://doi.org/10.1086/649325, 2000.

Frey, E., Mulder, E. W. A., Stinnesbeck, W., Rivera-Sylva, H. E., Padilla-Gutiérrez, J. M., and González-González, A. H.: A new polycotylid plesiosaur with extensive soft tissue preservation from the early Late Cretaceous of northeast Mexico, 850   BSGM, 69, 87–134, https://doi.org/10.18268/BSGM2017v69n1a5, 2017.

Fuertes Olavide, M., Martínez Shaw, C., and Puig-Samper Mulero, M. Á.: José Mariano Mociño: el destino de su obra y las cartas a De Candolle, ETFIV, https://doi.org/10.5944/etfiv.12.1999.3393, 1999.

Galtung, J.: Scientific Colonialism, Transition, 11–15, https://doi.org/10.2307/2934342, 1967.

Geertz, C.: Local knowledge: further essays in interpretive anthropology, Basic Books, New York, 244 pp., 1983.

855 Gonzalez Casanova, P.: Internal colonialism and national development, St Comp Int Dev, 1, 27–37, https://doi.org/10.1007/BF02800542, 1965.

González-Rodríguez, K. A., Bravo-Cuevas, V. M., Cuevas-Cardona, C., Cabral-Perdomo, M. Á., and Ortiz-Caballero, E.: The Hidden Faces of Paleontology: Some Case Studies in Central Mexico | Geoheritage, Geoheritage, 15, 13, https://doi.org/10.1007/s12371-023-00902-0, 2023.

860 Greenfield, J.: The return of cultural treasures, 3rd ed., Cambridge University Press, Cambridge, UK ; New York, 500 pp., 2007.

Guerrero Arenas, R. and Jiménez-Hidalgo, E.: Los significados de los fósiles en varias culturas, Herreriana, 5, 32–36, https://doi.org/10.29057/h.v5i1.8621, 2023.

Guevara Sada, S. A.: José Mariano Mociño y Lozada Naturalista Novohispano del Siglo de las Luces, Cuadernos de
865 Biodiversidad, 15–27, https://doi.org/10.14198/cdbio.2018.54.03, 2018.

H. Congreso del Estado de Nuevo León: Diario de los Debates, Congreso del Estado de Nuevo León, 2020.

Ibarra-Colado, E.: Organization Studies and Epistemic Coloniality in Latin America: Thinking   Otherness from the Margins, Organization, 13, 463–488, https://doi.org/10.1177/1350508406065851, 2006.

Irvin, J.: R. Gordon Wasson: The Man, the Legend, the Myth, in: Entheogens and the Development of Culture, edited by:
870 Rush, J., North Atlantic Books, Berkeley, California, 565–619, 2013.

Joelving, F.: 'Trump' vs. 'Indiana Jones': Paper reviving bitter quarrel over dino fossil pulled for murky reasons, Retraction Watch, 2023.

Lafuente, A.: Enlightenment in an Imperial Context: Local Science in the Late-Eighteenth-Century Hispanic World, Osiris, 15, 155–173, https://doi.org/10.1086/649324, 2000.

875 Lemus, G. M.: Comercializarían fósiles en Vallecillo si aprueban reforma, Grupo Milenio, 23rd October, 2020.

Lemus, G. M.: "Milarca", la nueva joya paleontológica de Vallecillo para el mundo, Grupo Milenio, 19th March, 2021.

Liston, J.: Out of China: Dinosaur eggs and the Law on "Kong Long Dan," Geological Curator, 9, 545–555, 2013.

Liston, J.: Fossil protection legislation: Chinese issues, global problems, Biological Journal of the Linnean Society, 113, 694–706, https://doi.org/10.1111/bij.12293, 2014.

880 Liston, J.: RETRACTED: Crying Ubirajara: Bad faith actors & weaponizing outrage in post-Trump palaeontology, Geol Cur, 11, 480–480, https://doi.org/10.55468/GC1464, 2023.

Lopes, M. M. and Podgorny, I.: The Shaping of Latin American Museums of Natural History, 1850-1990, Osiris, 15, 108–118, https://doi.org/10.1086/649321, 2000.

Louis, R.: The Ends of British Imperialism: The Scramble for Empire, Suez and Decolonisation, Bloomsbury Academic,
885 1088 pp., 2006.

Lozano Rendón, J. C.: El Acuerdo para la Cobertura Informativa de la Violencia en México: un intento fallido de autorregulación, Comunicación y sociedad, 13–42, 2016.

LPO: Susarrey acordó con Mauricio y el PAN se unifica para la contienda por San Pedro, La Política Online, 6th December, 2023.

890 Magno, M.: Gana Mauricio Fernández interna del PAN en San Pedro, El Horizonte, 10th December, 2023.

Marquard, L.: South Africa's colonial policy: presidential address delivered at the annual meeting of the Council of the South African Institute of Race Relations in the Hiddingh Hall, Cape Town, on January 16, 1957 / by Leo Marquard., The Institute, Johannesburg, 1957.

Martill, D. M.: Protect – and die, Geoscientist Online, 21, The Geological Society, 12–17, 2011.

895   Martill, D. M.: Why palaeontologists must break the law: a polemic from an apologist, Geological Curator, 10, 641–649, 2018.

Martínez, P.: Ahora presenta Mauricio tiburón llamado "Milarcae," El Norte, 20th March, 2021a.

Martínez, P.: Presenta Mauricio tiburón planctívoro, Mural, 19th March, 2021b.

Martínez, S.: La Milarca, nuevo museo del coleccionista Mauricio Fernández Garza, La Jornada, 20th February, 3, 2024.

900   Medina González, I.: Arqueología del no-artefacto: Reseña a La piedra ausente, Trace, 68, 129–135, 2015.

Molina, N.: How Race Is Made in America: Immigration, Citizenship, and the Historical Power of Racial Scripts, Univ of California Press, 226 pp., 2014.

Monarrez, P. M., Zimmt, J. B., Clement, A. M., Gearty, W., Jacisin, J. J., Jenkins, K. M., Kusnerik, K. M., Poust, A. W., Robson, S. V., Sclafani, J. A., Stilson, K. T., Tennakoon, S. D., and Thompson, C. M.: Our past creates our present: a brief
905   overview of racism and colonialism in Western paleontology, Paleobiology, 48, 173–185, https://doi.org/10.1017/pab.2021.28, 2022.

Morales, G. L.: José Vasconcelos: las puertas abiertas al autoritarismo nazi desde el conservadurismo mexicano, in: La derecha mexicana en el siglo XX: Agonía, transformación y supervivencia, edited by: Campos López, X. P. and Velázquez Caballero, D. M., Montiel & Soriano Editores S. A. de C. V., Puebla, 254, 2017.

910   Moreno Figueroa, M. G. and Saldívar Tanaka, E.: 'We Are Not Racists, We Are Mexicans': Privilege, Nationalism and Post-Race Ideology in Mexico, Critical Sociology, 42, 515–533, https://doi.org/10.1177/0896920515591296, 2016.

Murillo, E.: Invalida SCJN ley de NL que permitía la venta de fósiles, La Jornada, 1st March, 2023.

Nkrumah, K.: Neocolonialism, the Last Stage of Imperialism, 1st ed., Thomas Nelson & Sons, Ltd, London, 1965.

Padilla, J.: Mauricio pagará del erario museo La Milarca, Reporte Indigo, 29th May, 2018.

915   Papavero, N., Llorente Bousquets, J. E., and Abe, J. M.: Fundamentos de Biología Comparada (a través de la Teoría Intuitiva de los Conjuntos): Vol. I De Platón a Haeckel, 1st ed., Jiménez Editores e Impresores, Ciudad de México, 250 pp., 1997.

Páramo, A.: 50 aniversario del viaje del dios Tláloc, Excélsior, 16th April, 2014.

Pérez Flores, L.: Calibanas: Pensando la opresión desde la zona oscura, Antropología Experimental, 127–142, https://doi.org/10.17561/rae.v22.6451, 2022.

920   Pérez Ortega, R.: Institutions in the global north hoard fossils from Brazil, study says, Science Insider, 2022a.

Pérez Ortega, R.: Violent conflict in Myanmar linked to boom in fossil amber research, study claims, Science, 378, 10–11, 2022b.

Petrakaki, D., Chamakiotis, P., and Curto-Millet, D.: From 'making up' professionals to epistemic colonialism: Digital health platforms in the Global South, Social Science & Medicine, 321, 115787,
925   https://doi.org/10.1016/j.socscimed.2023.115787, 2023.

Pilatowsky, M.: El acercamiento de José Vasconcelos al nazismo y su dirección de la revista El Timón, Estudios, 12, 159–1175, 2014.

PNUD México: Informe de desarrollo humano municipal 2010-2020: una década de transformaciones locales para el desarrollo de México, Programa de las Naciones Unidas para el Desarrollo de México (PNUD), Ciudad de México, 2022.

930   Popovici, C.: The Ritual Ascent at Mount Tlaloc, Mexico, Material and Visual Cultures of Religion Journal, 5, https://doi.org/10.22332/mav.ess.2022.7, 2022.

Quintero Hernández, J. A.: "La Piedra de los Tecomates" ¿Tláloc o Chalchiutlicue?, Tlaloc ¿qué?, 13, 8–17, 2014.

Quintero Toro, C.: ¿En qué anda la historia de la ciencia y el imperialismo? Saberes locales, dinámicas coloniales y el papel de los Estados Unidos en la ciencia en el siglo XX, Historia Crítica, 151–172, 2006.

935   Raj, K.: Colonial Encounters and the Forging of New Knowledge and National Identities: Great Britain and India, 1760-1850, Osiris, https://doi.org/10.1086/649322, 2000.

Raja, N. B., Dunne, E. M., Matiwane, A., Khan, T. M., Nätscher, P. S., Ghilardi, A. M., and Chattopadhyay, D.: Colonial history and global economics distort our understanding of deep-time biodiversity, Nat Ecol Evol, 6, 145–154, https://doi.org/10.1038/s41559-021-01608-8, 2022.

940   Ramírez Meléndez, M. and Reyes de la Cruz, V. G.: La configuración de la Región Turística Biocultural. Entre las políticas públicas y el patrimonio biocultural, Estudios sociales. Revista de alimentación contemporánea y desarrollo regional, 33, https://doi.org/10.24836/es.v33i61.1307, 2023.

Resnik, D. B.: Conflicts of Interest in Scientific Research Related to Regulation or Litigation, J Philos Sci Law, 7, 1, 2007.

Reyes Espinosa, D.: "Lic. Adolfo López Mateos". XLV Aniversario Luctuoso, Universidad Autónoma del Estado de
945   México, Estado de México, 2018.

Rozental, S.: Los fragmentos de un traslado: los desbordes de las imágenes, Encartes, 5, 86–115, https://doi.org/10.29340/en.v5n9.227, 2022.

Rudwick, M. J. S.: The Meaning of Fossils: Episodes in the History of Palaeontology, University of Chicago Press, Chicago, 308 pp., 1976.

950   Sánchez, J.: Estatua colosal de la diosa del agua, Anales del Museo Nacional, 1a, 28–30, 1886.

Santiago, A.: Ciencia, extractivismo y despojo en la sierra Mazateca, Avispa Midia, 2023.

Secretaría de Cultura: El INAH llama al Congreso del Estado de Nuevo León a dialogar sobre la protección del patrimonio paleontológico de la Nación, 2020.

Shamoo, A. E. and Resnik, D. B.: Conflicts of Interest and Scientific Objectivity, in: Responsible Conduct of Research,
955   edited by: Shamoo, A. E. and Resnik, D. B., Oxford University Press, 0, https://doi.org/10.1093/acprof:oso/9780195368246.003.0010, 2009.

Sivin, N.: Why the scientific revolution did not take place in China — or did it?, Environmentalist, 5, 39–50, https://doi.org/10.1007/BF02239866, 1985.

Smith, J. A., Raja, N. B., Clements, T., Dimitrijević, D., Dowding, E. M., Dunne, E. M., Gee, B. M., Godoy, P. L.,
960   Lombardi, E. M., Mulvey, L. P. A., Nätscher, P. S., Reddin, C. J., Shirley, B., Warnock, R. C. M., and Kocsis, Á. T.: Increasing the equitability of data citation in paleontology: capacity building for the big data future, Paleobiology, 1–12, https://doi.org/10.1017/pab.2023.33, 2023.

Sour-Tovar, F. and Quiroz-Barroso, S. A.: Mitos y leyendas sobre los fósiles, Ciencias - Academia Mexicana de Ciencias, 55, 8–16, 2004.

965   Stinnesbeck, W., López-Oliva, J. G., Frey, E., Ifrim, C., and Giersch, S.: Comment on "The oldest stratigraphic record of the Late Cretaceous shark Ptychodus mortoni Agassiz, from Vallecillo, Nuevo León, northeastern Mexico," Revista Mexicana de Ciencias Geológicas, 25, 365–366, 2008.

Tan, M. H.: Chapter 7 - Peer Review—Past, Present, and Future, in: Medical and Scientific Publishing, edited by: Markovac, J., Kleinman, M., and Englesbe, M., Academic Press, 55–68, https://doi.org/10.1016/B978-0-12-809969-8.00007-3, 2018.

970   Thome-Ortiz, H.: Turismo rural y sustentabilidad. El caso del turismo micológico en el Estado de México, in: Ambiente y patrimonio cultural, edited by: Carreño-Meléndez, F. and Vázquez-González, A. Y., Universidad Autónoma del Estado de México, Ciudad de México, México, 2016.

Tovar Santana, A.: ¿Cómo llegó Tlaloc a Chapultepec?, Instituto Politécnico Nacional, 126 pp., 1993.

975 Villalobos López, J.: El desarrollo económico, político y social en México: antecedentes y etapa 1940-2018, Expresión Económica, 50, 101–130, https://doi.org/10.32870/eera.vi50.1084, 2023.

Villasana, M.: Mauricio Fernández concluye búsqueda electoral en este 2024, Telediario México, 2nd March, 2024.

Vullo, R., Frey, E., Ifrim, C., González González, M. A., Stinnesbeck, E. S., and Stinnesbeck, W.: Manta-like planktivorous sharks in Late Cretaceous oceans, Science, 371, 1253–1256, https://doi.org/10.1126/science.abc1490, 2021.

980 Wagner, W. E. and Steinzor, R.: Rescuing Science from Politics: Regulation and the Distortion of Scientific Research, Cambridge University Press, 274 pp., 2006.

Yates, D.: Creative compliance, neutralization techniques, and palaeontological ethics, Geol Cur, 11, 428–435, https://doi.org/10.55468/GC1458, 2022.

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Annexe 1

The following scans correspond to clippings from one of the two newspapers that covered the scandal of alleged fossil smuggling between Museo del Desierto in Saltillo, Coahuila, Mexico, and foreign researchers. The authors of this ESM translated the texts from Spanish to English. Reprinted and translated with permission from Editora El Sol S.A. de C.V.

990   The newspaper *Palabra* was established on November 20, 1997, by journalist David Brondo García as part of the national independent media conglomerate Reforma. The newspaper investigated allegations surrounding a fossil smuggling scandal at Museo del Desierto. *Palabra* declared bankruptcy due to the 2008 financial crisis, publishing its final issue on December 2, 2008. Grupo Reforma, founded by Alejandro Junco de la Vega, served as a significant opponent in the media landscape to the war on drugs declared in 2006 by President Felipe Calderón. In 2008, Alejandro Junco de la Vega relocated his family to

995   the USA for safety reasons[3]. Between 2010 and 2012, five offices of the newspaper *El Norte* in Monterrey, the capital city of the State of Nuevo León, were subjected to grenade and bomb attacks by a cartel. *Palabra* was initiated in Coahuila in 1997 as an extension of *El Norte*'s presence in the neighbouring state. In 2011, cartel members kidnapped a distributor from *El Norte*, incinerated the newspapers being transported, and followed up with an assault on the office of *El Norte* in San Pedro Garza García during Mauricio Fernández Garza's administration. In 2012, Alejandro Junco accused local, state, and national

1000 governments of disregarding the attacks against Reforma's newspapers despite *El Norte*'s persistent efforts to report on organized crime activities in Mexico[4].

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[3] Nick Miroff and William Booth 2011. "Mexico's drug war intrudes on Monterrey, a booming metropolis". Washington Post. https://www.washingtonpost.com/world/mexicos-drug-war-intrudes-on-monterrey-a-booming-metropolis/2011/02/26/ABWS0ZQ_story.html

[4] Lázaro Ríos. Las amenazas cumplidas contra Reforma. 2020. Letras Libres. https://letraslibres.com/politica/las-amenazas-cumplidas-contra-reforma/ and Nick Miroff and William Booth. 2011.

www.palabra.com

PALABRA

EXPRESIÓN DE COAHUILA

MARTES
3 de Julio del 2007
Saltillo, Coah.
México

$ 8.00
58 páginas, 5 secciones
Año X
Número 3,501

BLINDAN MILITARES A SALTILLO

Decenas de militares, acompañados por policías ministeriales y estatales iniciaron anoche recorridos por la ciudad e instalaron 10 retenes en las salidas carreteras para revisar desde vehículos en busca de drogas, hasta personas indocumentadas.

NACIONAL 9 / SALTILLO 1 Y 7

Revela investigador que hasta en mochilas sacaban reliquias

Confirman a la PGR embarque de fósiles

> Asegura paleontólogo haber presenciado llegada de piezas sin registro a universidad de Alemania

César Cardona

El arribo de fósiles de Coahuila y Nuevo León al continente europeo fue confirmado por el paleontólogo Alberto Blanco Piñón, quien trabajó para la universidad de Karlsruhe de Alemania y ayer rindió su testimonio sobre el caso a la Procuraduría General de la República (PGR).

El investigador, quien fue citado a comparecer luego de que el paleontólogo Rubén Rodríguez de la Rosa revelara el presunto tráfico de fósiles de Múzquiz, Coahuila, y Vallecillos, Nuevo León, afirmó que él hizo colectas de material que ya no existen en México, sino con los germanos.

"Esto son cosas que se saben, pero dicen 'pruébalo', y tú no tienes forma de probarlo", afirmó en entrevista con PALABRA antes de rendir su declaración en las oficinas locales de la PGR, "tienen coartadas y aparte tienen forma de involucrar a los que estuvieron, por ejemplo, en este caso yo estive ahí y yo te puedo decir que el material que yo colecté fue a parar a Linares, y de ahí fue a parar de diferentes maneras a Alemania,

algunos catalogados, otros no.

"¿Cuál es el temor de mucha gente de hacer estas denuncias?, simplemente el temor es que ellos te dicen, 'tú me llevaste, tú también lo hiciste, tú estuviste ahí conmigo'", advirtió el paleontólogo, que ahora labora para la Universidad de Hidalgo.

PALABRA informó ayer que la PGR abrió la averiguación 60/D/07 por presunto tráfico de fósiles que involucra a los paleontólogos alemanes Wolfgang Stinnesbeck y Eberhardt Frey, así como a Arturo González González, Director del Museo de Desierto.

Blanco Piñón agregó que durante su estancia en Alemania, que concluyó en el 2002, llegó a ver cómo el paleontólogo Wolfgang Stinnesbeck desempacaba fósiles colectados aquí y Nuevo León, sin registro alguno.

ASÍ LO DIJO

 Desde siempre los alemanes han llegado, han colectado gran cantidad de material y este material se ha ido en cargamentos, en embarques".

Alberto Blanco Piñón
Paleontólogo mexicano que colaboró en la universidad de Karlsruhe de Alemania

"Me tocó ver cómo recolectaban material paleontológico que no había sido donado por los canteras, lo metían en algunas mochilas y te dicen, 'va a Linares'. Colectas todo, cuando llegas a Linares depositas el material en los cajones; tú notificas al jefe de la colección: 'aquí hay material', notificas y te deslindas.

"Lo que me tocó ver en Alemania, cuando llegábamos al Museo de Historia Natural de Karlsruhe, en cómo salía de las mochilas el material que ellos habían metido en las canteras, es decir, en lugar de dejar ese material en Linares, nunca lo sacaron de las mochilas como lo llevaron en las mochilas como equipaje de mano".

Según el paleontólogo, especialista en peces y quien ha desarrollado trabajos de campo en Coahuila, Stin-

Niega museo traficar fósiles

Un día después de quedar al descubierto la pesquisa federal por presunto tráfico de fósiles, Arturo González González, Director del Museo del Desierto, negó las acusaciones de envío ilegal de piezas a Alemania.

"Creo que hemos hecho dos o tres, con contenedores (con piezas)".

Dijo que el paleontólogo que denunció el tráfico esta "ardido" porque fue regresado de ese país que estaban bajo responsabilidad del museo. González aseguró que la denuncia se originó por conflictos personales entre él y Rodríguez de la Rosa y que ya se presentó ante la PGR.

César Cardona

nesbeck le llegó a pedir que identificara fósiles sin registro, a lo cual se negó.

"Me han comentado que este señor Stinnesbeck es tal vez uno de los saqueadores más fuertes que ha tenido la historia del país, pero es algo de tradición, desde siempre los alemanes han llegado, han colectado gran cantidad de material y este material se ha ido en cargamentos, en embarques, lo que tú quieras".

El paleontólogo que reveló el presunto tráfico de piezas, Rubén Rodríguez de la Rosa, entregó ayer a la PGR una carta donde responsabiliza a Arturo González de lo que pueda sucederle a él, su familia o bienes, pues teme represalias ahora que los hechos son conocidos por la opinión pública y las autoridades.

SALTILLO 2

Pide Felipe el antidoping a estudiantes

> Condiciona Presidente monitoreo a que padres de familia avalen detección de adicciones

José García
CORRESPONSAL

MONTERREY.- Un antidoping "light" en las escuelas propuso ayer Felipe Calderón para detectar alumnos que consumen drogas.

Y es que la propuesta se aplicará sólo si los padres de familia están de acuerdo.

El Presidente planteó el tema al arrancar en la capital nuevoleonesa el programa contra la delincuencia "Limpiemos México".

"Debemos unir fuerzas para tener también actividades culturales, actividades deportivas, y acciones ya no sólo como la Mochila Segura, sino con la revisión permanente de las pertenencias, de los hábitos de los niños", expresó.

"Integra una atención médica integral y, en aquellas escuelas donde lo autoricen los padres, un monitoreo y una revisión permanente del estado de salud de los alumnos para detectar cualquier adicción y actuar de inmediato, no para castigarlos, sino para ayudarles a resolver su problema".

El objetivo planteado por el Mandatario es que, a partir del próximo ciclo escolar, en 8 mil planteles del País se implemente el esquema Escuela Segura, que es uno de los tres ejes considerados en el programa "Limpiemos México".

Ese nuevo programa implica la acción conjunta de varias dependencias de los tres niveles de gobierno para implementar medidas preventivas con la participación de los ciudadanos.

El segundo de los ejes es la recuperación de los espacios públicos afectados por la delincuencia, incluyendo la construcción y habilitación de canchas deportivas, plazas y centros de esparcimiento.

El último de los puntos es una estrategia del Programa Nacional contra las Adicciones para construir 300

▶ El presidente Felipe Calderón habló ayer a alumnos de secundaria en Monterrey.

unidades unidades médicas especializadas en el País que den tratamiento a jóvenes adictos.

Al cierre de 2006, el instituto —como patrón— tiene un pasivo laboral de 833 mil 149 millones de pesos que seguiría creciendo hasta 2017, cuando rebasará los 1.1 billones de pesos.

Durante su gira por Nuevo León, Calderón tuvo un diálogo sobre el tema de la seguridad con alumnos de la escuela secundaria técnica 72, y después inauguró un centro contra las adicciones en Guadalupe, municipio conurbado de Monterrey.

'DEJEMOS DE PASAR BOLITA'

Durante su gira por tierra regiomontana, el Presidente Felipe Calderón demandó la coordinación de los tres niveles de gobierno para combatir al crimen organizado.

El Mandatario refirió que los gobiernos ya no deben "echarse la bolita" en ese tema.

"Es medular que los Gobiernos municipales, estatales y federal dejemos de echarnos la bolita de 'a quién le toca' la tarea de la seguridad", recalcó, mientras lo escuchaban el Gobernador Natividad González Parás y el Alcalde regio, Adalberto Madero.

"Nos toca a los tres y tenemos que actuar coordinadamente".

NACIONAL 8

INICIAN A LO GRANDE

Hace dos años se coronó campeón del Mundial Sub 17. Ahora, el Tri encabezado por Giovanni Dos Santos (izq.) arrancó ayer el Mundial Sub 20 en Canadá con una contundente victoria de 3-0 contra Gambia.

CANCHA

Acumula IMSS deuda con sus empleados

Arturo Rivero

El IMSS tiene el agua al cuello en cuanto a deudas con sus empleados.

Al cierre de 2006, el instituto —como patrón— tiene un pasivo laboral de 833 mil 149 millones de pesos que seguiría creciendo hasta 2017, cuando rebasará los 1.1 billones de pesos.

Así se revela en el informe "Situación Financiera y los Riesgos del IMSS 2006-2007", presentado por el Seguro Social a la Cámara de Diputados y al Ejecutivo federal.

El instituto destaca el crecimien-

to alarmante del pasivo en los últimos años, pues desde 1999 hasta el año actual aumentó en 67 mil 900 millones de pesos anual promedio.

El informe señala que este pasivo, dividido entre la planta laboral, representa 2.3 millones de pesos por trabajador. Un año antes fue de 2.1 millones por empleado.

El informe asegura que el reconocimiento pleno del pasivo laboral implica que el organismo que su patrimonio es negativo, es decir, con los activos que posee no podría saldar esta obligación.

NEGOCIOS 13

Ignoran en el PRD la línea de AMLO

Claudia Guerrero, Armando Estrop y Emiliano Ruiz

MÉXICO.- Contrario a la instrucción que les diera el domingo Andrés Manuel López Obrador, legisladores del Partido de la Revolución Democrática (PRD) advirtieron ayer que sí negociarán la reforma hacendaria.

El Senador Tomás Torres, integrante de la Comisión de Hacienda, reconoció que su posición puede representar un costo político.

"Sé lo que implica en lo personal (ir contra AMLO) y estoy consciente de los costos políticos, pero yo requiero cumplir a quienes votaron por mí. Aunque reconocemos los liderazgos del PRD, vamos a negociar una reforma hacendaria", dijo.

El también senador Carlos Sotelo reconoció que el PRD no aprobará la propuesta del Gobierno Federal, pero eso no implica que se cierren al diálogo y a la negociación con otras fuerzas políticas.

Juan Guerra, vicecoordinador de la fracción del Sol Azteca, aseguró que no abandonarán las negociaciones en la Comisión de Hacienda.

Luis Sánchez, vocero de la bancada, aseguró que sólo pueden obedecer el mandato del Consejo Nacional de su partido.

NACIONAL 2

ESTADOS

Hallan por fin en NL restos de Fernandito

A 36 días de que una banda secuestrara y diera muerte a Fernando Michel, en Monterrey, la Policía halló restos que podrían ser los del menor.

PÁGINA 10

SALTILLO

Marca tragedia inicio de periodo vacacional

Un estudiante pereció ayer ahogado en el arroyo Ceballos y, horas más tarde, un albañil también murió en la Unidad Deportiva.

PÁGINAS 1 Y 7

1005 Thursday, 3rd July, 2007, Year X, number 3,501

PALABRA/Coahuila

by César Cardona

Shipment of fossils confirmed to the PGR

Researcher [Alberto Blanco Piñón] revealed that relics were even removed from backpacks.

1010 Palaeontologist [Alberto Blanco Piñón] claims to have witnessed the arrival of unregistered specimens at a German university.

The arrival of fossils from Coahuila and Nuevo León to the European continent was confirmed by palaeontologist Alberto Blanco Piñón, who worked for the University of Karlsruhe in Germany, and yesterday gave his testimony on the case to the

1015 Federal Attorney General's Office (PGR [by its initials in Spanish]).

The researcher [Alberto Blanco Piñón], who was summoned to appear after the palaeontologist Rubén Rodríguez de la Rosa revealed the alleged trafficking of fossils from Múzquiz, Coahuila, and Vallecillos, Nuevo León, affirmed that he collected material that is no longer in Mexico but with the Germans.

"These are things that are known, but they say 'prove it', and you have no way of proving it," he [Alberto Blanco Piñón] said

1020 in an interview with PALABRA before giving his statement at the local offices of the PGR, "they have alibis and they also have a way of involving those who were there, for example, in this case I was there and I can tell you that the material I collected ended up in Linares, and from there it ended up in different ways in Germany, some catalogued, others not.

"What is the fear of many people making these denouncements? The fear is simply that they say, 'you took me, you did it too, you were there with me'," said the palaeontologist [Alberto Blanco Piñón], who now works for the University of

1025 Hidalgo.

PALABRA reported yesterday that the PGR opened investigation 60/D/07 for alleged fossil trafficking involving German palaeontologists Wolfgang Stinnesbeck and Eberhardt Frey, as well as Arturo González González, Director of the Desert Museum [Coahuila].

Blanco Piñón added that during his stay in Germany, which ended in 2002, he saw the palaeontologist Wolfgang

1030 Stinnesbeck unpacking fossils collected here [Coahuila] and in Nuevo León without any records.

"I [Alberto Blanco Piñón] saw how they collected palaeontological material that the quarrymen had not donated; they put it in backpacks and told you, 'it is going to Linares'. You collect everything, and when you get to Linares, you deposit the material in the crates; you notify the head of the collection: 'here is the material', you notify him, and then you leave.

"What I [Alberto Blanco Piñón] saw in Germany when we arrived at the Museum of Natural History in Karlsruhe was how

1035 the material that they had put in the quarries came out of the backpacks, that is, instead of leaving that material in Linares, they never took it out of the backpacks, they took it in the backpacks as hand luggage".

According to the palaeontologist [Alberto Blanco Piñón], a fish specialist who has carried out fieldwork in Coahuila, Stinnesbeck asked him to identify unrecorded fossils, which he refused to do.

"I have been told that this Mr. Stinnesbeck is perhaps one of the strongest looters in the history of the country, but it is
1040   something of a tradition; the Germans have always come, they have collected a large amount of material, and this material
has gone in loads, in shipments, you name it".

The palaeontologist who revealed the alleged trafficking of pieces, Rubén Rodríguez de la Rosa, yesterday, delivered a letter
to the PGR in which he holds Arturo González responsible for what could happen to him, his family or his property, as he
fears reprisals now that the facts are known to the public and the authorities.

1045

This is what he [Alberto Blanco Piñón] said:

"The Germans have always come, they have collected a large amount of material, and this material has gone in loads, in
shipments".

Alberto Blanco Piñón/Mexican palaeontologist who worked at the University of Karlsruhe in Germany.

1050

Museum denies fossil trafficking

by César Cardona

One day after the federal investigation of alleged fossil trafficking was uncovered, Arturo González González, director of the
Desert Museum [Coahuila], denied the accusations of illegal shipment of fossils to Germany.

1055   "I think we have made two or three [shipments]; they are containers (of pieces)".

He said that the palaeontologist who reported the trafficking was petty because he was returned from the Desert Museum to
the Ministry of Education.

Without showing documents to support shipments to Germany or immigration permits for the palaeontologists from that
country who were under the museum's responsibility, González assured that the complaint originated from personal conflicts
1060   between him and Rodríguez de la Rosa and that he [Arturo González] had already been presented to the PGR.

Saltillo, Palabra, Friday 6th July 2007

Letters from the Readers

"German scientist defends work"

1065   Mr. Director,

Through third parties, we became aware of the false accusations against my working group and me presented by two persons, Mr Dr. Alberto Blanco Piñón and Mr Rubén Rodríguez de la Rosa, which were published in the newspapers PALABRA and EL NORTE on July 2 and 3 of this year. According to the articles published by journalist César Cardona, we traffic fossils of fish and reptiles from the states of Nuevo León and Coahuila, particularly from Vallecillo, N.L.; Múzquiz,
1070   Sabinas and Gómez Farías, Coahuila. They claim that these fossils have been shipped without authorisation to Germany, particularly to the city of Karlsruhe.

We are surprised and saddened by your journalist, Cesar Cardona, at no time attempted to contact us or our Mexican collaborators to examine the basis and content of these accusations or to find out our opinion or any comment. Thus, we believe that their articles represent an act of sensationalist journalism, very unprofessional, hypocritical, and cowardly, whose only intention is to take advantage of a general xenophobic tendency to destroy our reputation as scientists, as well as the basis of trust in a bilateral collaboration of almost 20 years existing between the Faculty of Earth Sciences (FCT) of the Autonomous University of Nuevo León (UANL), in Linares, N.L., the Desert Museum, in Saltillo, Coah., the State Museum of Natural History, in Karlsruhe, and the University of Karlsruhe, both in Germany.

The results of this binational collaboration can be seen on a national scale, not only in the states of Coahuila and Nuevo León, where research is currently being carried out that has yielded new specimens for palaeontology worldwide. On multiple occasions, Mexican newspapers, including PALABRA and EL NORTE, have reported on discoveries made by us, including pliosaurs (e.g., the "monster of Aramberri"), ichthyosaurs, marine crocodiles, fish, and the flying reptile classified as Muzquizopteryx coahuilense (sic), the first genus and species of a flying reptile for Mexico. All these fossils, after their preparation, classification and publication, are found in the palaeontological collections of Mexican institutions.

It is unfortunate that our geographical distance does not allow us to act more forcefully against the sensationalism of a journalist, apart from asking for the publication of this comment as a right of reply. Since the beginning in 1987, when I came as a teacher-researcher to the Faculty of Earth Sciences of the Autonomous University of Nuevo León in Linares, our Mexico-Germany cooperation has been supported by the laws of our respective countries, by official agreements between our universities and museums, by the INAH and by the Council of Palaeontology in Mexico, of which I was a member between 1994 and 1996. We have the FM3 to carry out our research in the field legally and to work and research in the country, as well as the authorisation to export fossils temporarily.

I consider it the duty of your journalist to determine these details before launching a public campaign of defamation and slander by two envious and spiteful individuals who began their campaign to deviate from their own scientific shortcomings. In the case of Mr Rodríguez de la Rosa, our colleague Arturo Gonzalez Gonzalez will duly answer their allegations.

Mr. Blanco Piñón spent most of his PhD in Karlsruhe before completing his thesis at the FCT. During this time span of more than 4 years, he was advised by us with funding from the DAAD.

He wrote his thesis on fossils from Vallecillo as part of our project and with the fossils that he now says we trafficked. That in itself is more than dishonesty and hypocrisy. It is easy to recognise that behind his accusations, there are mainly personal reasons and not scientific motives for a worthy researcher.

Prof. Dr. Wolfgang Stinnesbeck

Geological Institute of the University of Karlsruhe and Palaeontological and Geological Institute of the University of Heidelberg, Germany.

Ponen en duda capacidad para cuidar patrimonio paleontológico

Cuestionan a Estado por saqueo de fósiles

> También en Perú acusan a universidad alemana de extraer restos prehistóricos

César Cardona

La protección que brinda el Gobierno del Estado al patrimonio paleontológico de Coahuila fue puesto en duda por un especialista de la Universidad Autónoma de Hidalgo.

Las autoridades locales recibieron una carta en la que el paleontólogo Alberto Blanco Piñón, del Centro de Investigaciones en Ciencias de la Tierra, extiende su preocupación sobre la actuación en la entidad por parte de investigadores de la Universidad de Karlsruhe, de Alemania.

En su misiva enviada al Gobernador Humberto Moreira, el especialista asegura que el patrimonio en la entidad no está protegido.

"El motivo de este documento es expresar mi preocupación sobre el dudoso manejo que se ha dado al patrimonio paleontológico de Coahuila en manos de investigadores alemanes de la Universidad Técnica de Karlsruhe, ade-

ASÍ LO DIJO

❝ El motivo de este documento es expresar mi preocupación sobre el dudoso manejo que se ha dado al patrimonio paleontológico de Coahuila en manos de investigadores alemanes".

Alberto Blanco Piñón
Director del Centro de Investigaciones en Ciencias de la Tierra

más de la intromisión de estos en localidades que actualmente se encuentran bajo estudio por investigadores mexicanos", señala el documento de la cual PALABRA obtuvo una copia.

La carta fue recibida el pasado 3 de julio.

Blanco Piñón expresa en su misiva que es lamentable que los investigadores extranjeros accedan a zonas paleontológicas coahuilenses bajo el amparo de la dirección del Museo del Desierto.

El 1 de julio PALABRA informó que la Procuraduría General de la República abrió la averiguación 60/D/07 por posibles violaciones a la Ley Federal sobre Monumentos y Zonas Arqueológicas, Artísticos e Históricos.

En la investigación solicitada por la Presidencia de la República se in-

volucra a Arturo González González, Director del Museo del Desierto, y a los paleontólogos alemanes Wolfgang Stinnesbeck y Eberhardt Frey, de la Universidad de Karlsruhe.

Según el paleontólogo Rubén Rodríguez de la Rosa, de la Coordinación de Paleontología de la Secretaría de Educación y Cultura, los investigadores alemanes, con el apoyo de González González, se habrían llevado ilegalmente fósiles de Vallecillos Nuevo León, así como de Gómez Farías, Sabinas y Múzquiz, en Coahuila.

Rodríguez de la Rosa también entregó una carta al Gobierno del Estado donde manifestaba esa preocupación.

En su carta, Blanco Piñón no hace acusaciones directas, pero externa su preocupación.

REPITEN MODELO EN PERÚ

En Perú comenzaron a surgir voces que aseguran que en la Universidad de Karlsruhe, Alemania, hay piezas que buscan recuperar tras su salida ilegal.

El Doctor Jean-Nöel Martínez, Director del Instituto de Paleontología de la Universidad Nacional de Piura, en Perú, envió una carta de respaldo al paleontólogo Rodríguez de la Rosa y le dice que allá también tienen problemas con saqueo de fósiles.

"Fósiles del Perú (más exactamente de los terrenos litorales del Mio-Plioceno, de la formación Pisco) han sido traficados en el pasado y fueron a parar al Museo del Karlsruhe", subraya en su escrito.

El Director del Instituto de Paleontología de la Universidad Nacional de Piura señala que oficialmente esos fósiles fueron a parar a Alemania antes de que existiera la Ley Paleontológica en su país y él no tiene pruebas de lo contrario.

"'Dino' Frey escribió algunas líneas en esta carta donde mencionaba que el Museo de Karlsruhe tenía cantidades de fósiles de vertebrados de la formación Pisco antes de que fuera aprobada la Ley de Patrimonio Paleontológico, por lo cual no había ningún problema legal", añade.

La preocupación de Jean-Nöel Martínez, según indica, es por la dificultad para probar cuándo salió el material paleontológico de Perú y que está en Alemania.

"Christian de Muizon tiene el mismo discurso en cuanto a los fósiles que están en el Museo de Historia Natural de París, (algunos transitaron por... ¡el Museo de Karlsruhe!).

"Creo que debemos tratar la retroactividad de la ley, ¿hasta qué punto se puede probar que un fósil salió antes o después de la promulgación de la ley? ¿acaso los fósiles tienen un sello en el hueso frontal diciendo yo salí de mi país de origen en tal fecha?".

Saltillo, Palabra, 16th July 2007

1105   Capacity to protect palaeontological heritage is challenged

State is questioned about the looting of fossils

Also, in Peru, they accuse a German university of stealing prehistoric remains

The protection provided by the State Government to the palaeontological heritage of Coahuila was questioned by a specialist from the Autonomous University of Hidalgo. The local authorities received a letter in which palaeontologist Alberto Blanco

1110   Piñón, from the Center for Research in Earth Sciences, extended his concern about the actions of researchers from the University of Karlsruhe in Germany.

In his letter sent to [Coahuila's] Governor Humberto Moreira, the specialist states that the heritage of the entity is not protected. "The motivation behind this document is to express my concern about the dubious management that has been given to the palaeontological heritage of Coahuila in the hands of German researchers from the Technical University of Karlsruhe, in addition to their interference in localities that are currently under study by Mexican researchers," says the document, a copy of which was obtained by PALABRA.

The letter was received on 3rd July.

Blanco Piñón expresses in his letter that it is unfortunate that foreign researchers have access to palaeontological areas in Coahuila under the auspices of the Directorate of the Museo del Desierto. On 1st July, PALABRA reported that the Attorney General's Office opened investigation 60/D/07 for possible violations of the Federal Law on Archaeological, Artistic and Historical Monuments and Zones.

The inquiry requested by the Office of the President [of Mexico] involves Arturo González González, Director of the Museo del Desierto, and German palaeontologists Wolfgang Stinnesbeck and Eberhardt Frey from the University of Karlsruhe.

According to palaeontologist Ruben Rodriguez de la Rosa from the Palaeontology Coordination of the Secretary of Education and Culture, German researchers, with the support of Gonzalez Gonzalez, would have illegally taken fossils from Vallecillo, Nuevo León, as well as from Gómez Farías, Sabinas and Múzquiz, in Coahuila.

Rodríguez de la Rosa also delivered a letter to the state government expressing this concern.

In his letter, Blanco Piñón does not make direct accusations but expresses his concern.

THEY REPEAT THE MODEL IN PERU

In Peru, voices began to emerge that claim that at the University of Karlsruhe, Germany, there are pieces that they seek to recover after their illegal departure.

Dr Jean-Nöel Martínez, director of the Institute of Palaeontology at the National University of Piura in Peru, sent a letter of support to palaeontologist Rodríguez de la Rosa and told him that over there [in Peru], there are also problems with the looting of fossils.

"Fossils from Peru (more precisely from the coastal lands of the Mio-Pliocene, from the Pisco Formation) have been trafficked in the past and ended up in the Karlsruhe Museum," he stresses in his letter.

The director of the Institute of Palaeontology of the National University of Piura noted that, officially, these fossils ended up in Germany before the Palaeontological Law existed in his country, and he has no proof to the contrary.

"'Dino' Frey wrote a few lines in this letter where he mentioned that the Karlsruhe Museum had a large number of vertebrate fossils from the Pisco Formation before the Palaeontological Heritage Act was passed, so there was no legal problem," he added.

Jean-Nöel Martínez's concern, he says, is due to the difficulty in proving when the palaeontological material left Peru and arrived in Germany.

Christian from Muizon has the same discourse regarding fossils in the Natural History Museum in Paris (some of them passed through… the Museum in Karlsruhe!)".

"I think we need to reconsider the retroactivity of the law: to what extent can you prove that a fossil left the country before or after the enactment of the law? Do fossils have a seal on the frontal bone saying I did leave my home country on such and such a date?"