

Introduction

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The first edition of *A History of Technology* published by Oxford University Press in 1958¹ briefly discusses the relations between music and technology in a chapter devoted to *Technology and social consequences*. There are, however, two chapters devoted to *Photographic arts*, one on *Photography* and another on *Cinematography*. In the 1978 edition², which includes two additional volumes, the second in two parts, the chapter entitled *Electrical communications* contains a paragraph – the next to last – dedicated to *Recording and sound reproduction*. Only the insertion of the chapter mentioned above justifies the presence of the topic in these new volumes, not those of the first edition, which surveys the history up to 1900. In fact, the official date of the birth of electrical recording is 1926³. However, the editor of this same article reveals that «the first fifty years of these technologies were almost never connected to electricity»⁴. However, considerable space is devoted to the graphic and plastic arts, to say nothing of architecture, from Antiquity on. Yet the first musical instruments date from the Palaeolithic era⁵. Perhaps they shouldn't be considered a technology in relation to music but a technology of material transformation? Only the Oxford editors can respond to this question, even if, in this context, we are not especially interested. We are interested, however, in the series of questions listed below which derive from the apparent lack of interest in the specialised literature in the connections between music and technology:

- Why is there no awareness, except in rare cases, of the connections between the art of sound and the technologies that support it?

¹ Charles Singer, Eric John Holmyard, A. Rupert Hall, Trevor I. Williams (eds.), *A History of Technology*, Oxford University Press, Oxford 1958; trad. it., *Storia della tecnologia*, Paolo Boringhieri, Turin 1965.

² Charles Singer, Eric John Holmyard, A. Rupert Hall, Trevor I. Williams (eds.), *A History of Technology*, Oxford University Press, Oxford 1978; trad. it., *Storia della tecnologia*, Paolo Boringhieri, Turin 1996. I was able to consult only the Italian editions of these works.

³ Really 1925, even if the first experiments date from 1919. See Roland Gelatt, *The Fabulous Phonograph*, Collier MacMillan, London 1977², pp. 219-228.

⁴ Singer *et al.*, *Storia della tecnologia*, cit., vol. 7, t. II, p. 563.

⁵ Curt Sachs, *Storia degli strumenti musicali* [1940], Mondadori, Milan 1980, p. 6.

- Why does music literature highlight techniques and overlook, or deal only in part with technologies?
- Haven't composers' and artists' needs forced modifications in the technologies in use?
- And, conversely, haven't the technologies in use forced composers and artists to try to modify their own techniques?
- Are there connections between music and technology which can be explored in various disciplines: aesthetics, poetics, phenomenology, history, composition, performance, sociology, politics, musicology in the broadest sense, psychology... why are the contributions in these areas sporadic, or for the most part, sometimes irrelevant?
- ...

If we hazard a definition of *technology as the set comprising techniques which modify materials by the use of instruments*, through this understanding we see numerous 'interconnections' with the musical world. «The uncertain and rather inexplicit nature of contemporary ideas represents, under the best of circumstances, the embryonic hint of an awareness that must begin to manifest itself. This shows how it was possible to create new categories of musical thought, thanks to the invention of equipment and instruments, which had a determining effect on our way of learning and conceptualising sound phenomena»⁶. Without further comment, Hugues Dufourt's statement seems applicable to the continuous influence between artistic and technological disciplines.

Although publications already exist – and prestigious ones like «Computer Music Journal» or «Journal of New Music Research»⁷ – that deal systemically with aspects of the relations between music and technology, we have often reflected on the questions posed above without finding answers. We hope our readers and collaborators will do so too, even in unorthodox ways, by exploring the less academic yet no less worthy dimensions of music. The extension dots invite everyone to reach beyond, question, and expose the lacunae we perceive.

The relations between music and technology have never been so immediate to those who work in the field as they have since the advent of electricity (or better: since the instrumental applications of electricity.) Nevertheless, there has always been a technological dimension to music, even though it hasn't been explored consciously.

⁶ Hugues Dufourt, *Musica, Potere, Scrittura*, Ricordi-LIM, Milan 1997, p. 176; or. ed., *L'ordre du sensible*, in T. Machover (ed.), *Quoi? quand? comment? La recherche musicale*, Christian Bourgois, Paris 1985.

⁷ The list could be longer, if we also think of all of the journals that deal with this topic off and on (and there are many.) We wanted to mention only the two oldest ones. In the last few years some monographies were published which dealt with the question from different points of view. I remember two of them (I would like to thank Angela Ida De Benedictis for this information): Michael Harenberg, *Neue Musik durch neue Technik? Musikcomputer als qualitative Herausforderung für ein neues Denken in der Musik*, Bärenreiter, Kassel et al. 1989; Ollie D. Powers, *Interactions between Composers and Technology in the First Decades of Electronic Music, 1948-1968*, PhD Diss., Ball State University Muncie, Indiana 1997.

Even those works which might seem illustrious exceptions – like Helmholtz' *Lehre*⁸ – do not fully take into account the implications they could have on the music world, especially by privileging the scientific more often than technological aspects, the very *humus* which contributed to their growth⁹. Conscious of the difficulties inherent in clearly isolating the nature of and connections between the worlds of music and technology, both chronological¹⁰ and environmental, we will attempt to explore territory which, in our opinion, is still in part unexplored. Furthermore, we are motivated by an urgent need to understand the mechanisms which determine the production of music in an effort to avoid being unconsciously overcome by those very mechanisms without a chance to reflect on and respond to them.

We would like to reshape technology and its musical 'complications' rather than implications, in part by accepting the now widespread thesis¹¹, which states that technique and technology have been the objects of misunderstandings, incomprehension and exaggerations, especially during the last century. To explore the ways music and technology interweave is «as elusive as the play of light on oil on water. Time would move human beings like water displaces and modifies oil in its flow, but the most sensible thing would be an elusive reflection that would extend over almost immobile molecules»¹². Even though Leroi-Gourhan's metaphor refers specifically to human and technical migration (a major aspect of the relation between music and technology¹³ nevertheless) and the difficulty of finding a common chronological thread in these migrations, this image might help us discover itineraries – hidden, parallel, intersecting, convergent, divergent – in the panorama of the journal.

Among the many itineraries worth highlighting there is one perhaps worth special attention, since it could include many others. This would be the history of the passage from orality (listening) to writing (vision) and back to today in an environment, which shares a lot with orality, with listening. Allow us a marginal note. This tendency to privilege listening in the broadest sense, after years (centuries?) of pictorial

⁸ In particular in Ellis' extensively annotated English translation. Hermann Helmholtz, *On the Sensations of Tone as a physiological basis for the theory of music*, Dover, New York 1954.

⁹ The many 'instruments' Helmholtz uses in his experiments – from those he developed as resonators to those used for the visualisation of sound, like the *phonautograph* – are proof of this.

¹⁰ See Agostino Di Scipio, *Musica tra determinismo ed indeterminismo tecnologico*, «Musica/Realtà», 54 (1997), pp. 111-141, where some examples of content migrations occur when two disciplines undertake the same path independently. In addition, Agostino Di Scipio is one of the few authors to have dealt with the topic Musica/Tecnologia in an aware and complete way.

¹¹ For example, see Michela Nacci, *Pensare la tecnica. Un secolo di incomprensioni*, Laterza, Rome-Bari 2000.

¹² André Leroi-Gourhan, *L'uomo e la materia*, Jaca Book, Milan 1993, p.12; ed. or. *L'homme et la matière* [1943], Albin Michel S.A., Paris 1971.

¹³ Alberto Basso, Luciano Berio, *Sui sentieri della musica*, Idealibri, Milan 1985, is a good, general, richly illustrated work on the migrations of musicians and, consequently, their compositional and/or interpretative techniques (and technologies.)

culture, is apparent in many other disciplines, too¹⁴. The absence of a written text in the electro-acoustical repertoires – almost all music circulated phonographically¹⁵, in traditionally improvised music or music traditionally transmitted orally and now circulated and captured by recording, in all those music events which leave a mark only because they *are* events and are preserved only partially by ‘recordings’ – the absence of a written text is becoming more widespread. This tendency elicits many questions among which that of intellectual, artistic, and technological property,

When we had to choose a name for the journal, among the name fantastical possibilities, we came up with something like the following: «Calliope and Prometheus in Solomon’s house». A metaphor rooted in the myths of times more (ancient Greece) or less (Francis Bacon) ancient, which would allow a margin of interpretation, seemed like a good way to take on such a vast topic. Nevertheless, because the topic *is* so vast, we decided the name of the journal should instead be essential. Since we are dealing with relations between music and technology, the solution was right there before our eyes: «Music/Technology». However, a definition problem lurks behind this name. We can define music generically as *the art of sound* or *organised sound* and rely on the definition of technology given above. We find ourselves nonetheless having to define art, sound, to organise, techniques, instruments, to modify, materials. With this name we would like in this journal to suspend these terms and look for answers in relation to their definitions. For example, technology in this era tends to be much more than what we’ve mentioned above. It tends to be environment, centre of didactic organisation and power, in its turn an instrument of spreading technocracy, just as music can be the art of *dominance* and *selection* of sound, in addition to organisation. In short, themes and terms are being defined and we hope with our contribution to be able in some way to clarify them or, at the very least, face them with awareness.

¹⁴ For example, see the writings of Jean-Luc Nancy, esp. *À l’écoute*, Galilée, Paris 2003, and the monograph number (n. 316-317, July-Sept. 2003) of the journal «aut aut», devoted to *Lorecchio di Nancy*.

¹⁵ I am using here the word phonography in the meaning used by Evan Eisenberg, *The Recording Angel. Music, Records and Culture from Aristotle to Zappa*, Picador, London, 1988. See particularly chapter 6, «Phonography», where the importance of the ‘recording’ process also in traditional repertoires is emphasized