

Translating Guane Heritage: A Hybrid Approach to the Study of the Mummies from La Mesa de

Los Santos

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Dedications

Sylvia Fernanda Guerrero Ramírez

To my parents, who have always shown me their unconditional support and worked hard so that I could study and have the best life. Although this achievement is as much theirs as mine, no words can truly express my gratitude for everything they have done for me. To my sisters, for their constant presence and encouragement during difficult times. To my friends, from whom I learn something every day and whose company has helped me grow and become a better human. To Yumyum and Frappe, who have given me comfort with their purrs during difficult days. To my therapist, Silvia Blanco, for walking beside me throughout this process. To Mateo, the best partner I could have asked for, I am grateful to have worked with someone as special as you. To Professor Heidy, for guiding me throughout this long process and for always being there to support me. To myself. Even on the days when I doubted or felt I could not keep going, I found ways to prove to myself that I was strong enough. The love and support of those around me were a great driving force behind this accomplishment.

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Table of Contents

Introduction	10
1. Objectives	15
1.1. General Objective	15
1.2. Specific Objectives	15
2. Literature review	15
2.1. Museum translation	16
2.2 Tourism translation	21
2.3. Translation of Anatomy-Related Terminology	24
2.4. History of the Guane	28
3. Theoretical and Conceptual Framework	31
3.1. The Translation Approach	31
3.1.1. Technical-scientific translation	31
3.1.2 Equivalence in translation	32
3.2. Terminological Approach	37
3.3. Intersemiotic and Multimodality	39
4. Methodology	42
4.1. Type of research	43
4.2. Corpus	44
4.3. Resources and data collection instruments	45
4.4. Analysis Techniques	46
5. Results and analysis	51
5.1. Terminological standardization	53
5.1.1. Lack of standardization	55
5.1.2. Eponymy	57
5.1.3. Synonymy	58
5.1.4. Translation of indigenous ethnonyms	59
5.1.5. Terminological database development	61
5.2. Creation of the Poster	62
6. Conclusions	63
Bibliographic References	67
Appendices	74

List of figures

Figure 1. Extraction of key terms from the source text	47
Figure 2. Translation process and analysis	48
Figure 3. Final translation	49
Figure 4. Museum poster	50
Figure 5. Chart of main stages of the methodology	51
Figure 6. Terminological database sample	61

List of tables

Table 1. Terminological Variations Identified in the Source Text and Their Equivalents	59
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List of Appendices

Appendix A. Glossary	74
Appendix B. Source Text transcription	75
Appendix C. Translation	77
Appendix D. Poster	78
Appendix E. Terminological database	79

ABSTRACT

Title: Translating Guane Heritage: A Hybrid Approach to the *Study of the Mummies from La Mesa de Los Santos**

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Key words: Hybrid approach, equivalence, terminological standardization, anatomical translation, museum translation, Guane mummies.

This study presents the translation of *Estudio de las momias guanes de la Mesa de los Santos* (1992), an academic article exhibited in the Guane Room of the Museo Casa de Bolívar. The project responds to the lack of translated material for international visitors and adopts a hybrid approach that combines equivalence-based and prescriptive terminological methods grounded in Terminologia Anatomica (TA). During the process, challenges such as lack of standardization, synonymy, eponymy, and indigenous ethnonyms were identified and analyzed. Results showed that scientific accuracy can be preserved through pragmatic adaptation, demonstrating that terminological precision and communicative clarity are not mutually exclusive. In addition to the English translation, a bilingual poster was created to summarize the article's main ideas for museum visitors. This project highlights the relevance of hybrid translation strategies in museum contexts to widespread specialized knowledge and foster cultural understanding.

*Undergraduate thesis

**Faculty of Human Sciences – School of Languages – Supervisor: Heidy Alegría Gutiérrez León, Doctor in Translation Studies

RESUMEN

Título: Traducción del Patrimonio Guane: Enfoque Híbrido Aplicado al Estudio de las Momias de la Mesa de los Santos*

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Palabras clave: Enfoque híbrido, equivalencia, estandarización terminológica, traducción anatómica, traducción museística, momias Guane.

Este estudio presenta la traducción del *Estudio de las momias guanes de la Mesa de los Santos* (1992), un artículo académico exhibido en la Sala Guane del Museo Casa de Bolívar. El proyecto responde a la falta de material traducido disponible para los visitantes internacionales y adopta un enfoque híbrido que combina métodos de equivalencia con un enfoque terminológico prescriptivo basado en la *Terminologia Anatomica* (TA). Durante el proceso se identificaron y analizaron desafíos como la falta de estandarización, la sinonimia, la eponimia y los etnónimos indígenas. Los resultados demostraron que la precisión científica puede preservarse mediante la adaptación pragmática, evidenciando que la precisión terminológica y la claridad comunicativa no son conceptos mutuamente excluyentes. Además de la traducción completa al inglés, se elaboró un póster bilingüe para resumir las ideas principales del artículo y hacerlo accesible a los visitantes del museo. Este proyecto destaca la relevancia de las estrategias de traducción híbrida en contextos museísticos para difundir el conocimiento especializado y fomentar la comprensión cultural.

*Trabajo de grado

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Introduction

Simon Bolivar is widely recognized as one of the most important figures of liberation in Latin American history. Because he was constantly traveling and spent little time in one place, throughout his life he owned several houses across Venezuela, Colombia, Ecuador, and Peru. Today, many of these residences are home to cultural centers, where people learn and share about the history of liberation campaigns, Bolivar's life, and about the local culture (Favale, n.d.).

It is important to clarify that what is known today as the Museo Casa de Bolívar was not one of his residences. This place only provided temporary shelter to Bolívar in 1828, during his stay in the city of Bucaramanga, throughout one of the many trips made by the liberator (Parra, 2019). At the time when Bolívar made his trip to this city, Colombia was in a critical situation, due to the economic crisis left by the independence war. Over time, the federalist sentiment was growing among the leaders, contrary to Simon Bolívar's centralist ideals. Bolívar's stay in Bucaramanga was crucial for the reform of the Cúcuta Constitution of 1821, which ruled La Gran Colombia¹. The liberator's main goal was to reach the city of Ocaña. However, Bolívar chose to settle temporarily in Bucaramanga. Since his visit was unexpected, he first had to stay with Father Eloy Valenzuela, who did not agree with Bolívar's libertarian ideas. This led to the liberator eventually being housed in what is now known as the Museo Casa de Bolívar.

Despite being one of the most historically and culturally important places in the city, for a long time this house suffered the consequences of negligent local governments

¹ La Gran Colombia was a republic formed after independence from Spanish rule (1819-1831), which unified the current territories of Colombia, Venezuela, Ecuador and Panama under a central government.

that did not see the relevance in investing resources to preserve the place as cultural heritage. Although this was the case for many years, in recent years the local government has begun to make efforts to recover this place. In 2018, the Municipal Institute of Culture and Tourism designed a project known as “Ruta Vive los Museos”. This plan was aimed at the preservation of the cultural and historical heritage of the department, through the restoration of cultural houses and museums. Among them, the Museo Casa de Bolívar was included, investing 70 million pesos to restore infrastructure and reorganize its interior so as to make it more attractive to visitors (Gobernación de Santander, 2019).

In concordance with this, it should be noted that this is not the only project from which the museum has benefited. The “Plan C, Ciudad Caminable”, also aimed to bring back and maintain several places of cultural value, which at the time were under conditions of abandonment. The plan took in several public places, including the Luis Carlos Galán Sarmiento civic square and the surrounding areas, where the Museo Casa de Bolívar is located, which was painted, its facade was renovated, and its woodwork was renovated as well (Gobernación de Santander, 2023), making it even more attractive to visitors.

The importance of museums lies in what they represent for local communities. Museums conserve, research, communicate, and exhibit material testimonies of man and his environment for both educational and entertainment purposes (International Council of Museums [ICOM], 2007, as cited in Bonilla, 2017, p. 298). Museums are therefore a key element for the recreation of the local culture. Throughout its history, the Museo Casa de Bolívar has fulfilled several roles. The most recognized is for being the temporary quarter to the aforementioned liberator, but this place was also the home of a

family, eventually became a telephone operations center, and finally was a cigar store. In 1946, the house was acquired by the departmental government and given to the History Academy of Santander in 1948 (Parra, 2019).

Even with the historical background that this house carried with it, for a long time the government of Santander failed to provide resources to the house for its restoration. Despite this, as mentioned above, the latest government periods have been more interested in investing in culture and tourism. With this into consideration, these places have acquired a new relevance at the local level, as far as tourism is concerned.

The Museo Casa de Bolívar has a room dedicated to the history of one of the most important pre-Hispanic peoples of Santander: the Guane. According to Acevedo and Moreno (2020), this indigenous People was widely recognized by the Spanish colonizers for their textile talent, which made them stand out for their use of elaborate cloaks, according to colonial records. Their physical appearance, described as white and tall, also attracted attention. Likewise, their funerary practices aroused the interest of the colonizers but were not appreciated and ended up being prohibited by the crown. The authors also note that their diet included Hormiga Culona and corn-based foods, leading to traditional preparations such as Arepa Santandereana and Chicha. Much of Santander's current gastronomy has its roots in this culture. Although no records of their language are preserved, some place names in Santander are toponyms, such as Bucaramanga, Zapatoca, Barichara, Ture, Umpalá and Guatiguará.

Acevedo and Moreno further add that the Guane population over time declined due to diseases brought by the conquerors, slavery, and displacement. Today, the remains of these people (textiles, clothing, ceramics, necklaces, bones, skulls and mummies) are

preserved in museums. These spaces and their adaptation to tourism have shaped the way the society of Santander relates to their heritage, fostering a more inclusive vision that recognizes and revalues their identity.

Tourism is one of the most enriching acts that human beings can perform, because it allows them to get to know cultures and people, expand their knowledge, and get in touch with events, characters and ideas that forged the world as it is today. Additionally, tourism allows people to have personal and cultural growth (Caldevilla Domínguez et al., 2019). In accordance with the Municipal Institute of Culture and Tourism (2024) “In terms of international connectivity, Bucaramanga exclusively serves Copa Airlines, originating in Panama, with a total of 3,479 passengers. We also reported the route from the United States to Fort Lauderdale (FFL) until January, when Spirit Airlines canceled its operations, transporting 1,047 passengers”. However, even considering the flow of foreigners arriving in the city, translated material for tourists is rather scarce. For example, the Museo Casa de Bolívar does not have any of its texts, tours or inscriptions on display translated into languages such as English, even though it is the most widely spoken *lingua franca* in the world. Considering the above, this translation project could allow the museum to transmit information about the local culture to more people and provide foreign tourists with a better experience, allowing them deeper access to the cultural and historical heritage of the region.

This work was carried out within the framework of the translation of the text *Estudio de las momias guanes de la mesa de los santos, (santander, colombia)*, which is currently on display in the Guane Room of the museum. Given that it is a technical-scientific text and not particularly suitable for tourists to read, an adaptation of

the text was produced in the form of two posters (one in Spanish, the other in English). Furthermore, the entire article was translated following a hybrid approach that preserves the scientific nature of the article. This approach combines the equivalence approaches of Nida, Koller, Newmark, and Baker, together with Cabré's terminology approach, as the text contains a large amount of specialized vocabulary, and incorporates insights from intersemiotic and multimodal translation to adapt the academic content into a museum-appropriate format that enables meaning-making through verbal, visual, and spatial modes. This combination was necessary to achieve both terminological accuracy and conceptual equivalence between the source and target texts.

1. Objectives

1.1. General Objective

- To translate from Spanish to English the *study of the Guane mummies from la mesa de los santos* document implementing a hybrid approach. This document is exhibited in the Guane Room of the Museo Casa de Bolívar.

1.2. Specific Objectives

- To characterize the translation of technical and scientific texts, as well as the translation of museum and tourism texts.
- To identify and analyze anatomical terminology in the source text written in traditional (outdated) nomenclature and provide accurate translations using current international anatomical nomenclature standards.
- To carry out the translation processes, from documentation and terminology extraction to style revision and editing.
- To produce a bilingual (Spanish-English) adaptation (poster) of the source text for public display at Museo Casa de Bolívar, so as to enhance accessibility and comprehension for both local and international visitors.

2. Literature review

A museum is a non-profit permanent institution that conducts research, conserves, collects, exhibits, and interprets tangible and intangible heritage. Open to the public as an accessible and inclusive place, museums collaborate ethically and professionally with

communities to provide educational, reflective, and engaging activities experiences that facilitate knowledge exchange (International Council of Museums, n.d.). The ease of travel and the increase of cultural tourism have expanded museum audiences further beyond national and cultural boundaries, posing new challenges in terms of intercultural communication and translation (Sonaglio, 2016).

In order to provide the best translation for the document at stake, this literature review has been categorized in four main aspects: museum translation, tourism translation, anatomical translation and history of the Guane. The first two aspects are relevant to the study because the document is currently in exhibition at Museo Casa de Bolívar and it is necessary to analyze the context and intention behind museum texts that are meant to be read by local and international visitors.

Due to the necessary anatomical terms for understanding the study's results and those related to the Guane's artificial cranial deformation practices, it is imperative to perform research on the translation of anatomical texts and terminology so as to make sure that the terms and measurements found in the source text are accurately translated. Lastly, it is necessary to research Guane history, culture, and traditions, as they represent an important part not only in the study to be translated but are the main topic of the gallery room.

2.1. Museum translation

Campos (2021) explains that the relevance of museums in the tourism sector emerged as new museological practices appeared. During this period, museums incorporated leisure and commercial areas, such as cafés, shops and interactive displays,

evolving to what Paiva (2001, as cited in Campos, 2021) refers to as "new museology", a model that extends beyond the traditional definition of a museum as a building housing objects for exhibition. In this new paradigm, museums are portrayed as institutions connected with local communities whose territory and inhabitants play an important role in valuing, preserving and interpreting their cultural heritage.

Museums must evolve and implement new strategies to ensure that not only the Source Language (SL) is translated but the context and culture as well. This information is relevant for our research because it shows the importance of performing an effective interpretation in museum texts to enhance the visitor's experience, communicating the value of cultural heritage to international audiences and its preservation.

Sonaglio (2016) presents an analysis on how museums use bilingual texts to communicate cultural heritage to international audiences by using a social semiotic and systemic functional framework, demonstrating how language choices in the content of museums texts may affect the interpretation of cultural objects. For instance, a museum label describing a particular exhibition element may change its description depending on whether the translator chooses a formal academic tone or a more accessible one. If the source text contains a highly technical language and the target text simplifies terms and adds cultural context, this choice can affect how visitors perceive the exhibited element: either as a piece of study or a piece of living heritage.

Ravelli (2006) classifies the way museums establish communication through a social semiotic approach, which is defined as a system of communication of meaning in context. Halliday (1978) describes the social semiotic perspective of language as a

system for creating meaning that is inherently connected to its context and culture of use. In this approach, language is not only a mere tool to convey information, but it is also a resource to represent social and cultural practices. This approach is important to this study because it is used by museums in an attempt to build meaning alongside their visitors. However, some museums have difficulties in expressing meaning in certain situations, especially when these institutions do not take international visitors into account and facilities are not in optimal conditions to create a space for meaning creation. Translating the source text into English ensures that it becomes a valuable element of the Guane exhibition at Museo Casa de Bolívar, allowing international visitors to engage with Guane culture in a significant way and create meaning through their own interpretation of the culture.

Ravelli (2006) provides an insight in the way museums produce meaning in a systemic functional framework, categorized into three main aspects: organizational, interactional, and representational.

The *organizational framework* describes how the meaning is created in museums using their own generic structure; this process involves the exhibition's design, its purpose, and the museum's accessibility. In this context, museum texts are classified according to their purpose: a report, for example, is used to describe an object using the museum's own terminology and classification. An explanation serves to illustrate phenomena, the origin and use of an object. An exposition aims to introduce an argument and influence the readers' perception of the argument, while the museum staff aims to change the reader's behavior towards the museum. Moreover, discussion elements are

used to present multiple opinions regarding debate, promoting a variety of interpretations on a certain topic.

The *interactional framework* is centered on the usage of authority, modality, and interactive discourse in museum texts in order to illustrate meaning production and communication. Museums shifted from the old authoritarian stance using absolute opinions and treating the visitors as passive recipients of information, to a more interactive approach where visitors are offered subjective opinions and ensure the visitor's role as creators of meaning. Because of this, the role of the museum curators and translators is making sure to write texts based on the museum's function and purpose.

Lastly, *representational framework* refers to the method implemented by museums to explain, interpret, and construct reality. Museum texts are not the only way these institutions can create meaning; they also offer visual, verbal and (increasingly) audio experiences that can enrich the visitors' experience at the museum. Reiss (2008) categorizes three main text types by analyzing their communication functions and lexical/grammatical linguistic features and suggests translation strategies for each text's main function. We introduce this information since it is a key element to understand the different types of museum texts and to make sure, we perform the most appropriate translation approach according to their intended purpose.

An *informative text* is a type of text whose function is to communicate content in a straightforward way, taking into account the text's sense and meaning (Reiss, 2008). According to what was previously stated regarding categorization of museum texts, the explanation and report text genres would fall into this category.

Operative texts have the function of communicating content with persuasive intentions (Reiss, 2008). Exposition and directive text genres are part of this category, for example, exposition texts found in museums carry with them a persuasive aspect that tries to influence the opinion of their visitors on the text they are reading, by using appealing adjectives or highlighting words in the exhibited text (Sonaglio, 2016). Sonaglio (2016) explains that the most suitable translation strategy for this type of text is *adaptive translation*, which involves identifying and altering features from the source text and adjusting them appropriately in the target text in order to impact the target audience's response.

Expressive texts have an aesthetic and artistic function that conveys the author's personal feelings, thoughts and artistic creativity. In the museum context, expressive texts are found in artistic comments and autobiographical accounts. The best translation approach to handle expressive texts is to identify and preserve the personal and artistic remarks made by the author (Reiss, 2008). The integration of the social semiotic approach, systemic functional framework and the type text typology introduced by Reiss provides a foundation for understanding how meaning is created and communicated in museum texts. This integration of theoretical perspectives is essential for our research because they encourage the use of translation strategies that include cultural context and audience engagement to convey the Guane cultural heritage for local and international visitors of Museo Casa de Bolívar². By establishing the role of translation in a museum

² In order to materialize this strategy, we decided to create a poster adaptation about *Estudio de las Momias Guanes de la Mesa de los Santos* (in Spanish and English) to be displayed at the Museo Casa de Bolívar

context, we will now proceed with a closely related field of translation: tourism translation.

2.2 Tourism translation

In our modern and globalized world, translation plays an important role in the tourism industry, serving as a communication bridge for linguistic and cultural boundaries. The significant increase in international tourism after the COVID-19 pandemic reveals the essential need of making touristic destinations attractive and inviting to a diverse variety of audiences across the world. Translation helps to convey not only useful information but also the cultural heritage and identity belonging to tourist sites, which allow travelers to engage in meaningful experiences in the places they visit.

An article published by Kent State University's Department of Modern & Classical Language Studies (n.d.) refers to tourism translation as the process of translating written content related to the tourism industry from a source language to a target language. Tourism translation is often focused on information and materials relevant to tourism, travel, and hospitality such as: Travel guides, brochures, restaurant menus, signs and directions, legal and safety information, etc.

Other aspects of tourism translation involve creating an engaging and positive experience for global travelers by maintaining cultural sensibility, understanding the local context, and refining the translator's ability to convey a message with the appropriate intention.

Additionally, the article defines *Localization* as the process of adapting linguistic and cultural content to make sure it is relevant to the target audience. In tourism translation, localization makes emphasis on local customs, nuances, and preferences to make sure an effective communication and engagement is built between the source text and the target audience. For instance, localization can have an application in tourism translation in maintaining cultural sensitivity, reproducing culturally accurate references, enhancing the user's experience, adapting visuals and imagery, and incorporating regional and international language translations (Department of Modern & Classical Language Studies [MCLS], n.d.).

As stated by Overseas Translation agency (n.d), historical and tourism attractions are more than simple locations but sanctuaries of cultural narratives and identities. An accurate translation guarantees that both context and meaning of these sites are communicated effectively to international visitors, scholars and future generations. Translating informative and educational material into multiple languages allows foreign tourists to understand the site's importance and legacy.

Furthermore, this article calls attention on how translation can improve the visitor's experience when they find information in a language they can understand, which allows them to create a deeper connection to the place they are visiting. Moreover, tourism translation encourages research initiatives by making historical/academic documents and narratives available to a broader audience. This relates to our research at an important level because it involves the translation of the source text taking into consideration its academic nature, as well as the creation of a bilingual poster

(Spanish-English) for display at the Guane gallery in Museo Casa de Bolívar. The translation of the source text and the creation of a bilingual adaptation aim to both improve the engagement with the Guane gallery and extend the academic content's accessibility to both local and international visitors, transforming academic knowledge into a meaningful tourism experience.

Tourism translation often encounters difficulties, such as cultural nuance, as translators require a deep understanding of historical narratives and cultural practices from the source text's culture. Thus, attempting to conduct a literal translation may not succeed in conveying the meaning and importance of particular traditions and or stories. While literal translations can preserve terminological accuracy, tourism translation often requires a more adaptive approach to ensure that cultural meaning and context are delivered effectively to the reader. Therefore, translators must strike a balance between accuracy and accessibility, using literal strategies for technical or historical terms, and dynamic equivalence strategies when communicating broader cultural or emotional significance. This hybrid approach allows translators to remain faithful to both the content and the communicative purpose of the text. Luo (2022) states that communicative translation provides great importance in tourism text translation that attempts to make cultural content more appealing to the target audience and to create a simple, clear and direct reading experience for the target language readers so they can create meaning with the information conveyed in the source text.

2.3. Translation of Anatomy-Related Terminology

Rask (2008) explores the difficulties of translating medical texts, based on a translation of the article Person-Centered Dementia Care, written in the British book *Nursing Older People*, into Swedish. In order to translate, she mainly relies on Koller's equivalence approach, at the same time as she did terminological documentation work. The author places greater emphasis on two areas of focus: medical terms and cultural aspects. Regarding cultural aspects, Rask proposes that there are cultural elements within the text that are largely related to certain communities, and when they converge, according to Koller's approach, it is best for the translator to look for ways to adapt the terms to the target readership, especially when they do not exist in this language.

When it comes to terminological documentation, Rask identifies challenges in translating texts with anatomical and symptomatological overtones, due to their Greco-Latin, English and neological nature. In order to translate them, she suggests a series of parameters, for example the use of synonyms. Moreover, the parameters may involve: 1) term frequency in different articles; 2) the use of eponyms, terms derived from proper names; 3) hyperonyms and hyponyms, according to their conceptual hierarchy; 4) organizational terms, related to terms in national systems; and 5) epidemiological terms, which due to their medical specificity must be accurately translated with officially recognized or standardized terms in the target language.

Rask (2008) is relevant to our research as it studies the challenges of medical translation based on content located in a specific cultural context. This is closely related to the focus of our work, given that the document on the Guane under analysis includes

an important number of terms specific to our culture. In the same way, the author finds terminological difficulties and applies Koller's equivalence approach, which evidences the usefulness of this approach. Rask also highlights the difficulties of translating medical texts, where different nomenclatures for diseases or areas of the body are presented and it is important that different audiences can understand the message, without losing the terminological accuracy of the specialized content.

Montalt et al. (2018) take a brief look at the history of translation, emphasizing the modern challenges of medical translation. The authors focus on how translation has evolved from more terminological approaches, to more cultural, communicative and educational ones. They highlight the fact that medical translation today is not limited to translating for experts, but also takes into account audiences who may not be experts but still have some need for access to this information.

One of the main themes of the study is the need to adapt medical terminology and translation for different types of audiences; considering different phenomena such as synonymy and polysemy, the existence of doublet phenomenon, and the standardization and control over medical terminology, as there are several for different fields of medicine. It also highlights the importance of cross-cultural equivalent translations, as those in medical contexts may not conform to the language standards of the target population or the competencies of the target audience. They also discuss the lack of medical translators and the increasing attempts in Europe to start training them, as currently many of those who perform these translations are people with medical backgrounds and not professional translators.

This study is important for our inquiry because it highlights the importance of making a cross-cultural equivalent translation. The authors remind us that the most literal translations may not always be the most adequate, and they also emphasize the need for an adaptation of articles to different types of audiences, especially considering that the article on the Guane mummies combines technical anatomical language with a museological setting that seeks to communicate information to a non-expert audience.

Echeverria and Jimenez (2010) analyze the difficulties faced by bio sanitary translators, due to the fact that there are multiple problems of terminological variation that end up affecting accuracy in the translation of anatomical texts. To carry out the analysis, the authors created an anatomy-related term bank with 3,000 entries, analyzing how they behave in Spanish, English, and French, and observing phenomena of terminological variation, such as synonyms, polysemy, eponymy, etc. The anatomical nomenclature has made its efforts to create its equivalents of the international nomenclature, or even in some cases to maintain them as loan words. Yet, these terms can become quite ambiguous or confusing, as in the case of the fingers of the hand, which in Spanish are ‘dedo I’, in French ‘doigt I’, and in English ‘index finger’. This lack of uniformity tends to be more noticeable in English, a language that does not belong to the Latin branch of languages as French or Spanish. As a result, they usually end up adapting those of the international Nomenclature.

The text also includes a section on the history of anatomical translation. It mentions that the process of compiling anatomical terms began in the 18th century, and until 1956 the *Nomina Anatomica* was developed by the International Federation of

Anatomists' Associations (IFAA). However, in 1998 it was replaced by the new *Terminologia Anatomica* standard, which since 1998 replaces the *Nomina Anatomica* as the official nomenclature. The latest anatomical nomenclature has only been published in English and Latin, it is still considered to be a mostly valid terminology for certain types of community, although its rate of standardization has increased. Nevertheless, many countries are still far from developing an unequivocal relationship with this nomenclature, as it was created to eliminate eponyms and synonyms, which are still frequent in this type of translations. Different national institutions are responsible for adapting this nomenclature. For Spanish, the institution in charge is the Sociedad Anatómica Española (SAE).

Examples of this would be the word that in International Nomenclature is known as 'apertura'. In Spanish it can be translated as 'abertura' as well as 'orificio', or 'estrecho'. In French it is known as 'ouverture', 'orifice', or 'détroit'. In English as 'aperture', 'opening', 'inlet', or 'outlet'. This shows that terminological unification does not always ensure that terms will be uniform, but that in many cases there is still fragmentation, which represents a challenge for international communication.

The three studies together offer valuable insights, especially on the challenges involved in translating anatomical-related texts, which can easily be related to the translation aspect of our project. Rask (2008) highlights the importance of adapting both medical terminology and cultural references to the target audience through strategies grounded in Koller's equivalence approach. Montalt et al. (2018) broaden the perspective by emphasizing the need to move beyond purely terminological translations, advocating

instead for communicative and audience-oriented approaches, especially in texts aimed at non-expert readers. Echeverría and Jiménez (2010) further demonstrate how terminological variation (such as synonyms, eponyms, and polysemy) can affect accuracy, and take a look at the difficulties in translating anatomical terms and their lack of uniformity.

These texts together reinforce the importance of balancing terminological accuracy with cultural and contextual adaptations, a concern very close to the paper on the Guane under study, which is closely related to the cultural heritage context of the original text. Moreover, their focus on terminology, which is a central topic for our translation, as the original text includes several outdated anatomical terms. In this sense, the theoretical insights on terminology management and nomenclature contribute significantly to understanding and addressing the specific challenges posed by the corpus.

2.4. History of the Guane

The history and legacy of the Guane culture have been studied from multiple perspectives. Acevedo and Moreno (2020) through their study, proposed to take a look at the past, in the current region of Guanentá, Colombia, in order to understand the cultural characteristics of the Guane population. Across this article they talk about the influence of this pre-Hispanic culture and highlight the impact that recent archaeological findings have had on the identity of contemporary Santander citizens, promoting greater heritage awareness.

Elements such as their textile work, gastronomy, and the toponymy in Santander, that is Guane names given to places, which are adaptations to Spanish of the Guane

words, may reflect some traces of this culture today. This article is relevant to this study for highlighting the relevance of the mummies in museums, it allows understanding the impact of this pre-Hispanic culture on the current regional identity.

Furthermore, Acevedo and Bonilla (2017) explored the Guane settlement during the sixteenth century, based on the visits made by chroniclers such as Castellanos, Fernández de Oviedo, and Fray Pedro Simón. The study emphasizes how the social and economic structures of the Guane were altered due to the arrival of the colonizers, who imposed tributes that this pre-Hispanic population was forced to pay in the form of hammocks, textiles, and gold. In addition, epidemics, displacements, and forced labor contributed to the eventual disappearance of this population. This text provides a better understanding of the complexity of trying to reconstruct the traces of this society and the importance of museum and academic efforts to reconstruct its legacy.

Moreno's (2012) work, in contrast, emphasizes Guane funerary practices, revealing how the sacred and the profane were connected within their funeral rituals. During burials, corpses were placed in a fetal position, in a specific orientation, and were possibly later transferred to funerary urns together with the remains of relatives of the maternal line, conveying a more sacred character. Certain everyday objects were placed around the tomb, thus they bestowed a symbolic value by reflecting the social position of the deceased; and at the same time, the funerary practice acquired a more profane aspect. These archaeological findings are particularly relevant, as they constitute a key source of anthropological and cultural knowledge, which is very relevant to interpret the mummies and their context, beyond their physical composition.

Although the source text of the research does not include many cultural elements and focuses more on physical and anatomical aspects of the mummies under investigation, at the time of translating it is necessary to understand the culture of origin and the context around them. This is due to the fact that the general context surrounding the mummies is not only that of an anthropological study, but also that they are part of an exhibition in a museum, in a room that is dedicated solely to their culture, which gives them an additional cultural dimension.

This situation, in turn, reflects that the exposed bodies are not only pieces in a showcase without much background, but they also have a role as vehicles of memory, identity, and cultural revaluation, especially if we are talking about a culture as relevant for Santander as the Guane has been. Therefore, it is more than essential that the translator understands the historical and symbolic background of these findings.

This literature review of translation studies focused on museology, tourism, and anatomy based contexts and puts forward the importance of adaptive strategies to create meaning with local and international audiences in a linguistic and cultural way. The constant evolution of museums as dynamic and inclusive spaces highlights translation as an important tool for accessibility and preservation of cultural narratives. The reviewed literature highlights the necessity of hybrid approaches to translate these text typologies: balancing literal accuracy (essential for anatomical terms and measurements) with dynamic adaptability (for communicating clear information to the museum visitors). These remarks stress the role of the translator as a bridge between academic technicisms and complexity and public curiosity and interpretation, by establishing that the Guane

mummies found in the Museo Casa de Bolívar are not perceived just as a piece of exhibition but as a living reminder of our culture's heritage.

To make use of the gathered information, the following section establishes a theoretical framework that provides the necessary conceptual underpinnings to guide this research and translation process.

3. Theoretical and Conceptual Framework

3.1. The Translation Approach

3.1.1. Technical-scientific translation

According to Gomez and Gomez (2013), Because there is no clear uniformity in a definition, technical-scientific texts are complex to describe. Some authors even consider them as a joint unit, in which the boundaries between what is technical and what is scientific are hardly defined. Scientific texts are understood as a set of disciplines that study the reality of nature. These types of texts tend to have a very particular writing style. The use of formal language, specific terminology (which may come in the form of Latin or Greek, acronyms, or abbreviations) makes the readings more comprehensible to members of the scientific community to which it is addressed. Technical texts, by contrast, are more concerned with the practical application of scientific knowledge. Therefore, recognizing the genres, textual types and characteristics of this type of texts is necessary, since not knowing any of these elements could result in a disconnected or confusing text in its construction.

In view of the way the document under study is structured, it can be said that it qualifies in the technical-scientific category, as it is a tangible application of science and at the same time uses very specific terminology. The documentation and terminology of technical-scientific texts is very specific, so when translating, it is necessary to recognize their nature and have the skills to maintain terminological consistency as well as text normative equivalence between the two languages.

3.1.2 Equivalence in translation

Equivalence is a translation theory proposed by Eugene Nida (1964). Nida, in his attempt to translate a biblical text, decided to incorporate into his translation approach the work of Chomsky's theory of universal generative transformational grammar. During his work, Nida developed his ideas around two types of equivalence: dynamic equivalence and formal equivalence.

According to Nida (1964)

Formal equivalence focuses attention on the message itself, in both form and content. In such a translation one is concerned with such correspondences as poetry to poetry, sentence to sentence, and concept to concept. Viewed from this formal orientation, one is concerned that the message in the receptor language should match as closely as possible the different elements in the source language. This means, for example, that the message in the receptor culture is constantly compared with the message in the source culture to determine standards of accuracy and correctness.

... A translation of dynamic equivalence aims at complete naturalness of expression, and tries to relate the receptor to modes of behavior relevant within the context of his own culture; it does not insist that he understand the cultural patterns of the source-language context in order to comprehend the message. (p.159)

But Nida was not the only author interested in the equivalent approach. According to Munday (2016), the German linguist Werner Koller also examined this concept, although more closely linked to the idea of *correspondence*. Koller defines *correspondence* as the comparison of two linguistic systems, focusing on describing similarities and differences between the two systems. Whereas the equivalence approach relates to equivalent items in specific ST-TT pairs and contexts.

On this basis, Werner Koller developed five types of equivalent relationships that can be established between the source text and its translation. The first is *denotative equivalence*, which focuses on maintaining a similar conceptual content between the terms of the source text and the target text. The second is *connotative equivalence*, which seeks to maintain the tone and style of the text in the translation. Third is *text-normative equivalence*, which refers to respect for the textual and genre conventions specific to the type of document in the target culture. The fourth is *pragmatic equivalence*, which focuses on the communicative functionality of the text and its appropriateness for the target audience. Finally, there is *formal equivalence*, which seeks to preserve the aesthetic and structural characteristics of the original text.

Munday also discusses another relevant theorist for this work is Peter Newmark, who proposed a distinction between semantic and communicative translation. Although these two categories resemble Nida's formal and dynamic equivalence, Newmark distances himself from the idea of achieving a fully equivalent effect, considering it an illusion, especially when the target text exists in a completely different time and cultural context than the source.

Semantic translation aims to stay as close as possible to the original meaning, respecting the structure and cultural elements of the source text. It is more focused on the author and the original culture and context, and is usually applied in literary, political, or personal texts. In contrast, communicative translation is centered on the target audience and seeks to adapt the content to make it clearer and more accessible. It transfers foreign elements into the target culture and tends to simplify form and language to ensure comprehension, especially in informative or practical texts. For Newmark, the only way to achieve equivalence is through literal word-for-word translation.

According to Zheng (2017) Based on Karl Buhler's theory of language function, Newmark classified texts into three categories. The first is the expressive text. This refers to texts that focus on the author's personal components. In other words, these are texts centered on the writer. This type of text includes autobiographies, personal correspondence, imaginative literature, etc. For this type of text, Newmark recommends using a semantic translation approach, as this maintains the contextual meaning of the words and stays as close as possible to the original author's ideas.

Second are vocative texts. In this type of text, the effect of what is being communicated, and the reader's response are more important. This type of text includes news, advertising, and popular fiction. For this type of text, an explanatory approach is used rather than a reproductive one. This means that the translator must study the habits, feelings, and expressions of the readers in order to make it more accessible and natural in the target language.

Finally, there are informative texts. This type of text focuses more on the information than on the writer, and more on the readers and their response to the information. This includes textbooks, reports, papers, articles, legal documents, etc. For this type of text, it is recommended to use a communicative approach, with the intention that the recipients of the information comprehend it in the same form as the original readers.

For Newmark, almost all texts contain a certain amount of these three elements. However, the translator must determine which function is most prominent in the text and adopt an appropriate position based on this, whether to use a communicative or semantic approach.

Mona Baker is a relevant contributor in contemporary Translation Studies, especially for her contribution on the theory of pragmatic equivalence. Compared to formal and dynamic equivalence, pragmatic equivalence is centered on how meaning is developed and interpreted by the target audience in a specific communicative setting (Baker, 2011). Instead of focusing on fidelity and terminological accuracy, *pragmatic equivalence* is fundamental in contexts with specific communicative accessibility

challenges such as educational or museographic settings. By emphasizing the importance of the participation from the target audience in creating meaning, this approach establishes a theoretical framework that allows for strategic adjustments to ensure intelligibility and meaningfulness rather than an exact replication from the source text. Taking into account this interpretation, the pragmatic equivalence approach proposed by Baker is aligned with adaptation processes that require a balance between scientific accuracy and public accessibility, notably the translation and transformation of specialized academic literature to a suitable content for museum audiences.

Museums, as well as the pragmatic equivalence approach in translation, share the same principle of helping diverse audiences to interpret knowledge and create meaning. Therefore, their purpose is not limited to linguistics or displaying information, but to curating knowledge and meaning to make them accessible to a target audience coming from a variety of contexts. While implementing a pragmatic equivalence approach during the translation process, the ability of the target audience to create meaning and their expectations towards the text must be considered. These expectations are related to their own language and context, since the human process of meaning creation is only possible in terms of our own knowledge, beliefs and experiences in both linguistic and non-linguistic events (Baker, 2011, p.234). Similarly, museum experiences rely on the visitor's capacity to analyze the information through their own knowledge and experience in order to create meaning as well as their own pre-visit motivations and expectations (Falk & Dierking, 2000). When academic texts with specific terminology are adapted into a museum setting, it is very important to adapt its content so it can be approached intuitively by the target audience rather than academically. This process involves

highlighting the most relevant aspects of the text, implementing accessible language, providing contextual support, and using visually engaging strategies (such as the creation of a poster) to motivate visitors into interacting with the information and create their own interpretation of meaning.

These approaches towards Equivalence complement each other and provide a solid basis for this study. While Nida introduces the fundamental distinction between dynamic and formal equivalence, Koller expands on this view, and Newmark offers a more context-critical perspective, highlighting the limitations of achieving full formal equivalence and emphasizing the importance of adapting to the communicative situation. Lastly, the concept of pragmatic equivalence proposed by Baker complements the framework by redirecting the emphasis from linguistic accuracy to enhancing the interpretative creation of meaning of the target audience by taking into account their own ability to do so, based on their own knowledge and personal experiences, which strongly relates to the main objective of museums and the way these institutions curate and communicate information to their target audience

Together, these approaches guide the translation of the document about the Guane mummies, allowing a hybrid approach that combines terminological accuracy together with cultural and dynamic adaptation, key aspects when working with a text that is intended to be translated from both a scientific and museum perspective.

3.2. Terminological Approach

According to Cabré (2012), translation and terminology share many similarities: both are language-based sciences that are trying to reaffirm their status as autonomous

fields of knowledge while maintaining their interdisciplinary principles that originate from cognitive, linguistic and communicative sciences.

Terminology is defined as a multidisciplinary field of knowledge dedicated to the study of concepts and the systematic organization of linguistic terms within specialized domains, in order to organize and standardize terms to facilitate communication among field experts (Cabr , 1999). This discipline studies terminological units from three different perspectives: *Linguistically*, terms are units of language that have a specific usage in certain pragmatic and discursive contexts. From a *cognitive* perspective, they form conceptual units that form nodes of knowledge that serve as the foundation of a specific structure of a field of knowledge. Thirdly, a *communicative* perspective defines terms as discourse units that serve as a transportation and knowledge transfer medium between specific members of a professional group or context (Cabr , 2012).

In order to define terms and create terminological definitions, two terminological approaches can be used in translation: prescriptive and descriptive approaches. A *prescriptive* approach creates standardized translations of terms and is commonly used in institutional, legal and medical contexts (Jopek-Bosiacka, 2023). In contrast, Baj    (2023) states that a *descriptive* approach focuses on the study of the term oriented in real life contexts, creating new categories based on term variants (synonyms, metaphors, language borrowing) and meaning modulation (polysemy).

One of the main characteristics of terminology as a science is that it draws information from other disciplines such as linguistics, medicine, anthropology, etc. to accurately contextualize specific terms. Ioriatti (2023) explains in the *Handbook of*

Translation Studies that an interdisciplinary approach to legal translation requires drawing on methods from fields beyond comparative law–semiotics in order to analyze the specific features of EU legal language. By making use of the interdisciplinary nature of terminology research, this study aims to guarantee that the anatomy-based terms identified and translated from the source text are linguistically and conceptually valid in both academic and museum contexts.

3.3. Intersemiotic and Multimodality

The adaptation of the translated text into a museum poster required a strategy that goes beyond interlingual translation and instead refers to multimodal and intersemiotic communication. One of the most important aspects of contemporary museum discourse is the creation of multimodal spaces through the interaction of several multimedia resources such as text, images, and typographical and spatial arrangements. Researchers such as Jiménez-Hurtado et al. (2012) and Silva and Velásquez (2024) emphasize that museographic texts demand communicative strategies that integrate segmentation, visual hierarchy, cartelas, and simplified explanatory structures to improve the meaning creation experience of the museum visitors. Within this framework, the poster created for the Museo Casa de Bolívar translates and rearranges the information from the source text across different semiotic practices. Therefore, multimodal and intersemiotic translation frameworks are fundamental to explain how the scientific text was transformed into an accessible, interpretive, and visually coherent museographic resource.

Roman Jakobson's (1959/2000) categorization of translation approaches provides an important insight for understanding the adaptation process of the museum poster.

Jakobson defined *intersemiotic translation* as the interpretation of verbal signs by means of non-verbal communication: a process which involves reformulating meaning across different semiotic codes instead of different languages. Regarding this project, the transformation of a terminologically and academically dense article to a segmented museum poster refers precisely to this intersemiotic process. The original definitions and terms found in the source text related to anatomical characteristics, cultural practices and radiological findings were reconceptualized through multimodal elements such as X-ray images from the source text, typographic hierarchy, spatial arrangement, and cartela-style blocks while retaining an academic poster presentation.

Jimenez-Hurtado et al. (2012), proposed that meaning is created through the interaction of several semiotic resources which include the linguistic mode, the visual mode, acoustic elements, tactile components, etc. Within this framework, contemporary museums are considered social spaces with the main purpose of disseminating knowledge, with educative and communicative goals shaping the activities and requirements to fulfill this objective. In order to achieve a transformation of each exhibited item to an object that acquires meaning through its cultural and communicative functions, museum exhibitions become a multimodal and interactive discourse that can be classified in two levels: a *macrotextual level* where the exhibition itself functions as a genre, and a *microtextual level* where individual objects, labels, and visual elements function as interrelated texts. From this perspective, the poster produced for the Museo Casa de Bolívar is a multimodal translation product that merges verbal, visual and spatial modes to facilitate the interpretation of scientific content and the meaning-creating experience of the museum visitors.

As discussed by Silva and Velásquez (2024), translation in a museographic context requires the use of communicative strategies that allow the translator to optimize their effectiveness in delivering information. To achieve this purpose, España (as cited in Silva and Velásquez, 2024) remarks strategies which include: understanding the target text's intended audience, its communicative purpose, limiting text content density while retaining coherence and highlighting key words for titles and subtitles. The authors also note that, as Cabré stated (as cited in Silva and Velásquez, 2024), even if museum texts are generally considered to be public-oriented explanatory texts, may still display certain features of specialized discourse and terminology depending on their thematic complexity. In such instances, strategies such as text banalization are recommended to improve accessibility for visitors. Given the terminological density often present in museum materials, Silva and Velásquez (2024) further recommend the use of paraphrases and glosses to ensure that their audience comprehends the information conveyed in the elements of the museum.

Within the multimodal and intersemiotic characteristics found in museum communication, translation studies must take into account the fact that meaning is distributed across linguistic, visual, spatial and material modes. From this standpoint, the adaptation of the source text into a museum poster is based on principles proposed by Jiménez-Hurtado et al and by Silva and Velásquez, who demonstrate the importance of restructuring content through segmentation, visual cues, and narrative organization, in order to enhance the comprehension of the museum visitors. Baker's pragmatic equivalence is an approach that is related to the principles found in multimodal and intersemiotic translation, and also provides the theoretical foundation to modify the

content level, contextual information and interpretative hints so that a target audience with a non-academic background can construct meaning effectively. This way, Baker's approach complements the intersemiotic and multimodal principles by demonstrating the relevance of condensation, reformulation and contextual adaptations when scientific knowledge is resemiotized into exhibition formats. Therefore, pragmatic equivalence serves as a bridge between linguistic translation and multimodal design, enabling the poster to maintain scientific accuracy while functioning as an accessible communicative element within the Museo Casa de Bolívar environment.

4. Methodology

The main objective of this research was to produce a translation of the academic paper on the Guane mummies that is both scientifically accurate and accessible to a wider audience, particularly in a museum setting. This required going beyond simply translating anatomical terminology from Spanish to English; instead, each term had to be thoroughly standardized in accordance with *Terminologia Anatomica* (TA) standards in order to achieve the highest possible level of precision. At the same time, the translation process was also determined by equivalence approaches which allowed for accuracy to the source text and to provide clarity for the poster's target audience. In this way, the project adopted a hybrid approach that merges terminological rigor with translation strategies guided by equivalence theories, a framework that is especially appropriate for texts that must meet both scientific and museographic standards.

4.1. Type of research

This study was framed within a terminological prescriptive approach. In a terminological context, a prescriptive approach is characterized as a methodology that establishes preferred or standardized forms of terms by defining which terms should be used and how, especially in specialized or institutional settings (Cabr , 1999). Regarding prescriptive terms, Jopek-Bosiacka (2023) states that a distinction can be made between *explanatory definitions* which outline the intended future meaning of a term, and *stipulative definitions*, which assign a new meaning to an existing word or introduce a term for concepts that did not previously exist due to the absence of objects to name (such as terms associated with new technologies).

According to Akpaca (2024), terminology research enables the translator to understand and define the meaning of terms within specific contexts, using practical methods such as corpus analysis and the identification of micro-definitions. This process helps overcome challenges related to polysemy, synonymy and terminological variation, ensuring a more accurate and contextualized translation. This is especially useful considering the nature of the text under study. The present work has a qualitative approach and focuses on the analysis of difficulties of a terminological nature that may arise during the translation of this text of a scientific nature. In addition, this research examines the implementation of pragmatic equivalence approach in a museographic context in the creation process of the museum poster as an adaptation of the source text, designed to balance the preservation of prevalent anatomical terms and the need to reorganize the source text's information in a clear and accessible way to enhance the meaning creation experience of the visitors at Museo Casa de Bol var

4.2. Corpus

This study was based on the academic article: *Estudio de las momias Guane (Santander, Colombia)*. In this study, two Guane mummies were scanned and X-rayed. The first one was identified as Betty, corresponding to an adult and the second one corresponding to an infant. Although most of the text has anatomical descriptions of the mummy's body parts, they are not isolated from cultural elements. For example, the text mentions the cranial differences between Guane people and people from different parts of the country, since the Guane performed artificial malformations in their skulls, evidently were going to have different measurements.

It is also mentioned throughout the text that Spanish colonizers liked the physical features that the Guane used to have, because they seemed attractive and white. Although the source text does not go into much detail, it explains that these mummies were found in a cave in La Mesa de Los Santos, so it can be inferred that some of their funerary practices were carried out there. In contrast, X-rays showed that many of them suffered from tuberculosis, a common disease at the time.

We decided to select this article as a study corpus because of its high cultural value and its relevance in the representation of indigenous communities in the country, particularly in Santander, where the Guane have had a special recognition among our community. Also, from a museum perspective, we consider it essential that foreign visitors can stop to contemplate and learn about this cultural heritage through an accurate and contextualized translation.

4.3. Resources and data collection instruments

In order to conduct this research, first of all, a transcription of the academic article was made. This was due to the fact that the text was in pdf format without the option of being able to copy or paste the text. Secondly, a terminology database³ was created in which we copied and pasted the terms to which attention should be paid due to their anatomical nature or cultural particularities. For this purpose, the terms were searched in specialized online dictionaries, local governmental databases, as well as in small encyclopedias or academic articles written with the aim of explaining these terms. Finally, a background reading and literature review was made around the main research focuses: the equivalence approach, the terminological approach, the Guane culture, the anatomical, museological and tourist translation. Then, the translation process of the *Estudio de las Momias Guanes de la Mesa de los Santos (Santander, Colombia)* from Spanish to English was carried out, which then went after a thorough revision in order to check the accuracy and effectiveness of the hybrid translation approach implemented during the research. After the document was translated to English, we created a poster in both English and Spanish to be displayed at the Guane section at the Museo Casa de Bolívar that serves as a summary of the document, to ensure that the information in the academic document is available for both local and international visitors of the museum in an accessible format that can enhance their experience of cultural creation during their visit.

³ The terminological database was created for providing accurate translations to specialized terms. Each entry includes the Spanish term, its English equivalent, definitions, grammatical category, and explanatory notes where necessary.

4.4. Analysis Techniques

The analysis was carried out based on equivalence theory, focusing particularly on formal and dynamic equivalence. Nida's formal equivalence and Newmark's semantic equivalence guided the preservation of anatomical fidelity in medical and anatomical terminology. In contrast, the museum poster production required the integration of Baker's pragmatic equivalence, Jakobson's intersemiotic translation and the multimodal frameworks proposed by Jiménez-Hurtado et al and by Silva and Velásquez, which collectively support the adaptation of scientific content into visually structured and accessible formats. These approaches are the foundation of this investigation's hybrid approach, which enables the reorganization and contextualization of the original information so that it could be effectively translated and interpreted for both academic and accessible contexts.

Since the source text is from 1992, many of the anatomical terms used are outdated or use outdated nomenclature. Therefore, the terms in Spanish were compared with their possible equivalents in English by contrasting them with the terms found in TA standards, academic papers, and articles of anatomical nature, as well as medical dictionaries. Then both the SL terms and the target updated terms were compiled in a terminological database under a prescriptive approach (Cabré, 1999) which, along with equivalence translation techniques, serve as the basis for the hybrid approach for this research. See a sample of the term database in Appendix E.

The methodological process of this research is composed of three main stages:

1) *Data collection process*: all the material needed for the translation is gathered: Transcription of the article, extraction of key terms from the source text, conceptual background, cultural context, etc.

Figure 1.

Extraction of key terms from the source text

Glossary

A

- aglutinación
- aguileño
- altura auricular
- altura aurículo bregmática
- altura basión bregmática
- altura nasión alveolar
- altura nasión-prostión
- altura nasal
- altura orbital
- ángulo facio nasal

Note. See a more detailed sample of the glossary in Appendix A

2) *Data analysis process*: performing the main interpretative work by analyzing terms, documenting, and overcoming the translation challenges, implementing TA standards and translating applying Koller, Nida and Newmark equivalence approaches

Figure 2.*Translation process and analysis*

Momia No. 1. En este ejemplar se obtuvieron cortes seriados semiaxiales con espesor de 9.0 mm., observándose estructura esqueléticas relativamente normales, con excepción de la presencia de osteofitos marginales en la región dorsal media de la columna correspondiente a C 4/5 - C5/6, aspecto indicador de **enfermedad articular degenerativa (E.A.D.)**. Como ha sido señalado en publicaciones anteriores. (Correal, 1990), esta enfermedad afectó en alto porcentaje no solamente a las poblaciones de cazadores y recolectores del Pleistoceno, sino que también a los grupos cazadores horticultores de comienzos del Holoceno (5.000 a 2.275 A.P), y a poblaciones afroalfareas (Rodríguez, 1986).

Adicionalmente en el centro del canal raquídeo correspondiente a la región del cono medular se observa una imagen puntiforme de **densidad cálcica**, en posición correspondiente al eje de la médula espinal, cuyo significado patológico es indeterminado.

Restos de tejido fibroso blando son observables en las **cavidades craneana**, torácica y abdominal en cantidades variables, siendo evidente que el proceso de momificado no implicó evisceración.

El rasgo más importante de esta momia No.1 corresponde a la presencia de dos imágenes nodulares calcificadas no mayores de 10mm cada una, localizadas en la cavidad torácica izquierda una subpleural, la otra paraquimantosa, próximas entre sí ubicadas en el lóbulo inferior izquierdo (Figura 1, B), las cuales pueden corresponder a granulomas

Note. See a more detailed sample of the transcription of the ST in Appendix B

3) *Reporting results*: preparing the final translation, conducting revisions, and the production of the museum poster.

Figure 3.

Final translation

Mummy No. 1. In this specimen, semi-axial computed tomography (CT) sections with a thickness of 9.0 mm were obtained. The skeletal structures appeared relatively normal, with the exception of the presence of marginal osteophytes in the mid-dorsal region of the spine, notably at C4/5–C5/6, which is indicative of degenerative joint disease (DJD). As noted in previous publications (Correal, 1990), this disease affected a high percentage not only of Pleistocene hunter-gatherer populations, but also of early Holocene horticulturalist-hunter groups (5,000 to 2,275 BP), as well as afro-ceramic populations (Rodríguez, 1986).

Additionally, at the center of the spinal canal in the region of the conus medullaris, a punctiform calcified density image is observed, located along the axis of the spinal cord. Its pathological significance remains undetermined.

Remains of soft fibrous tissue are visible within the cranial, thoracic, and abdominal cavities in varying amounts, clearly indicating that the mummification process did not involve evisceration.

The most important feature of this Mummy No.1 is the presence of two calcified nodular images no larger than 10mm each, located in the left thoracic cavity: one subpleural and the other parenchymal, close to each other located in the left lower lobe (Figure 1, B). These may correspond to granulomas compatible with Tuberculosis (T.B.C), although neither full CT scan study nor X-Rays show any bone lesions corresponding to this disease.

It should be noted that despite probable T.B.C has been reported by Rodríguez (1986:20) and Arregocés (1989) in Muisca remains from Soacha near the Bogotá Savanna and in American Indian remains, cases of T.B.C. and possible spinal tuberculosis have been reported, Ritchie, W.A. (1952) and Stewart, J.H., (1950). No features compatible with this disease had previously been recognized in Colombian territory.

X-rays reveal a deviation of the basion–bregma axis caused by fronto-occipital compression (oblique tabular deformation, Figure 1,C). Also observable is bilateral facet joint osteoarthritis at C4/5 and C5/6, and a 10 x 5 mm calcification at the pulmonary base (Figures 1D, 2), superimposed on the 10th or 11th rib as seen in two lateral projections. Additionally, there is a dense image (6 x 12 mm) superimposed over the lower pelvic contents, which lacks calcified material (Figure 3).

Note. See a more detailed sample of the translation in Appendix C

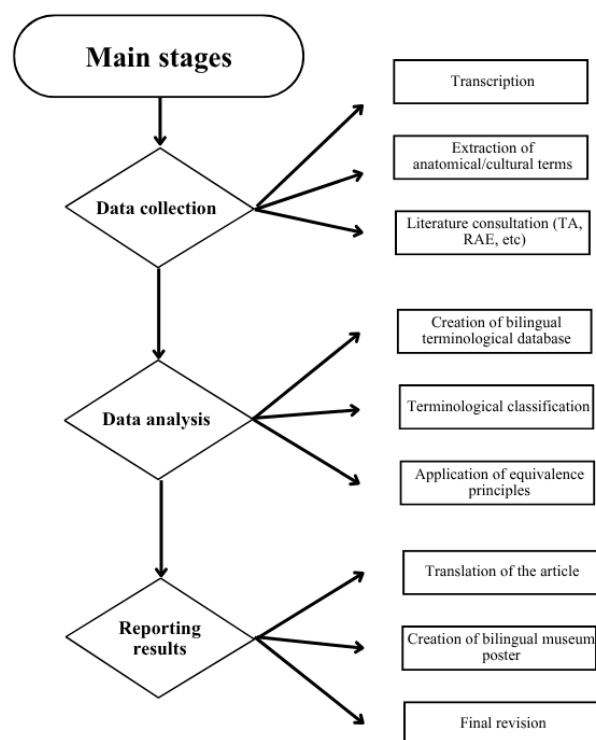
Figure 4.*Museum poster*

 STUDY OF THE GUANE MUMMIES FROM LA MESA DE LOS SANTOS (SANTANDER, COLOMBIA) Gonzalo Correal U.* & Iván Flórez** Translated by: Mateo Uscategui Blanco & Sylvia F. Guerrero Ramírez	
What clues about the Guane people are hidden in these mummified remains?	
Context These two Guane mummies, discovered in La Mesa de los Santos and preserved in the Museo Casa de Bolívar, offer a rare look into the physical traits, cultural practices, and health of pre-Hispanic peoples of Colombia. Method Both mummies were examined through CT scans. Researchers recorded cranial and facial measurements, assessed bone alterations, determined blood group through serological tests, and compared their findings with archaeological and historical records. 	Results • The adult mummy shows lung calcifications compatible with tuberculosis, one of the earliest pieces of evidence of this disease in Colombia. • Both individuals exhibit intentional cranial modification, a cultural practice documented among the Guane and other pre-Hispanic groups. • Their cranial indices correspond to brachycephalic and mesorrhine types, matching historical descriptions of Guane physical traits. • The adult mummy belonged to blood group O, common among Indigenous communities of the Americas. 
*Dr. Gonzalo Correal Urrego: Colombian anthropologist; Honorary Member of the Colombian Academy of Science (2014). **Dr. Iván Flórez: Pediatrician and PhD in Health Research Methods; professor at Universidad de Antioquia.	

The following chart describes the stages taken during the whole year (two academic terms) of Trabajo de Grado.

Figure 5.

Chart of main stages of the methodology



5. Results and analysis

The following section is based on the ideas of Montalt et al. (2018), Rask (2008), and Echeverria and Jimenez (2010). The first authors provided guidelines for configuring and classifying the terminological issues found within medical translation, from which

we chose those that best suited the needs of the analyzed text. Meanwhile, the contributions of Rask (2008) and Echeverría and Jiménez (2010) allowed us to illustrate and contextualize in greater depth the terminological and translation problems identified in the corpus.

Together, these perspectives allowed us to ensure an accurate translation of each term, as it is necessary to go beyond a literal Spanish-English translation and adopt a hybrid approach that combined equivalence-based translation with terminological precision. In this sense, the anatomical terminology was aligned with the nomenclature established by the *Terminologia Anatomica (TA)* to guarantee consistency and accuracy. Considering that the source text also presents an important cultural dimension, an additional section was also included for indigenous ethnonyms, which are also part of the translation challenges found in the text. Finally, the process of developing a bilingual terminological database will be described, as this resource was key in ensuring precision and consistency throughout the translation project.

Additionally, the museum poster was developed as a complementary product to ensure that the content from the source text could effectively reach a wider variety of audiences. The realization process of this poster required an adaptation of discourse using pragmatic equivalence while respecting anatomical terminology. This poster relates to the museographic goal of allowing visitors to create their own meaning and enhance their meaning creation experience at Museo Casa de Bolívar, extending translation beyond academic circles towards public understanding.

5.1. Terminological standardization

The translation process of anatomical terms for our research demands an understanding of the history and evolution of anatomical nomenclature, since the terms found in the source text often differed from current standards. In ancient times, anatomical nomenclature was characterized by uncertainty and confusion since the same structure could be defined in several different ways depending on the author. Ancient anatomists such as Galen used a limited number of colloquial Greek terminology, for example: *soma*, *pan*, *skeletos*, etc. Later in the 16th century, Vesalius expanded the vocabulary substantially with comprehensive representations of newly identified structures. During that time figures, such as Sylvius in Paris and Bauhin in Basle, established numerous novel terms for muscles, nerves, and vascular structures. The designation of anatomical structures at the time was often inspired by shape, function, or even religious beliefs: for example, the “Adam’s apple,” which stemmed from religious interpretations rather than scientific accuracy (Strzelec et al., 2017).

This proliferation of terms led to persistent misunderstandings and the need for consensus was imminent by the late 19th century. The first major attempt to standardize anatomical terminology was the Basle Nomina Anatomica (BNA) in 1885 led by Wilhelm His, which eliminated numerous synonyms and incorrect designations narrowing the existing list from 50,000 terms to 5,000 (Ponte Hernando, 2014). Despite its value, it still had several accuracy and terminological issues. Later in 1935 the Jena Nomina Anatomica (JNA) was updated by eliminating most eponyms, preserving the most used ones in Latin countries (Duque Parra et al., 2002).

In 1955, the International Anatomical Nomenclature Committee (IANC) introduced the Nomina Anatomica (NA) with 5,640 terms, most of them preserved from BNA. Later, in 1998, the *Terminologia Anatomica* (TA) was published by the Federative Committee on Anatomical Terminology (FCAT) in France, expanding the list to 7,635 items and marking a trend toward both extension and stabilization of anatomical terminology. Today, TA is the international standard for human anatomical terminology and uses modern anatomical terms designated by the shape (and resemblance) of the structures (*hippocampus*, *cauda equina*), their size or dimensions (*pectoralis major et minor*), their location or spatial relations (*trigonum femorale*, *coracoacromiale*), their function (*vesica urinaria*), or their color (*substantia nigra*) (Strzelec et al., 2017).

Furthermore, Greek and Latin prefixes and suffixes have played an important role in shaping TA standards. According to Chabner (2015), Latin affixes such as *dis-* (absence), *ab-* (movement away), and *ad-* (toward) appear frequently, while Greek affixes like *a-/an-* (absence), *cata-* (decrease), and suffixes such as *-osis* (pathological condition) and *-itis* (inflammation) are also common. Many of these affixes were originally independent words that later evolved into bound morphemes within medical vocabulary.

This historical overview of anatomical nomenclature standards through time is crucial to the translation process of *Estudio de las Momias Guanes de la Mesa de los Santos* (Santander, Colombia) given the presence of anatomical terminology developed before TA was implemented in 1998. As stated by Duque Parra et al. (2002), TA was quickly established in the United States and Europe. However, an outdated nomenclature marked by etymological errors, frequent eponyms, obscure terms and inaccuracies was

still being used in Ibero-America (often due to resistance, attachment, or lack of awareness). The traditional anatomical terms present in our assignment are unacceptable in today's international standards that demand greater scientific rigorousness and accuracy.

For this reason, our research was not limited to translating the anatomical terms present in the source text from Spanish to English, we also had to ensure that every anatomical term in the target text was designated accordingly based on TA standards to guarantee the most accurate translation possible. Considering that the source text was written in 1992, it contains numerous outdated terms that are no longer part of the current nomenclature. Therefore, a comparison of terms had to be made, through which several types of terminological issues were identified. These are discussed in the following sections.

5.1.1. Lack of standardization

According to Montalt et al. (2018) In recent years, there have been attempts to standardize medical terminology. Nevertheless, despite efforts to achieve uniformity, there have been many problems with univocity and monoreferentiality in medical terminology. This is because there are multiple nomenclatures, leading to a lack of clarity and precision in medical terminology. In order to analyze the terminological issues found in the source text, the first step was to identify the degree of standardization of the anatomical and medical terms following the *Terminologia Anatomica* (TA).

Example extracted from page 8

ST	TT
longitud del antebrazo (radial-estilión)	radial length

For example, the measurement is seen in the source text as *Longitud del Antebrazo (Radial-Estilión)*, which is outdated according to current anatomical standards. The correct designation is *Longitud radial*, a metric that refers to the length of the forearm measured from the radius. The word *Estilión* derives from outdated anatomical nomenclature and it is no longer used, and according to TA standards the accepted term is *Proceso Estiloides del Radio*.

Example extracted from page 7

ST	TT
Interbraquicráneo	Brachycephalic

Another example would be the word *Interbraquicráneo*, which refers to a skull deformity characterized by a lower-than-normal ratio of the skull's length to its width. However, the terminology used in the original text is obsolete and does not align with current *Terminologia Anatomica* standards, whereas brachycephalic does.

5.1.2. *Eponymy*

Eponyms complicate the univocity of anatomical terminology. In medical and anatomical terminology, an eponym designates a proper name that can be traced from several sources: the scientist who discovered the structure, a mythological, biblical or literary figure associated with it, or the geographic location where it was identified (Maslova, 2022).

Example extracted from page 11

ST	TT
...el cual no muestra aglutinación con los anticuerpos Anti-Hyland y Anti-H .	... which does not show agglutination with Anti-H antibodies .

Furthermore, there is an eponym in the following sentence from the source text: Anti-Hyland antibody. No record exists in scientific literature of such antibodies, which suggests that the eponym may not correspond to a valid immunological agent. A feasible explanation for this term would derive from Hyland Laboratories, a U.S. company acquired by Baxter in 1952. Following this acquisition, Baxter became the first U.S. company to make human plasma commercially available to the public (Baxter, 2025). If this interpretation is correct, the mention of Anti-Hyland would constitute an eponymic reference to the laboratory rather than a scientifically recognized antibody. This example demonstrates the difficulties translators face when they come across ambiguous or outdated terminology, as these expressions may derive from names or commercial practices rather than standardized medical terminology.

5.1.3. Synonymy

According to Rask (2008) Synonymy refers to a word that has a basic meaning similar to that of other words, but differs in style, connotation, or nuance. Translators should avoid ambiguity, which is why the use of multiple synonymous terms for a single concept must be avoided in medical translation (Montalt et al., 2018).

Example extracted from page 3

ST	TT
Cavidad craneana	cranial vault

An example could be the word *cavidad craneana* and *caja craneal*. Although the text refers to it as *cavidad craneana*, the correct and widely used term is *caja craneal*. Therefore, it can be said that the first term is a synonym that is imprecise and not adapted to the standards of the *Terminologia Anatomica* (TA). For this reason, the term was unified in English as *cranial vault*.

Table 1.*Terminological Variations Identified in the Source Text and Their Equivalents*

Lack of standardization		Eponymy		Synonymy	
Source text	Target Text	Source text	Target Text	Source text	Target Text
enfermedad articular degenerativa	osteoarthritis	enfermedad de Pott	spinal tuberculosis	índice craneal	cephalic Index
sutura basioesfenoi dal	spheno- occipital suture	Anti cuerpo Hyland	anti-H antibody	cavidad craneana	cranial vault
Peroné	Fibula	grupo Bombay	Hh blood group	Vértice	Apex

Note. The table compiles examples from three categories of terminological variation and presents their standardized equivalents according to *Terminologia Anatomica* (TA).

5.1.4. Translation of indigenous ethnonyms

Another obstacle faced throughout the translation process was the presence of ethnonyms associated with indigenous communities in Colombia, such as Pijao, Motilón, Coyaima, and Natagaima. Unlike anatomical terms, these designations have no standardized English equivalents and are more directly associated with regional identity and historical sources. The main difficulty originated from the fact that Coyaima and Natagaima were subgroups with similar cultural and linguistic characteristics that later

conformed the larger tribal society known as the Pijao (Organización Nacional Indígena de Colombia [ONIC], s. f.).

Example extracted from page 10

... la describe entre los indígenas Coyaimas y Natagaimas...	... describes the cranial deformation among the Pijaos...
---	--

Given that Coyaima and Natagaima are also subgroup designations within the wider Pijao community, our translation technique was to standardize these references under the single ethnonym Pijao, which blended terminological precision with cultural appreciation.

Example

ST	TT
Muisca	Muisca

This is not the case for the *Muisca* ethnonym, whose name translates in the same way. This is possibly because they were one of the first indigenous populations of pre-Columbian Colombia and one of the most recognized, due to their mark on history with legends such as El Dorado (Procolombia, 2025), as well as their large population and mathematical advances (University of Delaware, n.d.).

5.1.5. Terminological database development

One of the most challenging aspects of the translation process was the prevalence of technical anatomical terms mixed with terms associated with the history of the Guane, as well as the outdated terminology found in the source text. To address this issue, a terminological database was designed in alphabetical order which included each term in Spanish, its English equivalent, definitions from pertinent reference works, the sources used in both languages, and corrections or explanatory remarks (if needed). The design and creation of this resource, as well as the extensive research that supported its development, proved to be an invaluable resource that facilitated the accurate translation of the original text from Spanish into English. The following is an example of a term found in the database:

Figure 6.

Terminological database sample

1	Term (SL)	Source (room)	POS (SL)	Definition (SL)	Source (APA format)	Term (TL)	POS
50	cono medular	Sala 5	Sintagma Nominal	La porción terminal de la médula espinal, tiene forma de un cono con el vértice hacia abajo	Serrano, C. (2023, October 30). Médula espinal: Anatomía, estructura y función. <i>Kenhub.es</i> . https://www.kenhub.com/es/library/anatomia-es/medula-espinal-es	conus medullaris	Noun F
51	corografía	Sala 5	Sustantivo	Descripción de un país, de una región o de una provincia.	Real Academia Española. (s.f.). <i>Corografía. Diccionario de la lengua española</i> . https://dle.rae.es/corografia	chorography	No
52	corte seriado	Sala 5	Sustantivo + Adjetivo	Son una serie de cortes de tejido biológico que están adheridos entre sí formando una cinta. Este tipo de cortes se utiliza para hacer construcciones y comparaciones de tejidos y órganos	Montalvo Arenas, C. E. (2010). Técnica histológica. In <i>BCT Facultad de Medicina</i> . https://bct.facmed.unam.mx/wp-content/uploads/2018/08/3_tecnica_histologica.pdf	serial sectioning	Adject No
				Los Coyaima son una comunidad étnica situada			

Note. Terminology database compiled in collaboration with the SETRA translation group. See a more detailed sample of the database on the Appendix E.

5.2. Creation of the Poster

The final product from our translation/research process is a poster that summarizes the information of the *Study of the Guane Mummies from La Mesa de Los Santos* so that it is a relevant item within the exhibition at Guane Room in the Museo Casa de Bolívar. With this poster not only academics but lay visitors will be able to appreciate its content.

According to Pamplona (2024), an educational poster is an important tool that brings together visuals and text to create a compelling way to tell a story, and their ability to present large amounts of data in a way that is engaging and easy to understand is the main reason behind its popularity as a strategy to convey information to a broader audience. While a copy of the original article is exhibited in the Guane Room, it is often overlooked, and the poster was created to establish the reposition and adaptation of its content as a meaningful asset for the exhibition and the experience at the museum. Rather than reproducing the original text, the poster focuses on the source text's context, objectives, methods, and key findings into a format that implements visual engagement with narrative coherence, which will allow the target audience to create meaning through the poster's clear explanation, contextualized cultural setting and terminological accuracy.

Pursuant to Baker (2011), linguistic choices can generate implicatures that are closely tied to the cultural and linguistic norms of the communities involved. Considering that the source text is characterized by an abundant presence of anatomical terminology, the poster also includes relevant anatomical terms which were taken into consideration in order to find a balance between illustrating the information in an accessible way and

implementing anatomical terminology accurately under TA standards to respect the source text's academic nature.

By adapting the information from the source text to a museographic context, the poster not only complements the items displayed at the Guane Room by providing cultural and scientific insight, it is also complemented by the presence of the Guane mummies and the other items that belong to the exhibition, enabling the target audience to integrate textual and visual knowledge into a unified meaning creation experience. As Baker (2011) notes, translators may perform certain deviations from standard patterns as long as they occur in a context that readers are able to interpret. The creation of the poster proves that pragmatic equivalence is a valid and relevant strategy to communicate information outside academic circles by modifying structure, condensing text and making the information more visually appealing and accessible for the target audience.

6. Conclusions

This study is aimed to translate and analyze the *Estudio de las momias Guane (Santander, Colombia)* from Spanish into English through a hybrid approach that incorporates terminological precision with equivalence translation strategies. This hybrid approach sought to create a scientifically reliable translation as well as a culturally accessible resource for the Museo Casa de Bolívar, extending the scope of conventional translation strategies. Through this translation process, an important piece of local heritage in the Museo Casa de Bolívar was recontextualized to ensure that a part of Guane history can be understood for both local and international visitors.

The hybrid approach implemented during this research drew on two criteria: to maintain scientific accuracy of the anatomical terminology from the source text, and to emphasize the inherent communicative clarity of a museographic context. The application of equivalence theories (particularly those of Nida, Koller, Newmark, and Baker), facilitated the balance of both formal and pragmatic aspects of the translation process. By incorporating Cabré's perspective on terminology as an interdisciplinary science applied into a prescriptive terminological framework, the translation research achieved a systematic standardization according to *Terminología Anatómica* standards. Simultaneously, the adoption of pragmatic equivalence strategies suggested by Baker, guaranteed that the museum poster serves as a museographic element that enhances the comprehension and creation of meaning capabilities for diverse audiences. This combination of terminological accuracy with pragmatic adaptability was essential to preserve the academic identity of the source text while adapting it to a public in a museographic context.

The main contribution of this translation research project is to demonstrate that both terminological accuracy and communicative accessibility are not opposed parallels, but complement each other. The terminological database allowed for the systematic identification, classification, organization and standardization of anatomical terms, preserving accuracy and consistency throughout the English translated version of the source text. Likewise, the production of the bilingual poster proposed a practical implementation of the hybrid translation approach by creating an adaptation that simplifies and rearranges the information from the source text to improve the meaning

creation experience for the museum audience while preserving the scientific content of the original text.

This project established translation as a practice that integrates scientific and interpretative aspects of language which combines terminological standardization with pragmatic adaptation, facilitating the distribution of specialized knowledge while contributing to the creation of shared cultural spaces between the Museo Casa de Bolívar, the museum curators and its visitors from local and international communities.

The application of multimodal and intersemiotic perspectives in this project confirmed that museolographic translation extends beyond linguistic transfer and must also take into account the interaction of visual, spatial, and material modes during the construction of meaning. As outlined by Jakobson's intersemiotic translation and reinforced by multimodality, museum texts perform as multi-layered communicative elements which implement written language, images, layout, and design to participate alongside the meaning creation process of the museum visitors. Integrating these perspectives into the creation of the museum poster demonstrated that pragmatic equivalence in museographic contexts requires adapting not only terminology and content, but considering the semiotic context and resources in which information is communicated. This insight remarks the importance of approaching museum translation as a multimodal practice capable of enhancing accessibility, engagement, and cultural understanding for diverse audiences.

Further research could expand upon this project by investigating how museum visitors interact with bilingual materials derived from hybrid translation approaches,

more notably in terms of comprehension and cultural engagement. Extending upon this methodology in other scientific or anthropological resources and collections would allow for the creation of comparative case studies, as well as the standardization of translation protocols specifically designed for museographic context. The systematic organizational structure of anatomical and cultural terminology presented throughout this research highlights the importance of standardization in multidisciplinary contexts where medical, anthropological and interpretative heritage translation converge. Expanding this methodology to other archaeological, historical or scientific corpus could provide the basis for comparative case studies and generate contributions in the creation of translation and terminological protocols applicable to multidisciplinary fields such as medicine, anthropology and cultural heritage.

Likewise, the adaptation of translated text into digital formats such as interactive panels or audio guides provides a promising opportunity to expand accessibility and enhance the meaning creation experience of museum visitors worldwide. In this sense, the present study provides a foundation not only for further academic research, but also for the continuous implementation of translation studies as a vital aspect of cultural heritage distribution and circulation within museum environments.

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Zeng, W. (2017). Exploring Newmark's Communicative Translation and Text Typology. *Atlantic Press*, 18, 628-630.

List of Appendices

Appendix A. Glossary

D

- deformación craneal artificial
- deformación tabicular oblicua
- densidad cálcica
- depresión
- determinación radiocarbónica
- diámetro antero posterior
- diámetro bicigomático
- diámetro transversal
- dorsal

E

- epidermis
- engrosamiento pleural
- enfermedad articular degenerativa
- enfermedad de Pott
- espeleológica

M

- macizo craneal
- maxilar inferior
- maxilar superior
- meñique
- médula espinal
- mesocráneo
- mesorrino
- morfológico
- Motilón
- Muisca
- Muzo

N

- Natagaima

Appendix B. Source Text transcription**ESTUDIO DE LAS MOMIAS GUANES DE LA MESA DE LOS SANTOS,
(SANTANDER, COLOMBIA)****por****Gonzalo Correal U.* & Iván Flórez******Resumen**

Correal, G. & I. Flórez: Estudio de las momias guanes de la Mesa de los Santos. (Santander, Colombia). Rev. Acad. Colomb. Cienc. 18 (70): 283-290, 1992. ISSN 0370-3908.

En dos momias se practicó estudio Escanográfico y radiográfico. La No. 1, corresponde a un ejemplar adulto femenino. La No. 2, corresponde a un niño. Se obtuvieron cortes seriados semiaxiales con espesor de 10 mm., observándose estructuras esqueléticas normales, a excepción de esteofitos marginales correspondientes a C4, C5, C6.

En el centro del canal raquídeo correspondiente a la región del cono medular se observa una imagen puntiforme de **densidad cálcica** en posición correspondiente al eje de la médula espinal. En la cavidad torácica izquierda hacia la parte superior y posterior se observan dos imágenes calcificadas, las cuales pueden ser compatibles con T.B.C. Es observable deformación craneal artificial.

En el No. 2, la alteración patológica, corresponde a engrosamiento pleural, observándose calcificación en cavidad torácica derecha.

Antecedentes históricos

La Mesa de Xerida o Mesa de los Santos, en el municipio de Bucaramanga, departamento de Santander, Colombia, dio asiento a la sede del poder central mayor y permanente de los grupos conocidos como Guanes. Se sabe igualmente, que a mediados del siglo XVIII se hallaba la población de los Guanes muy cerca de su extinción. El mestizaje y la minería influyeron de manera notable en la desaparición de la etnia guane en los tiempos coloniales (J. Morates y G. Cadavid, 1984: 66).

Durante los viajes por la comisión corográfica a mediados del siglo pasado, fueron descubiertas algunas cuevas en donde se hallaron abundantes esqueletos. En términos de G. Giraldo Jaramillo (1954:29): "La cueva de los Santos fue un cementerio indígena utilizado en épocas diversas; la capa superficial, que ha sido la más explotada, ha conservado según las opiniones más probables, los restos de las tribus guanes de los días de la conquista, pero su fecha exacta es imposible señalar por el momento".

La cueva más importante, hasta ahora estudiada en la Mesa de los Santos, corresponde a la Cueva de los Indios, que fue objeto de investigaciones por parte de Justus Wolfran Schottelius en 1946.

En esta formación espeleológica, Schottelius encontró dos capas muy diferentes; la primera contenía huesos y restos quemados correspondientes a entierros secundarios y una superior restos momificados, envueltos en telas (Cardale de Schrimpf, 1987:10). De esta cueva, proceden los materiales a los que haremos referencia a continuación. Sobre dos fechados de C14 obtenidos en telas provenientes de la cueva del área de la Mesa de los Santos, dieron los siguientes resultados (Cardale, 1987:11) se obtuvieron los siguientes resultados.

Cueva El Conde (fragmento C231), 1450 ± 70 d.C. (Beta 28745).

Cueva El Duende (fragmento C261), 1090 ± 70 d.C. (Beta 28746).

Appendix C. Translation

Historical background

The Mesa de Xerida or Mesa de los Santos, in the municipality of Bucaramanga, department of Santander, Colombia, was the main and permanent power center for the groups known as the Guane. It is also known that in the middle of the 18th century, the Guane population was very close to extinction. Miscegenation and mining significantly contributed to the disappearance of the Guane ethnic group during colonial times (J. Morates y G. Cadavid, 1984: 66).

During the travels of the chorographic commission in the middle of the last century¹, some caves were discovered in which abundant skeletons were found. In the words of G. Giraldo Jaramillo (1954, p. 29): “La Cueva de los Santos was an Indigenous cemetery used during various periods of time; the uppermost layer, which has been the most excavated, has preserved, according to the most likely opinions, the remains of the Guane tribes from the times of the Spanish conquest, although its exact dating is currently impossible to determine at the moment”.

¹ TN: This paper was originally written in Spanish in the 1960's, therefore they are making reference to the 19th century.

Mummy No. 1

(Ref. No. G-194) Corresponds to a middle-aged adult female, found in a seated position with upper and lower limbs adducted.

State of preservation. Although in the upper and lower limbs, as well as in the head there is loss of epithelial and subcutaneous tissue with bone exposure, as a whole, this mummy shows a good state of preservation. The upper jaw is missing both the incisors and the right and left canines; in the lower jaw, the second right incisor and the first and second left incisors are missing. In the lower limb the fibula is missing.

Mummified Body CT Scan

With the collaboration of the Department of Scanography at the Ramón González Valencia University Hospital in Bucaramanga, a CT scan procedure was performed on the two mummies (Nos. 1 and 2) analyzed in this study, yielding the following results:

STUDY OF THE GUANE MUMMIES FROM LA MESA DE LOS SANTOS (SANTANDER, COLOMBIA)

Gonzalo Correal U.* & Iván Flórez**

Translated by: Mateo Uscategui Blanco & Sylvia F. Guerrero Ramírez

What clues about the Guane people are hidden in these mummified remains?

Context

These two Guane mummies, discovered in La Mesa de los Santos and preserved in the Museo Casa de Bolívar, offer a rare look into the physical traits, cultural practices, and health of pre-Hispanic peoples of Colombia.

Method

Both mummies were examined through CT scans. Researchers recorded cranial and facial measurements, assessed bone alterations, determined blood group through serological tests, and compared their findings with archaeological and historical records.

Results

- The adult mummy shows lung calcifications compatible with tuberculosis, one of the earliest pieces of evidence of this disease in Colombia.
- Both individuals exhibit intentional cranial modification, a cultural practice documented among the Guane and other pre-Hispanic groups.
- Their cranial indices correspond to brachycephalic and mesorrhine types, matching historical descriptions of Guane physical traits.
- The adult mummy belonged to blood group O, common among Indigenous communities of the Americas.

*Dr. Gonzalo Correal Urrego: Colombian anthropologist; Honorary Member of the Colombian Academy of Science (2014).

**Dr. Iván Flórez: Pediatrician and PhD in Health Research Methods; professor at Universidad de Antioquia.

Appendix E. Terminological database

	Term (SL)	Source (room)	POS (SL)	Definition (SL)	Source (AA, formal)	Term (TL)	POS (TL)	Definition (TL)	Source
Bregma	SLA 5		Sustantivo	un punto anatómico en el cráneo humano donde convergen la sutura coronal y la sutura sagital	CUN. (s.f.). Bregma. En <i>Ciudades. Recuperado el 10 de Mayo de 2025, en https://www.cun.es/definicion-medica/bregma/</i>	bregma	noun	the point of junction of the coronal and sagittal sutures of the skull	Merriam-Webster. Bregma. In <i>Merriam-Webster dictionary</i> . Revisited May 10, 2025, from https://www.merriam-webster.com/dictionary/bregma
Caja craneal	SLA 5		sustantivo + adjetivo	es el espacio dentro del cráneo que alberga y protege el encéfalo, así como sus meninges y líquido cerebroespinal.	IMAIOS. (s.f.). Cavidad craneal. En <i>IMAIOS.com. Recuperado el 10 de Mayo de 2025, en https://www.imaios.com/es-es/national/estructura-anatomica/cavidad-craneal-1535808712</i>	cranial vault	adjective + noun	The cranial vault surrounds and encloses the brain, and is formed from several plates of bone which meet at sutural joints	Collins. (n.d.). Collinson. In <i>Collinson dictionary</i> . Revisited May 10, 2025, from http://www.collinsondictionary.com/publicat
Carino	SLA 5		Adjetivo	Diente puntiagudo de los mamíferos situado entre el último incisivo y el primer molar.	Real Academia Española. (s.f.). Carino. En <i>Diccionario histórico de la lengua española (DHLÉ)</i> . Revisited May 10, 2025, from https://www.rae.es/diccionario	carine	adjective	a sharp-pointed tooth on either side of the upper jaw and lower jaw, between the incisors and the bicuspids	Collins. (n.d.). Collinson. In <i>Collinson dictionary</i> . Revisited May 10, 2025, from https://www.collinsondictionary.com/publicat
Caucasóide	SLA 5		Adjetivo	Dicho de una raza blanca o indoeuropea, por suponerla oriunda del Cáucaso.	Real Academia Española. (s.f.). Caucasóide. Diccionario de la lengua española. Recuperado el 10 de Mayo de 2025, en https://dle.rae.es/caucasoid	Caucasian	Adjective	Anthropologists use Caucasian to refer to someone from a racial grouping coming from Europe, North Africa, and Western Asia.	Collins. (n.d.). Collinson. In <i>Collinson dictionary</i> . Revisited May 10, 2025, from https://www.collinsondictionary.com/publicat

Term (SL)	Source (room)	POS (SL)	Definition (SL)	Source (APA format)	Term (TL)	POS (TL)	Definition (TL)	Source
Mesocéfalo	Sala 6	Sustantivo	Dicho de una persona: De cráneo de proporciones intermedias entre la braquicefalia y la dolicocefalia.	https://dle.rae.es/mesoc%C3%A9falo?d=0	mesocephalic		Having a head that is not particularly short or long from front to back, relative to its width from left to right.	Wiktionary C Mesoccephalic Retrieved May 2025 from https://en.wiktionary.org/wiki/mesocephalic
mesorrino	Sala 5	Adjetivo	Dícese de los individuos o razas cuyo índice nasal es de tipo medio (de 48 a 52°).	Que significa. (s.f.). <i>Mesorrino</i> . https://www.quejefinica.com/index.php?c=Mesorrino	mesorrhine	Adjective	having a nose of moderate size with a nasal index of 47.0 to 50.9 on the skull or of 70.0 to 84.9 on the living head	Merriam-Webster Mesorrhine. Merriam-Webster Dictionary. https://www.merriam-webster.com/dictionary/mesorrhine
morfología	Sala 5	sustantivo	Disciplina que estudia la forma de los seres. En cierto modo se equipara a anatomía.	clínica Universidad de Navarra. (s.f.). <i>Morfología</i> . En <i>Diccionario médico</i> . Recuperado en 10 de mayo de 2025, de https://www.cun.es/diccionario-medico/terminos/definicion-morfologia	morphology	noun	The science of the form and structure of organisms (plants, animals, and other forms of life).	National Cancer Institute Morphology. National Cancer Institute. 2025. from https://www.nationalcancer.org/terminology/etymology