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Introduction. Electricity as a Paradigm of Creativity in the Music of the Mediterranean and Arab World

Introduction. *L'électricité comme paradigme de la création musicale dans les mondes arabes et méditerranéens*

مقدمة. االطاقة الكهربائية نَسَقًا للإبداع الموسيقي في ثقافات البحر الأبيض المتوسط والعالم العربي

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INTRODUCTION
ELECTRICITY AS A PARADIGM OF CREATIVITY IN THE MUSIC OF THE MEDITERRANEAN AND ARAB WORLD

ABSTRACT

The emergence of electricity made it possible to physically fix and to reproduce music. However, it also led to new perspectives in composition, which developed in tandem with the concurrent emergence of sound reproduction techniques and the possibilities presented by sound reinforcement. New instruments appeared releasing new creative dynamics, and electrification in general contributed to the emergence of novel musical compositions that have become part of the cultural history of the Mediterranean basin and the Arab world. What does sound electrification do to music, its status and its production? How is sound reinforcement technology used, and to what ends? What does the circulation of music and its economy tell us of the Mediterranean and Arab world? Does this region embody only one single geographical, cultural, and historical characteristic? The introduction to this special issue aims to intertwine the questions of musical composition and writing with those of sound electrification in order to examine the notion of the aesthetics of electrification as a unifying principle in the production of music in this region.

"The history of music over the past 100 years is very much that of technology [...] The excitement engendered by pop music has often involved the thrill of exploration and the sense of the possible offered by new technology" (Shapiro 2021, 10). In the introduction to *Modulations: A History of Electronic Music*, the music critic Peter Shapiro recalls the intimate relationship between music and technological developments. The impact of technology on musical production has already caused much ink to flow, with writers very often swinging from enthusiasm to concern. Some see the application of technology as a potential perversion of music, its "disenchantment" (see Benjamin 2000, regarding the emergence of the record), its denaturing, symptoms of a globally connected world; others see revitalized creative possibilities, with the machine as the herald of a new world of sounds. While the historiography of the electrification of sound has often been restricted to countries of the Global North (Kosmicki 2016; Appleton and Perera 1975), the uses of technology have affected the South just as much. The emergence and circulation of these uses across the Mediterranean basin forms a connected history that has received little attention in ethnomusicological research. Drawing on case studies from the Mediterranean and the Arab world, this special issue tackles the following question: what does electrification do to music in a connected Mediterranean? The intention is to examine the effects of the proliferation of sound electrification on the technological and aesthetic template of music composed and produced in the Mediterranean.[1]

ALONG CAME THE ELECTRICITY FAIRY...

The very first telephone conversation took place in 1876. One year later, Thomas Edison was able to listen to his own voice thanks to a brilliant invention: the phonograph. Every work describing the social and cultural context of the appearance of recorded sound and tracing the history of electronic music begins with this historical reminder as to the origins (or prehistory, according to Jonathan Sterne) of modern sound.[2] The transformation of sound into electric signals was a major revolution in the history of music and led to the gradual spread of worlds of electrified sound. Throughout the twentieth century, instruments were created, new forms of performance emerged, and new musical aesthetics flowed from amplified effects, which reshaped the medium of sound. These transformations led to the emergence of new genres and the opening of new spaces for the

1. This topic was discussed during a conference held in IFAO (Cairo) in November 2022 led by Panagiota Anagnostou and Séverine Gabry-Thienpont.

2. For more details, see the introductions to Kosmicki 2016, Sterne 2003, Shapiro 2021.

production and distribution of music. Thus, they gave rise to new "musical ecosystems" (Olivier 2022), which precipitated changes in representation and thought, as well as in the conception and categorization of existing practices.

The impact of sound electrification technologies on musical practice has been addressed within the fields of popular music studies (Tagg 2013 [1982]) and sound studies (Sterne 2003), particularly in relation to Europe and North America, but it remains underexplored in ethnomusicological research on the Mediterranean region. However, since the 1980s, certain types of music have increasingly been labeled "Mediterranean." The category reflects an idea of the Mediterranean as a culturally coherent, depoliticized unit, with a shared history and internal logic. In engaging this category, we are keen to emphasize that the concept of a unified Mediterranean is much less common on the Arab side. So, in order to properly identify and understand what this music is about, we are committed to considering a plurality of Mediterranean *worlds*, encompassing tensions and connections, shaped in part by the dynamics of musical creation across the region since the advent of sound electrification. The Mediterranean thus serves as a fluid comparative framework, in which representations and identities are shaped, asserted, displayed and dissolved. The articles and research notes in this issue explore the varied movements, connections, and exchanges that animate this region of partial and polycentric relations, spanning the three centuries, from the nineteenth to the twenty first, that have been affected by electrification. The relations described give shape to a pluralist Mediterranean; a space of variable geometry with links to other areas, more complex than a simple North–South vision would allow; one that is, in reality, subject to multiple hegemonies and influences.

Beyond the technological dimension, electrification has also meant an aesthetic upheaval. The advent of the twentieth century was characterised by profound changes driven by the development of transport infrastructure and recording technology. These changes have had a lasting effect on sensory environments, and generated new soundscapes in consonance with geographic, social, cultural, political and religious factors. In Egypt, for example, the introduction of electricity was gradual: it began at the turn of the twentieth century in wealthy urban areas, and then slowly extended to middle-class and working-class districts from the 1920s to the 1950s and beyond (Fahmy 2021). With illumination, nightlife spread, radio sets took over cafés, and the general noise level grew, as did complaints, leading to the extension of anti-noise legislation aimed at the cries of street vendors and car horns to encompass the public use of radios. In the mid-1940s, the spread of microphones and amplifiers changed the environment once again. Amplification would transform one of the most recognisable sound markers of the town: the call to prayer (*adhân*), which soon came to be broadcast on amplifiers and loudspeakers. At the same time, the development of urban infrastructures, especially transport, shook up social

organization and changed relationships with time and space, altering the city-dweller's sensory perception.

This issue seeks to examine how the opportunities and constraints arising from the electrification of sound have worked upon the technological and aesthetic templates of the music composed and produced in the Mediterranean. From an epistemological perspective, the question concerns the interactions between social actors and the relevant technology. Thus, we are dealing with processes: the technological and social factors are co-produced in the course of relations between persons, objects, and corporate and legal entities.[3] The work of Trevor Pinch and Frank Trocco (2002) on the Moog synthesizer is a good example of the approach adopted in our research. The authors proposed to consider musical instruments as pieces of technology, and to understand music in terms of social anthropology and the history of technology. Pinch and Trocco stressed the role not only of the final users—the musicians—but also of the intermediaries, such as vendors and repair staff. Their work presents a technological and artistic adventure that begins with a highly unpredictable keyboard-less gizmo and leads to the modern synthesizer. Without the Moog, an entire style of pop music would never have seen the light of day. Indeed, "machines are the invisible messengers of culture" (Pinch 2005, 64). In addition, Houdart and Thiery have used the notion of the "hybrid collective" to account for the "extremely diverse systems of action, involvement and presence in which humans and non-humans are caught up" (2012, 12). In a similar vein, the special issue of *Cahiers d'ethnomusicologie* (2022) edited by Emmanuelle Olivier analyzed the dialectical relationship between digital technology and musical activity. It did so through a series of case studies that explored the uses, economies, and political issues inherent in recent technological developments, while also examining the epistemological implications for the discipline of ethnomusicology (Olivier 2022, 17–20), with an emphasis on process that also runs through our own discussions.

The interweaving of technologies and musical practices creates geographically and socially situated activities (Andrieu and Olivier 2017). In this issue, our attention is largely focused on the creative act. Indeed, it was not the material fixing of music that signaled the beginnings of commercial music, but rather the unique compositional perspectives that arose from the joint emergence of sound reproduction techniques, on one hand, and effects linked to the electrification of sound, on the other. Just as new instruments induce new creative dynamics, so electrification contributes to the emergence of musical compositions that form part of the cultural history of the Mediterranean basin.

3. This perspective is explicit in some contributions to this issue; that of Christophe Levaux, for example.

What does sound electrification do to music, to its modes of emergence, to its status? What can the circulation of music and its economies tell us about the Mediterranean region? Is there a unity to speak of, whether geographic, cultural, or historical? The articles in this issue lay out the history of evolutions in sound technology, and present a panorama of change stretching from the first steps in electrification through to the digital era. Thus, they address issues of musical composition and writing in combination with those of electrification around the Mediterranean.

The history of musical creation since sound electrification features three distinct phases: the beginnings of electricity and the development of recording techniques; the spread of amplification and amplified instruments in the 1960s; and the arrival of the computer, new software, and the internet, which transformed the composition, production and distribution of music. This framework presents us with four complementary themes by which to examine the question of musical creation, each corresponding to a different activity: recording/broadcasting, circulating/connecting, amplification/sound reinforcement, and writing/creating.

RECORDING/BROADCASTING

From a commercial perspective, sound electrification has led to the commodification of music, through recording onto various media, initially material and then intangible, from the 78 rpm disc at the beginning of last century (Lagrange 2011; Racy 1976) to the MP3 file (Tournès 2008). These media bring with them a number of problems linked to the constraints and opportunities that are part of technical innovation. As well as being implicated in changes in musical composition, they are audio artefacts that can be openly marketed and distributed. In the same spirit as S. Le Ménestrel et al. (2012), this first theme is explored through contributions on the history and trajectory of commercial music and its media, based on its systems of circulation. The geographic and social mobility of the music industry underlines the choices made in terms of repertoire, arrangements, instruments, etc., as affected by the recorded medium. What companies, and what kinds of interaction, lay behind producers' travel arrangements, broadcasting events, and musicians' tours around the Mediterranean? How did music venues—from the recording studio to the concert hall—adapt and change? What impact did this have on the expectations of both professional and amateur musicians? And what was the role of the state in these cultural enterprises and musical exchanges?

With this in mind, Frédéric Lagrange and Yassir Bousselam look at the electrification of the 78 rpm disc and examine the impact of this innovation, the former with reference to Egypt, the latter to Morocco. The first recordings on

flat discs occurred at the very beginning of the 1900s simultaneously in both Cairo and Beirut. In the Arab world, the acoustic technique gave way to the electric at the end of the 1920s—1926 in Cairo (Frédéric Lagrange, this issue); 1928 in Morocco (Yassir Bousselam, this issue)—through use of an electro-magnet during the cutting of the record, as pioneered by Columbia Records in America. These two studies of this crucial phase in the development of the recorded music industry show that technology is always much more than a simple modification: it slots into existing aesthetic orders, and may serve to accelerate changes already underway. In Morocco, by enabling the recording of instruments that had previously been difficult to cut, the shift from acoustic to electric led to changes in instrumental groups, and brought about the involvement of the Arab orchestra. In late-1920s Cairo, electrification promoted an aesthetic based on the performance of the soloist. It also allowed for a less high-pitched reproduction of the female voice, leading Umm Kulthum to comment, "before, it was not my voice."[4] Lagrange points out that the more faithful reproduction of the female voice enabled by electric recording reinforced its legitimacy within the academic field, and proceeded in step with women's rights in Egypt during the 1920s (Gabry-Thienpont and Neveu 2021; Dakhli and Latte Abdallah 2010).[5] These technical changes came at a time when commercial music was growing considerably, and they served to foster the new modes of music consumption that had arisen with the advent of recording in the Arab world and the Mediterranean.[6]

The idea of recording forming part of a continuum of musical creation is picked up by Maya Saïdani, who explains that before the advent of recording, musicians from north-east Algeria developed their repertoire through to-and-fro sessions of musical jousting, using the vernacular terms "printing" and "making" to describe this process. The author thus sets the emergence of the scene and of electrification within a wider chronology of musical creation in Constantine,

4. Oral intervention by Lagrange during the 2022 conference *Création musicale et électrification sonore*.

5. Gender dynamics are, by and large, not discussed directly in this issue, but they are felt under the surface among the contributions. In his 2014 article in *Volume!* (to which we return below), Martin Stokes noted that the success of Khaled had a major impact on the production of Raï music in North Africa, accelerating changes that were already underway, notably curbing the dominance of the female voice (such as that of Cheikha Remitti) in favor of male singers.

6. Work by Jean Lambert and Rafik al-Akouri on recordings made in Aden at the beginning of the twentieth century supports this point with reference to Yemen. In this case, a foreign recording industry was involved, giving rise to Yemeni production companies on the same technical and economic models (Lambert and al-Akouri 2019, 2020).

paying close attention to the specific impacts of the recording technology. As regards the music itself, Saïdani notes that the move to radio and the broadcasting of music led to a modification of musical intervals, with a not inconsiderable impact on how musicians were received and classed. This provides a clear demonstration, if any were needed, of the salience of a semiotic conception of musical activity in addressing the history and aesthetics of music, as associated with Jean-Jacques Nattiez or Jean Molino. But, in the present context, let us linger with the notion of an aesthetic that is intimately linked to the Electricity Fairy, to her potentialities and constraints—because beneath this question of reproducibility lies another. This is the issue of the socio-cultural aspects of recording and playback, and of sound reproducibility and fidelity. We are referring to the idea, rightly noted by historian Jonathan Sterne (2003), that the reproduction of sound manifests particular ideologies of sound, with repercussions on the sound produced. At the beginning of his contribution, Lagrange engages the following question: did electrification represent a simple improvement in musical reproduction, or did it have a dynamic impact on musical activity, affecting even the music itself? The basic answer to this will be obvious from the following pages; understanding the mechanisms and inner workings of the process is the challenge.

The case studies include investigations of unexplored sound archives. Such archives help to map musical connections between Mediterranean towns.[7] We have already noted that the beginning of the twentieth century saw the growth of transport infrastructures. In combination with recording and distribution technology, this increased the scope for both music and musicians to travel. The contributions in this issue document the circulation of sound, instruments, and people across a Mediterranean space that had been politicized, essentially, by France.

CIRCULATING, CONNECTING

Technical developments are discussed against the backdrop of artists, musicians, composers, producers and interpreters moving around. Connections were made at different times between the countries skirting the Mediterranean. As Didier Francfort shows, the electric guitar carved out its own itineraries,

7. Through archival work conducted as part of the *MedMus* research programme, Panagiota Anagnostou, Nikos Ordoulidis, Konstantinos Gkotsinas and Alexandra Mourgou have developed a geographic information system (GIS) titled *Vie musicale "connectée" d'Athènes et du Pirée (1891–1940)* ("The 'connected' musical life of Athens and Piraeus (1891–1940)"), which will soon be freely accessible online. This GIS pilot study may serve a model for the eventual coverage of the entire Mediterranean basin.

revealing tensions between the circulation of urban American musical models and strong, local reappropriations of identity. Looking at the paths of certain guitar virtuosi—such as Omar Khorshid, Elek Bacsik, and Aris San—within their historical and political contexts, Francfort documents the redefinition of cultural space; the linking of the eastern Mediterranean to the Atlantic or Italian west in the person of Raf Montrasio, and also further east to Bangladesh through Sunil Ganguly. The case of the electric guitar shows the extent to which the Mediterranean was an open space of multiple influences, including in this example, as in Christophe Levaux's contribution, that of America.

Sometimes the sounds of the past bring comfort to the living. Martin Stokes threads together a hydroelectric dam that flooded part of Armenia, the Armenian genocide, and the capacities of a fragmentary voice to speak powerfully of the past and of trauma, and also, of the environment and the future. Using recordings of Enver Demirbağ (1935–2010), the famous interpreter of the music of Harput in south-eastern Anatolia, Stokes sheds light on the circulation of symbolic cultural content. Invoking a "kind of archaeological sensibility" arising from changes in media, Stokes examines the different acoustic layers that make up Demirbağ's recordings to explore voice production in a context "saturated by electricity."[8] While the landscape is one of ruins, both literally and in terms of the recordings, the approach adopted is also archaeological, involving archives that have been lost, ignored, or damaged. Stokes' anthropology of a voice reveals a different kind of mobility, in which traces of the past—recordings—are assembled in the present and set to images for YouTube, to form a space in which heritage mixes with geopolitics.

Kawkab Tawfik's contribution is a case study of the Nilotic ritual of *zâr*, a traditional ceremonial dance to drive away possessing spirits. Tawfik shows how technology, especially the smartphone, has modified the performance of the ritual, including the sacralization of space it, and also its reproduction and distribution. These changes reflect the need to adapt the ritual so that it can be practised in private spaces, as it has now disappeared from the public or semi-public arenas where it was previously performed. This disappearance is connected to a shift in societal perceptions of the ritual, and an increasingly hostile attitude on the part of the state, which has led to the banning of certain forms. This has had an impact on the circulation of *adwâr* (sg. *dôr*), the songs addressed to the spirits in otherworld of *zâr*, forcing practitioners to find new ways of providing their healing treatments. Tawfik takes an acute look at the means of distribution, such as USB keys, which have replaced audio or video cassettes. Do the *adwâr* retain their essential power as recordings, or does the

8. On the changes in media in the Arab world, see Gabry-Thienpont and Lagrange 2019.

act of recording "neutralise" them? It seems clear that the latter cannot be the case, given the ongoing use of these recordings in ceremonial practice.

But digitization can cause concern and anxiety. USB keys, among other digital tools, in some contexts excite a mistrust that might qualify as technophobia. For example, the Egyptian musicians' union consider them a threat to the employment of instrumentalists, who might be replaced by recordings, especially for electronic and rap music. The union currently tries to insist on live musicians in concerts in these genres.[9]

What is it that circulates? For the Egyptian composer and musicologist, Halim El-Dabh, it is energy. In 1944 El-Dabh created one of the first pieces of *musique concrète* in the world based on a recording of *zâr* music captured on a wire recorder, titling it *The Expression of Zaar* (Puig 2019; Khoury 2013). Echoing the pieces by Francfort and also Christophe Levaux, Halim's contribution highlights the force of American soft power and musical diplomacy established at the end of the 1940s. Halim emigrated to the United States thanks to a scholarship from the American Embassy. There he joined the Columbia–Princeton Electronic Center, founded in 1955 as part of Columbia University. Such movements did not, however, abolish cultural hierarchies, as revealed by the fate of El-Dabh's compositions. His biographer, Denise Seachrist, notes that his name is not mentioned in any dictionaries of electronic music, despite his significant contribution to its very emergence. His name is absent from books on music history and from textbooks, and in the autobiography of electronic composer Otto Luening (2003), El-Dabh appears simply as one name on a list of young composers from different countries who collaborated with the Columbia–Princeton Electronic Music Center. On the other hand, *Wire Recorder Piece*—the only surviving extract from *The Expression of Zaar*—opens one of the CDs on the Sub Rosa label's 2006 *Anthology of Noise & Electronic Music/Fourth A-Chronology 1937-2005*. El-Dabh's work formed part of an avant-garde that emerged in Cairo and then traveled to the United States. This issue also shows the reverse influence in the development of a musical avant-garde in certain Mediterranean cities, as in Christophe Levaux's study of 1960s Rome. Levaux explains that the elements by which certain musical productions in the Italian capital may be identified as avant-garde were closely intertwined with American cultural institutions. The use of modular synthesizers and the concept of sonic freedom featured prominently in these musical creations and spread throughout the Mediterranean.

9. Since October 2022, the union has required rappers to employ at least five live musicians (bass, drums, keyboard, guitar, sax). At the union, a member of the labor committee explained to one of the authors that this is what Eminem does, so why shouldn't Egyptian rappers do the same? It's possible to work with studio musicians instead of using pre-recorded soundtracks on USB flash drives.

Decades earlier, at the beginning of the twentieth century, engineers from the famous French recording company Pathé traveled around the Mediterranean, between Paris, Cairo, Constantinople, and Smyrna (Panagiota Anagnostou in this issue). They brought home collections of local sounds, including a few titles of Egyptian music, which featured, badly misspelled, in the company catalogue from 1906 onwards. However, when they arrived in Egypt, Pathé representatives were behind the times technologically, and they persisted dealing in obsolete equipment, such as cylinders, when the flat disc had become the standard.

These initiatives were sometimes supported by import traders, including a number of Armenians, who helped to create the music centers: Muhammad Ali Street in Cairo; Hamra in Beirut; and Omonia in Athens. In Egypt in 1911, among at most a dozen phonograph importers in Cairo were two Armenian watchmakers, who set out to market these devices on Muhammad Ali Street, then a home to café-chantants and soon to become the center of music in Egypt for over half a century (Poffandi 1908). Speaking to Nicolas Puig in 2017, Halim El-Dabh noted the importance of Papazian, an importer of records and equipment. El-Dabh explained that his shop was a meeting place for Cairo's cosmopolitan elite in the late 1930s and 1940s; a place where one could to the latest music coming abroad, such as Arnold Schönberg's *Pierrot Lunaire* (1912), which El-Dabh mentioned as an important influence on himself.

These processes of circulation set the pattern for future globalization, as Martin Stokes has put it. Certain geographies were established—very rapidly in the case of the Middle East, before being completely overturned—creating "multiple projects of world-imagining in multiple locales, and not just those of the twentieth and early twenty-first century's dominant power" (Stokes 2014).

AMPLIFICATION, SOUND REINFORCEMENT

Electrification expanded the sonic possibilities of acoustic instruments (Appleton and Perera 1975; Patteson 2016), particularly through organological developments, such as the invention in 1897 of the Telharmonium, the electro-mechanical ancestor of the synthesizer (de Wilde 2019). These developments were boosted significantly by the kinds of mobility and circulation discussed above. Several texts in this issue look at changes in the manufacture of instruments, as affecting timbre, pitch, and frequency, and also sound emission and playing techniques; how the challenge of amplification was met; and the impact of these developments on musical creation. What new areas of creative experimentation did these changes open up for composers and performers?

Electric keyboards and synthesizers first appeared in the 1960s. Some ten years later they spread to countries of the eastern Mediterranean: Egypt,

Lebanon, Turkey, and Greece, among others. Nikos Ordoulidis argues that they were not received by musicians not as objects from an outside world, but rather as creative tools that were adapted in accordance with the various ideologies and aesthetics laid down by history. A good illustration of this process is provided by the Egyptian experience. Here the synthesizer was swiftly equipped with functions specific to Arabic music—quarter tone, synthetic percussion, and the ability to reproduce the sounds of local instruments—and it proceeded to become a central element within orchestras, replacing the accordion, which had itself been introduced and domesticated in the 1920s (Puig 2017; Umran 2002), and in some cases the oud. As Ordoulidis suggests, using the example of the Farfisa company, the shifts from acoustic to electric involved changes in know-how that affected musical habits, such as modes and playing styles, and empowered the development of local repertoires in the pop and rock scenes of the 1970s and 1980s.

However, the transition was not linear, and there are many ways in which electricity was used to reproduce sound. Abderraouf Ouertani underlines this point in his discussion of the socio-technical issues involved in amplifying the oud, recalling the distinction between amplification, electrification, and sound systems. These nuances mean that playing techniques will vary, as well as sound aesthetics. Players of the oud may, for example, be torn between an ideology of natural sound and the possibility of liberation from this ideal by an instrument that has been specifically designed for electrification. As Ouertani demonstrates, in order to understand the implications of these questions, one needs to look at the networks of cooperation—from the luthier to the microphone maker, via the musician and the sound engineer—that eventually lead to the amplified sound of the oud and, hence, to new ways of performing.

New performance styles are also broached in Franco Fabbri's contribution, whose long-term ethnographic enquiry studies musical activity on the Greek island of Tilos since 1997. He describes the categorizations, intersections, and layering of sound aesthetics within the musical activity of the island's mixed population of residents, holidaymakers, and pilgrims. Heterogenous musical practices coexist, rendering musical and social categorizations ineffective; with so much to-and-fro, from taverna to church, and from acoustic to electric, the borders are hard to discern. The tangle of different sound aesthetics noted by Fabbri leads to a change in the social and musical conditions of the *panìyiri*, the village fête, but there nevertheless remains, in ears of the dancers, a "traditional" whole. Electrification has revolutionized many practices, but within musical activity, it retains the appeal of embodying innovation without necessarily containing any idea of a break with the past.

This observation is shared by Georges Kokkonis, who, again with reference to Greece, studies what he calls "neo-demotic" music; that is, popular musical traditions that underwent amplification and also, concurrently, urbanization.

Kokkonis does not go into new organology, but he shows the interpretation of well-known repertoires was affected by changes such as replacement of the violin by the synthesizer, a phenomenon with widespread analogues across the Mediterranean, noted also by Ordoulidis. The cultural form in question remained associated with the idea of "tradition" for those involved, but the pervasive use of amplification gave it a liminal status beyond categorization, where, according to some, it wavered with the sword of Damocles hanging above. As some of the pieces in this issue ask: is electrification synonymous with the denaturing of music? Either way, it has certainly had a major impact on performance practices, and has formed the basis of certain shared sonic ideologies across the Mediterranean.

Amplification is therefore linked to social dynamics, such as urbanization, migration, and questions of belonging and identity; to the creation of new analytic categories, such as natural, authentic, artificial, and so on; and to questions of musical values, morals, and emotions. It challenges notions of borders and categorization—problems which reappear in the writing and reception of music.

WRITING, CREATING

The electrification of sound has significantly changed the writing of music and, through this, its aesthetics. As theorized by André Leroi-Gourhan (1964), aesthetics does not only refer to an ideal of beauty, but rather to the definition of the material styles that signify belonging to a social group. It thus denotes the everyday, ordinary, and material expression of collective and individual identities.[10] Taken in this sense, in the context of musical creation, aesthetics is expressed in practices, such as repertoire, format, status, use, and sound reality; in bodily habits, as in gestures, reception, and position; and in tastes—all of which the writing of music, with all of its component parts, makes real. In recent years, it is the digitization that has been the key source of upheaval (Le Guern 2017), especially as acoustic instruments have mingled with, or given way to, digital audio workstations (DAW). The influence of these changes on musical creation is a topic that runs through the contributions in this issue.

Christophe Levaux recalls in his contribution that it is difficult to escape from the dominant idea of a single creator. But as Emmanuelle Olivier and Amandine Pras (2022) have shown in their research on collaborative writing

10. Since 2010, a new approach to André Leroi-Gourhan's work has arisen within the IDEAS research unit (Institut d'ethnologie et d'anthropologie sociale, formerly IDEMEC). This has led to the development of the notion of "heterographies," or variant modes of writing, notably in the work of Benoît Fliche (see Fliche and Pénicaud 2018).

in a studio in Mali, creation can also be distributed. This makes clear the processual nature of musical creation; its collaborative or transversal dimension; and how this can be supported by composition technologies. The authors posit an extended form of creation involving an ensemble of actors; and while there may exist more individual forms, even these will entail dialogue with technology, applications, software, and hence with the designers of these, at least in the case of digital composition. As genuine "musical heterographies" (Gabry-Thienpont and Abou Chabana 2022), this mode of writing is born from the formal heterogeneity of the digital tools used to compose and write the music: they reveal artistic subjectivity, and thus constitute introspective writing, setting the composer's sensory relationship with the world at the core of musical aesthetics.

This can be contrasted with the non-contact model of mainstream Arab pop where the work is carried out remotely via social media, particularly WhatsApp. In this case, creation is less distributive than linear, as Pierre France (2022) has argued. Far from the myth of creation as an absolute and an individualized process, France describes Arabic pop music as involving a division of labor including Mediterranean and international coordination in song production, revealing obvious aesthetic sanding encouraged by a profoundly capitalistic approach. The artistic nature of the work provokes little emotion among the actors, while the production is awash with complex power dynamics and both implicit and explicit hierarchies. In such a context, the studio becomes a center for remote coordination.

The actors get a grip on the technology, contribute to its development, and through engagement with it, they begin the process of artification and counter-artification. Sophie Maisonneuve presents the important experience of gramophone enthusiasts of the 1920s and 1930s, who effectively invented a new musical medium by appropriating a "speaking machine," which had been regarded principally as an administrative or educational tool, and redefining it as an instrument for music (Maisonneuve 2009). Thus, they used it in auditoriums as if to create the experience of a classical concert, and as it gained in popularity, they produced specialised publications, subject-specific criticism, and gradually codified the conditions required for best audio reception. Music-loving record enthusiasts played an important role throughout this phase. New social arrangements for organized listening established the gramophone as an instrument. Thereafter, in the following decade, it underwent a process of "de-artification." It was redefined as a simple technical medium for the broadcasting of a music made elsewhere, whereas recording, conversely, became "artified"!

CONCLUSION

The entire musical process has been turned upside down by the electrification of sound. Writing, creating, recording, circulation, and the electrification of instruments constantly co-evolve with technological developments. In certain contexts, electrification has given rise to debates about authenticity in relation to acoustic music, whereas in others, it has been wholeheartedly appropriated, including as a central aesthetic element. In Egypt, for example, within festive settings, both sacred and profane, the saturation due to the "degradation" of the sonic signal into an electric signal—initially the result of a sonic accident—has become in some contexts a desired effect (Puig 2017). This is effectively a sound process in which the electric transformation of the sound signal, combined with the application of electro-acoustic effects, namely echo and reverb, ends up creating a specific and recognizable soundscape that is now an audio marker of urban Egyptian rituals. The saturated sensory environment is associated with extravagance in hospitality contexts, and with ritual trancing among the devout; it acts upon the emotions and affects them via the senses. Music extends out into the general environment, leading us, as we read the articles in this issue, to think of sound technology in relation to the wider development of sound cultures and soundscapes; to envisage the existence of a paradigm of electrification. Musical creation, as seen through the prism of sound electrification, should thus be considered in relation to the major changes that have occurred since the beginning of the twentieth century, and to the sensory modifications that these changes have entailed. This paradigm indicates a profound shift in musical organization and, moreover, in the ways of life, modes of circulation, and imaginaries to which it relates. This relationship should be periodized and historicized from the beginnings of electricity up to its spread through all aspects of everyday life. It should also be considered through the prism of cultural and geographic space: widespread sound electrification does not prevent the expression of identities, the maintenance of tradition, or even a creative continuum. The examples from the Mediterranean and Arab world in the pages that follow are testimony to this. The crossing paradigm of electrification is akin to a unifying principle in the making of music, occurring in ways that are rooted in the local.

BIBLIOGRAPHY

Andrieu, Sara and Emmanuelle Olivier, eds. 2017. *Création artistique et imaginaires de la globalisation*. Paris: Hermann.

Appleton, John H., and Ronald C. Perera, eds. 1975. *The Development and Practice of Electronic Music*. Englewood Cliffs, NJ: Prentice-Hall.

Benjamin, Walter. 2000. "L'œuvre d'art à l'époque de sa reproductibilité technique." *dernière version de 1935*. In *Œuvres* III, 269–316. Paris: Gallimard.

Dakhli, Leyla, and Stéphanie Latte Abdallah, eds. 2010. "Un autre regard sur les espaces de l'engagement : mouvements et figures féminines dans le Moyen-Orient contemporain." *Le Mouvement Social* 231, no. 2.

De Wilde, Laurent. 2019. *Les fous du son. D'Edison à nos jours*. Paris: Gallimard.

Fahmy, Ziad. 2020. *Street Sounds. Listening to Everyday Life in Modern Egypt*. Stanford: Stanford University Press.

Fliche, Benoît, and Manoël Pénicaud. 2018. "Hétérographies du désir. Pratiques votives au monastère de Saint-Georges (Büyükada, Istanbul)." *Techniques et culture* 70: 142–161.

France, Pierre. 2022. "Faire la pop sans l'aimer? Monde de la pop arabe, processus de création, et frontières poreuses du milieu musical." Conference paper presented at *Création musicale et électrification sonore en Méditerranée, XXe-XXIe siècles*, held at Institut Français d'archéologie orientale (IFAO), Cairo, November 6–8, 2022.

Gabry-Thienpont, Séverine, and Norig Neveu. 2021. "Introduction. Missions and the Construction of Gender in the Middle East." *Social Sciences and Missions* 34, nos. 1-2: 1–27.

Gabry-Thienpont, Séverine, and Frédéric Lagrange, eds. 2019. *Matérialisation, dématérialisation et circulations des musiques du monde arabe (XXe-XXIe siècle)*. *Annales islamologiques* 53.

Gabry-Thienpont, Séverine, and Hicham Abou Chabana. 2022. "*The King of Trobby Music*. Compositions électroniques et usages du numérique chez un musicien de Haute-Égypte." *Cahiers d'ethnomusicologie* 35: 65–83.

Houdart, Sophie, and Olivier Thiery. 2011. *Humains, non-humains. Comment repeupler les sciences sociales*. Paris: La Découverte.

Khoury, Michaël. 2013. "A Look at Lightning: the Life and Compositions of Halim el-Dabh." In *The Arab Avant-Garde: Music, Politics, Modernity*, edited by Thomas Burkhalter, Kay Dickinson and Benjamin J. Harbert, 165–182. Middletown, Connecticut: Wesleyan University Press.

Kosmicki, Guillaume. 2016. *Musiques électroniques. Des avant-gardes aux dance floors*. Marseille: Le mot et le reste (collection Formes).

Lagrange, Frédéric. 2011. "Formes improvisées, semi-improvisées et fixées : le disque 78 tours comme source d'information." *Revue des Traditions Musicales des Mondes Arabe et Méditerranéen* 4: 43–51.

Lambert, Jean, and Rafik al-Akouri. 2019. "Patrimonialisation 'sauvage' et archéologie industrielle de la musique yéménite. Les premiers enregistrements commerciaux à Aden (1935-1960)." *Annales Islamologiques* 53: 49–94.

Lambert, Jean, and Rafik al-Akouri. 2020. "The First Commercial Recordings of Music in Aden (1935-1960) and their 'Digital Patrimonialization'". *Égypte/Monde arabe* 22: 137–163.

Le Guern, Philippe, ed. 2017. *En quête de musique. Questions de méthode à l'ère de la numérimorphose*. Paris: Hermann.

Le Ménestrel, Sara, Kali Argyriadis, Christophe Apprill, Julien Mallet, Nicolas Puig, Guillaume Samson and Gabriel Segré, eds. 2012. *Des vies en musique. Parcours d'artistes, mobilités, transformations*. Paris: Hermann.

Leroi-Gourhan, André. 1964. *Le geste et la parole. Tome I. Technique et langage*. Paris: Albin Michel.

Maisonneuve, Sophie. 2009. *L'invention du disque 1877-1949. Genèse de l'usage des médias musicaux contemporains*. Paris: Éditions des archives contemporaines.

Olivier, Emmanuelle, ed. 2022. "Cultures du numérique." *Cahiers d'ethnomusicologie* 35.

Olivier, Emmanuelle. 2022. "Préface: Les localités d'une technologie globale. Pratiquer l'ethnomusicologie en régime numérique." *Cahiers d'ethnomusicologie* 35: 9–24.

Olivier, Emmanuelle, and Amandine Pras. 2022. "Généalogies des professionnels du studio d'enregistrement à Bamako (Mali)". *Cahiers d'ethnomusicologie* 35: 123–149.

Patteson, Thomas. 2016. *Instruments for New Music: Sound, Technology, and Modernism*. Oakland: University of California Press.

Pinch, Trevor. 2005. "De Trumansburg à Detroit : comment LA MACHINE MOOG fabrique la culture." *Mouvements* 5, no. 42: 61–69.

Pinch, Trevor, and Frank Trocco. 2002. *Analog Days: the Invention and Impact of the Moog Synthetizer*. Cambridge: Harvard University Press.

Poffandi, S. G. 1908. *Indicateur égyptien administratif et commercial*. Alexandria: Imprimerie d'Alexandrie.

Puig, Nicolas. 2017. "La ville amplifiée: synthétiseurs, sonorisation et effets électro-acoustiques dans les rituels urbains au Caire." *Techniques et culture* 67: 212–215. journals.openedition.org.

Puig, Nicolas. 2019. "*Recording Culture*. Une figure égyptienne du XX^e^ siècle : Halim el-Dabh, compositeur, collecteur et pionnier des musiques électroniques." *Annales Islamologiques* 53: 113–136.

Racy, Ali Jihad. 1976. "Record Industry and Egyptian Traditional Music: 1904-1932." *Ethnomusicology* 20, no. 1: 23–48.

Shapiro, Peter. 2021 [2000]. "Introduction." In *Modulations. Une histoire de la musique électronique*, translated by Pauline Bruchet and Benjamin Fau, 9–17. Paris: Éditions Allia.

Sterne, Jonathan. 2003. *The Audible Past. Cultural Origins of Sound Reproduction*. Durham: Duke University Press.

Stokes, Mickael. 2014. "Creativity, Globalization and Music." *Volume!* 10, no. 2: 30–45.

Tagg, Philip. 2013 [1982]. "Analysing popular music: theory, method and practice." *Popular Music* 2: 37–65.

Tournès, Ludovic. 2008. *Du phonographe au MP3, XIX^e^-XX^e^ siècle. Une histoire de la musique enregistrée*. Paris: Éditions Autrement.

Umran, Muhammad. 2002. *Qâmûs Mustalahât al-Mûsîqâ al-Sha'biyya al-Misriyya* ("Dictionary of Expressions in Egyptian Popular Music"). Giza: Dâr 'Ayn li-l-Dirâsât wa-l-Buhûth al-Insâniyya.