

Introduction

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This special issue of *De Musica – The Experience of Listening: From Nature to Culture* – was born from an interdisciplinary workshop, held in May 2022 at the Department of Cognitive Sciences of the University of Messina, aiming at exploring the multiple ways music can be understood and experienced. This project aims to reflect on the relationship between natural constraints, both of a biological and physical nature, and the cultural aspects that shape the musical experience. In fact, the academic debate on music is characterized by its dual nature: on the one hand as a phenomenon rooted in the laws of physics and human biology, on the other as a cultural expression strongly influenced by social and symbolic practices.

Some essays focus on the natural constraints of music, investigating the biological bases of listening, the perception of sounds, and the physical structures that govern the production and transmission of sound. These contributions emphasize the universality of cognitive and perceptual responses to music, suggesting that there are common biological attitudes influencing the musical experience in all mankind. The role of acoustic laws that influence how sounds are produced and perceived is also addressed, highlighting how such physical constraints represent an essential aspect of the musical experience.

Other papers explore the cultural aspects of music, emphasizing practices, meanings, and interpretations that vary according to social and historical context. Here, music emerges as a complex and layered language, the experience of which is strongly influenced by cultural conventions and individual subjectivity. The variety of approaches that animate the essays



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underlines how it is often difficult to trace the natural constraints in the cultural elaboration of music. Music thus becomes not only a means of expression, but also a tool for the construction of identity and society.

This volume, therefore, aims to stimulate critical reflection on how music is situated at the intersection of nature and culture. On the one hand, it investigates the factors that make it an essential and universal component of human experience; on the other, it explores its infinite cultural facets, which escape any univocal definition. The different interdisciplinary perspectives collected in this volume offer a complex and articulated picture of the musical experience, urging the reader to consider how natural constraints and cultural constructions intertwine in giving shape to one of the most profound and significant manifestations of the human condition.

The essays collected in *this* volume cover a wide range of topics, touching on both historical and contemporary aspects of music. Consider them in detail.

In Elvira Di Bona's paper *Perception and cognition of music components*, the author explores the functioning of musical perception through the principles of *Gestalt* applied to music. The text focuses on the perception of melodies and on how our auditory system organizes and distinguishes them through processes of grouping and segregation of acoustic stimuli. These principles, such as proximity, context and closure, are essential to understanding the formation of melodies. Di Bona uses concrete examples, including the analysis of the third *Brandenburg Concerto* by J.S. Bach, to illustrate how different musical instruments contribute to the creation of distinct melodic lines that our brain is able to perceive and distinguish. In particular, Di Bona highlights the fundamental role of the exclusion principle and the context principle, which help to understand why certain sounds are associated or segregated within a musical composition. The author discusses how these cognitive processes not only influence how we perceive a melody, but also how these techniques are used by composers to create specific effects within musical works. The essay concludes with an in-depth analysis of

auditory illusions and how they are used to manipulate the audience's musical perception.

The contribution entitled *Before Words. Music and Its Natural History* by Domenica Bruni and Fabio Esposito explores the evolutionary origins of music, questioning its adaptive function and its phylogeny. Several evolutionary theories are discussed, including that of Steven Pinker, who considers music as a "cheesecake", an accidental evolutionary pleasure with no direct adaptive benefits. In contrast, the hypothesis of Charles Darwin and others suggests that music may have played a crucial role in sexual selection, functioning as a signal of fitness and intelligence for attracting mates.

A further theory holds that music arose from ancient systems shared by many mammals, evolving as a tool to promote social cohesion and psychological well-being. On the phylogenetic front, two main hypotheses emerge: the first suggests that music evolved in parallel with language, while the second sees it as an extension of emotional communication. It also reflects on the debate between Darwin and Herbert Spencer, with the latter seeing music as an advanced means of expressing complex emotions, differing from Darwin's more biological and sexual point of view.

The discussion concludes with a review of contemporary research, which explores the possibility that music has been sexually selected, but which questions the idea that this is the only evolutionary factor. The concept of "sensory biases" is also introduced, according to which some musical preferences may be the result of innate sensory biases rather than direct evolutionary pressures. Despite the complexity of the issue and the uncertainties about the precise role of sexual selection, music emerges as an essential component of human cognitive and social development, which is continuously being explored by the scientific community.

Marco Gamba and Valeria Torti' paper, *Musicality without Humanity*, explores musical abilities in primates, comparing them to those of humans to understand the evolution of musicality. A distinction is made between "music," understood as a cultural product unique to humans, and "musicality,"

which includes cognitive and physical abilities underlying musical production, also found in other species. Human singing, considered the musical instrument par excellence, is not unique among primates. Species such as indris, gibbons, and other primates sing, often in duets or choruses. In particular, the indri, a lemur from Madagascar, has become a model for its well-coordinated choral singing, which has a complex communicative function and varies according to the circumstances. Indri vocalizations show a marked rhythmic structure with simple numerical proportions (1:1, 2:1), similar to those found in human music.

Comparative studies have shown that rhythm and vocal collaboration, present in the songs of different primate species, may have played a crucial role in the evolution of human musical ability. These studies suggest that singing collaboration and rhythmic structure may have been important selection pressures in the evolution of vocal and musical ability in primates, including humans.

Longing for Sadness by Alessio Plebe focuses on one of the most intriguing emotional paradoxes: the pleasure that listeners derive from listening to sad music. Although sadness is generally considered a negative emotion, often associated with problematic psychological states, many music lovers actively seek out this genre of music. Plebe examines several hypotheses to explain why people enjoy sadness in music, even though it contradicts the basic ecological functions of emotion, which should drive individuals to avoid negative stimuli.

The author reviews several experimental and theoretical studies, demonstrating that those who enjoy sad music tend to have greater open-mindedness and higher levels of emotional intelligence. However, despite the many explanations proposed, the author concludes that a definitive answer to this enigma remains far away. The analysis also includes reflections on the minor mode in Western music, which plays a crucial role in creating the melancholic character that listeners perceive.

The paper by Maria Mannone, Valeria Seidita and Antonio Chella, *Quantum Aspects of the Musical Mind*, proposes an innovative analysis that connects music with the principles of quantum mechanics. Starting from the idea that composing music involves making continuous choices – of themes, rhythms, melodies, harmonies and instruments – the authors compare such choices to those that occur in quantum systems. In a quantum system, the state of a system can be a superposition of possible states until an observation forces the system to collapse into a specific state. Similarly, the composer must choose a musical path among the various possible ones. The authors then explore the analogy between musical decision-making processes and those of quantum mechanics, including applications of quantum computing to music. A mentioned example is the possibility of musically describing the movement of a swarm of robots using sonification techniques, transforming their spatial displacements into melodies. This musical metaphor of quantum mechanics opens new perspectives for understanding musical creativity, suggesting that some decision-making processes can be analyzed using formalisms inspired by quantum physics.

San Francisco Sound: 1965-1967, Music in Revolution by Manfredi Scanagatta explores the cultural revolution in San Francisco from 1965 to 1967, focusing on how music became a powerful force for social change. After World War II, a growing counterculture emerged in the U.S., inspired by the Beat Generation, jazz, and rock and roll. This movement took root in San Francisco, particularly in the Haight-Ashbury neighbourhood, where musicians began experimenting with new forms of artistic expression. Key figures and bands from the area, such as the Grateful Dead and Jefferson Airplane, were pivotal in blending music, art, and community.

The text explores the role of concerts and festivals in shaping this counterculture, noting how events like the 1967 Monterey Pop Festival and the Human Be-In were landmark gatherings that united people across the globe. The psychedelic movement, with its focus on rock music, light shows, and communal experiences, played a central role in reshaping societal norms.

By the end of the 1960s, however, this cultural revolution began to lose its grassroots essence, as commercialization diluted its original ideals.

Mauro Geraci's paper, *Quando la musica fa storia. La costruzione poetico-musicale della memoria nella canzone narrativa dei cantastorie del Sud*, deals with the role of Southern Italian storytellers in the creation and preservation of historical and social memory through narrative music. The author starts from the analysis of ethnomusicologist Diego Carpitella, who in 1961 introduced the concept of "indifference" to describe the attitude of storytellers towards music. According to Carpitella, music for storytellers is not only an aesthetic element, but a functional means of social denunciation and critical reflection on reality. The essay traces the evolution of storytellers, from the early twentieth century to the present day, emphasizing their transition from rural to urban culture and their ability to adapt to new media, such as radio, television and cinema.

The author highlights how storytellers continue to be a critical voice, addressing contemporary issues such as emigration, violence and the mafia, through their musical narrative. Despite the difficulties in maintaining public spaces for their performances, the activity of storytellers has expanded thanks to new forms of distribution, such as records and cassettes, allowing them to reach a wider audience. Finally, the author reflects on the ability of storytellers to combine different expressive codes – music, poetry, orality and gesture – to unmask social contradictions and offer a critical vision of reality.

Sulle tracce di Aria Nova – Il canto ara petrejanca nella Calabria centrale by Christian Ferlaino focuses on the analysis of the singing style called *ara petrejanca*, originating from central Tyrrhenian Calabria. This style appears in various historical recordings but has not been sufficiently studied in the ethnomusicological field. The author starts from a recording from the 1950s entitled *Aria Nova*, made by Walter Hennig near Nicastro. The essay tries to fill the gaps in the information provided by Hennig, analysing the song in question in the light of over a decade of ethnographic fieldwork in the region. In addition to the analysis of *Aria Nova*, other songs

recorded later in the same style by different researchers, such as Alan Lomax, are examined.

Ara petrejancara song is a polyphonic vocal style, characterized by non-parallel voices and accompanied by the accordion, with a harsh vocal timbre and a strong use of melismas. *Aria Nova*, for example, is a love song for two non-parallel voices, with a typically Mediterranean structure. The study explores the historical-musical context and the persistence of this style, which has remained alive especially in the internal rural areas, despite the crisis suffered following social transformations. In recent years, however, there has been a rediscovery of the *ara petrejancara* thanks to new generations of musicians. Finally, the essay provides a reflection on the terminology of *Aria Nova* and concludes by hypothesizing that the title refers to a new style of singing, developed from the diffusion of the accordion in the area.

This volume is, therefore, a tribute to music not only as an art form, but as a phenomenon capable of intersecting various areas of human knowledge, highlighting its ability to cross borders and create bridges between apparently distant disciplines.