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## RESEÑA DE AUDIO

Digitization of Audio Recordings on Phonograph  
Wax Cylinders “Koppers Feuerland,” from the *Mu-  
seo Nacional de Historia Natural de Chile*, by  
curator Francisco Garrido (2022)

<https://soundcloud.com/mnhncl/cilindro>

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The journey of Martin Gusinde to *Tierra del Fuego* between 1921 and 1922 was crucial for preserving the voices of the Fuegian Indigenous peoples. Accompanied by Wilhelm Koppers, Gusinde collected ethnographic objects and made phonographic recordings using wax cylinders. This technology was already becoming obsolete then but remained one of the few viable means to capture sound in remote environments. In fact, wax cylinder technology had been replaced by shellac discs by the 1920s. This expedition is particularly significant as it was one of the few instances where ceremonies and songs in the languages of the Alakaluf, Kawéskar, Ona, Selk'nam, and Yagán were recorded. These sound recordings, therefore, represent an essential source for critical linguistic and cultural approaches, on the understanding that these Indigenous communities continue to preserve their heritage through different associations of descendants (*in situ* and abroad). Part of this extended community is Cristina Zárraga, currently residing in Germany, granddaughter of the last Yagán speaker, Cristina Calderón -named in 2009 Living Human Treasures by UNESCO-, or the Association “Yagan Indigenous Community of Mejillones Bay,”<sup>1</sup> or the “Territorial Museum Yagan Usi,”<sup>2</sup> among others.

These recordings have been preserved through a turbulent history that includes the entire collection lost during the Second World War, which was preserved in Leningrad by the Soviets and then returned to Berlin in 1991 (Ziegler 1995: 19). The collection continues to be actively studied and documented by the one led by Albrecht Wiedmann, chief of the *Phonogramm-Archiv* of the *Ethnologisches Museum der Staatlichen Museen zu Berlin*. One of these efforts was the CD collection *Charles W. Furlong, Wilhelm Koppers, Martin Gusinde. Walzenaufnahmen der Selk'nam, Yámana und Kawéskar aus Feuerland* (1907 - 1923),<sup>3</sup> that included recordings from these batch of cylinders and was an effort to preserve the data, and dissemination. The significance of these recordings lies not only in their audio content but also in the cultural context they provide. As Miguel García explains, the recordings are not just sound artifacts but are “discursive knowledge” (García 2017: 17). The recordings capture aspects of the language, musical traditions, and ritual performances. In this way, these wax cylinders involve a series of multiple ontological dilemmas (Vasantkumar 2022) that make up their existential whole, associated with their reasons for being, the “target audience” to which they were directed, and the artificiality of the recording procedure, where these audios were practically mandated by the ethnographers, to their liking.

The complete circuit of the provenance of this collection is a story yet to be written; however, its history dates back to several efforts, such as those made by figures such as Erich Moritz von Hornbostel (1948), Albrecht Wiedmann (en Bahra et al. 2023), or Susanne (Ziegler (1995). Also, the Chilean anthropologist Dr. Manuel Dannemann traveled from Santiago de Chile to Germany in 1971 to make copies and rescue the sounds of some cylinders kept in the National Museum of Natural History of Chile. Daneman's

<sup>1</sup> <https://www.facebook.com/comunidadyagan/>

<sup>2</sup> <https://www.museoyaganusi.gob.cl>

<sup>3</sup> <https://ccc.deutsche-digitale-bibliothek.de/de/item/Q35J4E555KRJQFIHACO4BECTXRPRCB5M>

cylinders were a “Chilean corpus,” corresponding to a few copies of the same collection in Berlin. There was a protocol where, when copying a wax cylinder, two replicas had to be made, resulting in the original being destroyed due to the copying process itself. Thus, the cylinders from Chile brought by Dannemann most likely correspond to copies of the originals of Gusinde and Koppers currently kept in Berlin (personal communication with Albrecht Wiedmann, 2024). Dieter Christensen, who oversaw the sound archive when Dannemann traveled, copied them onto magnetic tape. However, the results of this digitalization were suboptimal due to excessive background noise and the inability to regulate the playback speed of the cylinders correctly.

Francisco Garrido, the current curator of Anthropology of the National Museum of National History of Chile, embarked on the task of digitizing the only three cylinders that remained from the copies that Dannemann brought back from Germany in 1971, as the rest were destroyed on the journey. Thus, Garrido led this rescue attempt using an Edison Standard phonograph with a new transmission belt and proper lubrication to maintain a consistent speed, which is crucial for audio fidelity. Additionally, a specialized device, the Canaphonic Archivette, was used to convert the phonograph’s audio signal into an electrical signal, which was then processed via a sound card on a computer and then mastered with Audacity software.<sup>4</sup> Garrido also notes that the cleaning process was challenging due to the fragility of the cylinders. One of the main challenges in digitalizing wax cylinders is their physical deterioration. Over the years, the material has been highly susceptible to damage from environmental factors such as fungi and general fragility. According to Francisco Garrido, this corpus of wax cylinders was stored in less-than-ideal conditions.

During the digitalization process, cleaning and consolidation work was required for some of the cylinders due to the presence of cracks and dirt. Garrido mentioned the difficulties of attempting to clean and restore the delicate materials. One of the key threats to wax cylinders is fungal growth, which can consume the wax material and destroy the audio tracks. The digitalization process itself also posed challenges. Garrido highlights the complexity of adjusting the playback speed and the technological limitations of the time, explaining that Gusinde and Koppers often recorded at slower speeds to extend the duration of their recordings. This technique required a reduction of playback speeds by 60%, which increased the recording time from 2 minutes to 3 minutes and 45 seconds per cylinder. Garrido also aimed to address gaps in the archival record as part of the restoration project. He noted that the entire collection of cylinders from Gusinde’s expeditions was not adequately cataloged. He explained, “There was no museological file or inventory number. It was just the box. It has a correlative number” (personal communication with Francisco Garrido, my translation, 2023). This lack of detailed metadata highlights the challenges in tracking and cataloging historical audio recordings across different institutions.

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<sup>4</sup> <https://www.audacityteam.org/FAQ/>

The audio in the linke above is from one of the three cylinders kept at the National Museum of National History of Chile, and is a fragment of the recording. It lasts 2:12 minutes. A repetitive chant can be heard, but no clear words or identifiable sounds can be distinguished. Following the death of the aforementioned last native speaker of the Yagán language, Cristina Calderón, many believed the language would also disappear. However, efforts to keep it alive have continued, primarily through the work of Cristina Zárraga, her granddaughter. Zárraga, a writer and new guardian of the Yagán language, collaborated with Oliver Vogel to publish a Yagán dictionary in 2010, now used in local schools to teach the language to younger generations (Zárraga et al. 2020). In June 2023, I met Cristina at the screening of the documentary “Guardianes de la Lengua” by Argentine filmmaker Juan Pablo Tobal Clariá, in the city of Cologne, Germany. Thanks to that event, I could contact her later by email to get her opinion of the audio rescued by Francisco Garrido. Cristina told me: “The most likely scenario is that it took place within the context of a ceremony, such as the Čiexaus, where these songs were performed. There are no words or lyrics. At the end, you can hear a shout, and this was typical after a song; my grandmother taught me this.” (personal communication with Cristina Zárraga, my translation, 2024).

Furthermore, this recovery of voices represents an invaluable opportunity for studies in ethnomusicology, anthropology, and linguistics, providing a direct and faithful source of sound from cultures that are on the verge of disappearing or totally exterminated. A critical and post-colonial approach to this type of collection is urgent and necessary to deconstruct its dark past related to indiscriminate racial extermination, internal colonialism, and scientific opportunism on the part of collectors and ethnographers.

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