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Media Latencies. Making Bone Music

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The paper reflects on the capacities of "subcultural subjects" to engage in alternative and unorthodox practices of music transmission. Some subcultures emerge by crossing standard functional boundaries between different media. By drawing on Actor-Network theory and New Materialist accounts of object agency, the article will investigate the "music on bones" as a case study. During the Cold War, the import and transmission of Western music into the USSR was outlawed, thus limiting what citizens could and could not listen to. Jazz enthusiasts and stilyagi youth subcultures defied censorship by running a market for bootleg recordings. Songs banned by the regime were recorded on special media—namely the X-ray plates used for medical diagnostics. Hospitals discarded a large number of X-rays since they are flammable, unwittingly offering up a material medium for bootleg recording that does not arouse suspicion. Roentgenizdat are records produced on partial images of skeletons that can be played on gramophones for a few times before being ruined. Material artifacts have latent potentialities that have the scope to reach far beyond their ordinary purpose. The medium of X-ray imaging has specific material and cultural characteristics that allow it to be functionally repurposed for storing and transporting sound traces that are otherwise lost or inaccessible. Bone music is therefore an ideal case study for demonstrating how material agency goes hand in hand with the imagination of subjects—in this case, making it possible to cross media functions and escape censorship accordingly.

Keywords: music on bones; tactical agency; Actor-Network Theory; New Materialism; intra-action; material imagination.

Historical Context: the Regime Ban

In 1948, the Kremlin decided to control the influence of Western customs on Russian culture by banning certain practices. One of the most profound ramifications affected by the censorship act was the restriction of music that could be listened to and danced to. From February 10 of that year, the Politburo of the Great Communist Party's (VKP) Central Committee condemned all the music that exhibits "remnants of bourgeois ideology, influenced by degenerate modern music from Western Europe and America" (Schmelz 2009, p. 227). Any composition perceived as ideologically tainted by the effects of capitalism was sanctioned. Since jazz was a musical genre with American roots—and the USA was Russia's main enemy during the Cold War period—this aspect of popular culture was specifically targeted by the ban. Victor Lebedev, a renowned Russian composer and lecturer in Jazz Studies, describes the effects of this anti-jazz cultural policy:

> At the end of the 1940s jazz began to be persecuted, and people who did jazz began to be persecuted too. At the beginning of the 1950s was the worst time for the people who tried to play jazz, and any student could even be expelled and teachers fired from the conservatories if they did it. Jazz was regarded as an agent for the enemy's ideology (Logan 1992, p. 229).

Despite the Komsomol Propaganda Department's concerns that young Russians were playing and dancing to jazz, what was in fact being produced, heard, and danced to was *sovetskii dzhaz*—a so-called 'Soviet jazz' that was effectively a diluted version of the original genre. Logan (1992) correctly points out that "In those years jazz was not real jazz, but only entertainment music" (p. 229). Jazz was thus stripped of its salient features: from the appeal of improvisation, to syncopated rhythm, up to the use of trumpets and saxophones replaced by strings and instruments of Russian folk origin. Indeed, the saxophone was banned, as perceived to be the instrument that was most representative of the genre (Tsipursky 2016, p. 339). This somewhat paranoid approach, involving the censorship of specific objects, has significantly shaped the history of material culture[1]. As noted by art historian David Freedberg (1989), iconoclasm of this kind indicates some level of acknowledgement that the banned objects are powerful in themselves. Indeed, the appeal of jazz to the Russian population was blatant. The government responded by clamping down on the production and enjoyment of the American musical genre in various ways, starting as early as the Thirties, and leading towards the cultural isolationism that resulted in the aforementioned act of '48. Suffice it to say that from 1926, when the African-American jazz group Sam Wooding and the Chocolate Kiddies performed a tour in the Soviet Union by invitation of the Russian Philharmonic Society, until 1956 no American jazz group performed in the USSR. The constraints of the state-imposed system forced the Soviet population to satisfy their "material and cultural needs through informal channels" (Barsukova, Ledeneva 2018, p. 489). Many records produced before the beginning of the Cold War survived by circulating despite the state interdiction, played on gramophones in the privacy of people's homes. Another source of jazz music was that of foreign records brought home by

[1] The movement against worship of sacred images provoked by the Byzantine emperor Leo III Isauricus is surely the most famous case. However, not only was censorship or destruction directed against religious images, but also against statues, books and symbols, bearers of uncomfortable ideas.

veterans. Practices that sustained the jazz world increasingly had to take place through 'informal' channels, parallel and hidden to those available at an institutional level, leading to the growth of full-fledged subcultures.

Jazz Music between Resistance and Informality

At a time when censorship was at its peak, some young Russians were resisting it by looking for alternative ways of listening to jazz. Haenfler has highlighted, as an emergent factor in the definition of a subcultural theory, its distinctiveness from dominant forms of culture: "a subculture is a social subgroup distinguishable from mainstream culture by its values, beliefs, symbols, and often, in the case of youth, styles and music" (Haenfler 2010, p. 5). Alternative practices in subcultures are often linked to engagement with specific musical genres. Widely studied examples of this include punk (skinhead through to goth) and hip-hop. The same practices that, in the West, afforded subjects significant mainstream cultural currency— participating in what Adorno called the 'culture industry'— were, in Russia, linked to marginalized, "unorthodox, noisy and seductive" subjectivities (Blackman, Kempson 2016, p. 9). Subcultures are both a symptom and an indication of growing demands in a society constrained by the state. A set of subcultural practices, positioned at various distances from official political diktat, affect and have affected many countries, but "for Russians, informality is not an option but a necessity" (Barsukova, Ledeneva 2018, p. 487). This goes some way to evidence the situated dimension of the subcultural subjects' appearance. The cultural and institutional environment is an essential factor in the production of the subcultural subject. Relating the layers of practice—from formality to corruption—to the level of rigidity and intransigence of official discourse is a necessary preliminary action. As already mentioned, DIY practices, self-expression, and non-conformism are opposed to permissible behavior in varying degrees, constituting resistance and counterculture. The distinction between the concept of resistance and that of informal practice is clearly expressed in the comparison between two contiguous and intertwined subcultures: the *stilyagi* and the 'jazz enthusiasts'. From 'stil', meaning style, *stilyagi* is a mocking appellation invented by a Soviet newspaper. The term was,

however, used by the people it designates, who repurposed it to describe themselves as those who 'dance with style'. As Vainshtein (2018) explicates:

> Stilyaga fashion is investigated as a site of conflict with traditional Soviet dress codes and morals. The stilyagi are interpreted as a distinctive subculture, encompassing fashion, taste in music, unique slang, body language and lifestyle habits (Vainshtein 2018, p. 168).

The non-conformism of these young people was openly expressed through a preference for Western lifestyle standing in stark contrast to the Soviet establishment. Thus a counterculture took shape, understood as "a stock of knowledge which, quite literally, runs counter to the dominant stock of knowledge in a society" (Cushman 1995, p. 8). On the other hand, a less conspicuous and often forgotten subculture was developing—namely, the jazz enthusiasts. This expression is employed by Tsipursky as a translation of the term *dzhazovye liudi* used by the famous Soviet jazzman Georgii Garanian to describe his circle. It was later extended to include anyone who had decided not to abandon this musical genre despite the ban. Though they were devoted supporters of forbidden music, these young people, unlike the *stilyagi*, were not openly opposed to the lifestyle of the USSR. What characterized them, however, is their attempt to reconcile two incongruent spheres of their daily lives; one was linked to official practices to which they were not opposed, while the other allowed them to continue listening to and producing jazz—albeit on the margins and in secret. On this matter, Yurchak (1999) points out that,

> The logic of nonofficial discourses and practices in late socialism was based most of all on attempts to have a meaningful life in spite of the state's oppression. Hence, the nonofficial practices involved not so much countering, resisting, or opposing state power as simply avoiding it and carving out symbolically meaningful spaces and identities away from it (Yurchak 1999, p. 80).

Following Williams (2009), we can distinguish between 'overt resistance' in the case of the *stilyagi*, and 'covert resistance' which is closer to the case of jazz enthusiasts. The latter did not feel the need to expose their informal practices, but rather they staged them in relatively private spaces with the sole purpose of

keeping a tradition alive to which they were attached. Although these two related positionings are not coincidental, they cannot be completely separated either, being related by porous and fluid boundaries: "Youth cultural groupings have the potential to cross-cut or transcend rather than merely express structural positionings" (Hodkison 2015, p. 631). Hodkison argues for a departure from a dichotomous understanding that has seen the Centre for Contemporary Cultural Studies' (CCCS) Marxist-style subcultural theory and the post-subcultural turn perspective clash. As in the case presented here, subcultural subjectivities always exist within a continuous tension between cohesion in a community and individual eccentric drives. What I want to argue is that groupings and individuals co-constitute themselves: groups can direct individual orientations, which draw on these means to continually re-position themselves and reconstitute newly organized assemblages. Williams defines subculture as "networks of people who come to share the meaning of specific ideas, material objects and practices through interaction" (Williams 2011, p. 39), which is a particularly interesting perspective for understanding the mutual influence between individuals and subcultures. One practice that cuts across the distinction between the subculture of *stilyagi* and that of jazz enthusiasts has precisely to do with the creation and circulation of material objects that are shared by all those who participate in the passion for jazz music: *roentgenizdat* or music on bones.

Tactical Agency in Music on Bones Production

This section reflects on the capacity for subcultural subjects to engage in alternative and unorthodox music transmission practices (Blackman, Kempson 2016). The circulation of records carrying jazz music steadily thinned as censorship progressed. Various types of illegal 45s or audio cassettes were distributed and purchased, often obtained through foreign radio broadcasts such as the *Voice of America* station. This informal practice allowed participants both to listen to new music from the West and to gain prestige in their subcultural community. Among these bootleg recordings are the *roentgenizdat* or 'music on bones'. Music on bones refers to a number of specific artifacts that circulated mainly in the Fifties, but some examples can still be found today. They are jazz

music records, but what sets them apart is their material basis: they are made from X-ray plates. Troitsky describes these informal recording devices: "These were actually X-Ray plates - chest cavities, spinal cords, broken bones - rounded at the edges with scissors, with a small hole in the center and grooves that were barely visible on the surface" (Troitsky 1987, p. 7). The plates would be cut into the shape of a 78 rpm record, the illegally intercepted music would be recorded onto the plates by phonogravure, and then the records would then be played on seven-inch turntables. The *roentgenizdat*, also called 'bones' or 'ribs,' were a bootleg music transmission technology that animated a smuggling trade and were mainly produced and bought by jazz enthusiasts and *stilyagi*[2]. Many of these radiographed records were recovered and collected and we can still observe them today, and sometimes even listen to them. In particular, the X-Ray Audio project was created in 2012 with the aim of collecting and publishing the stories of these records and the people who produced them, and has organised a series of exhibitions[3].

Yurchak (1999) refers to the phenomenon of music on bones in terms of an "ingenious invention" (p. 82). The invention is based on the ability of these young subculturalists to cross the usual boundaries between different media. I argue that a mediological analysis should not be overlooked with respect to this case study. It is clear that X-rays do not have particular relation to vinyl records as their natural media successors, nor do X-rays obviously lend themselves as a potential foundation for audio tracks. What these young Russians were doing was proposing the neo- or re- mediation of a technology used for biomedical visualisation into that of a sound archive. In this regard, we might heed Lisa Cartwright's argument about the extent to which X-rays can cross over from the biomedical laboratory into the world of popular culture:

> X-ray images became popular items outside medical practice as well. The historian Stanley Reiser relates that "New York women of fashion had X-rays taken of their hands covered with jewelry, to illustrate that beauty is of the bone and not altogether of the flesh" (Cartwright 1995, p. 114).

[2] For more on craft practices related to music on bones, see Coates, S., 2015, *X-ray Audio*, Strange Attractor Press, London, e.g. pp. 22-28.
[3] Si veda il sito del progetto per ogni informazione: www.x-rayaudio.com

In this case, the practice of radiography has clearly changed. Biomedical imaging was re-appropriated outside the clinic in exploratory ways. However, there is no real refunctionalization of the device; no other message is conveyed by the plate. We might instead say that, in the cultural-historical case of bone music, radiography has found itself taking the place of vinyl. Polyvinyl chloride was replaced by an acetate film covered by a sensitive emulsion with silver bromide crystals that made up a new engraving substrate. A second relevant case comparison can be made with Caleb Kelly's analysis of so-called 'cracked media'. By this expression, he refers to sound reproduction instruments that exceed their programmatic function according to some manipulative action: "manipulation is the extension of the technology beyond its originally intended use. (...) The technology is bent, almost to its breaking point" (Kelly 2009, pp. 33-34). Kelly's account pushes towards a study of the different networks and histories that each technology brings with it, in a media-archaeological sense. Cracked media also petain to experimental attempts to investigate the limits and potential of devices, "using the technology in a generative way, forcing it to do something new" (ivi, p. 178). Can we therefore understand *roentgenizdat* as a case of cracked media? Behind this manipulative activity in Kelly's reported cases lies an artistic-performative dimension missing to music on bones. The example of artist Vicky Brown's 2006 work *Time table* shows exactly that. Brown creates records out of disparate materials, from twigs to aluminium, and then plays them on an ordinary record player:

> The effect of placing a stylus on these foreign objects in 2006 effects a slippage between the nostalgia for playing records and the strangeness of playing objects that are not usually thought of as records. Throughout the late twentieth century and into the twenty-first, it became almost common to see performances that used some element of the manipulation, breaking, or destruction of sound mediation technologies in live performance (Kelly 2009, pp. 2-3).

While embodying a kind of bricolage and achieving the aesthetic effect of estrangement, the practical and utilitarian purpose for which they were created wins out in bone music. Certainly, the X-ray plate is not as efficient as vinyl since,

as Lebedev reports, the record "didn't last long. You could only play it five to ten times and [we] passed it on" (Logan 1992, p. 229). When used to play music, the properties of the *roentgenizdat* relating to radiography became irrelevant, whether taken in terms of their material support or media content. Nevertheless, the X-ray medium was adopted. So why is it that the X-ray plate was chosen? A number of plausible and concomitant explanations arise, some of them very intuitive. First, there is the straightforward material condition that it is possible to engrave X-ray emulsion like a disc—a necessary but not sufficient condition for the adoption of this medium. Although very different, vinyl and X-ray plates are both made of plastic. A second reason is suggested by Troitsky: "X-Ray plates were the cheapest and most readily available source of necessary plastic. People bought them by the hundreds from hospitals and clinics" (Troitsky 1987, pp. 7-8). Hospitals discard X-rays because they are polluting and flammable, which suited the clandestine demand of these young jazz fans. Third, X-ray films have aesthetic-material properties which suit the task of transporting illegal music. They are easily foldable and can therefore be carried close to the body, under clothes, without arousing suspicion. Bone music can actually be described as a form of flexi-disc or phonosheet. In the Fifties these mainstream media emerged as much thinner and therefore very flexible forms of vinyl. They came free with magazines since they were sufficiently pliable, but they wore out very easily, just like *roentgenizdat*. Finally, the fact that X-rays were, at the time, unequivocally associated with the sole purpose of diagnostic imaging meant that their owners had a plausible alibi. It was counterintuitive to assume that an image of broken bones was, in fact, transporting music with it. All this makes it possible to view the practice of bone music production as a 'tactic'—a concept described by Michel de Certeau in *The Practice of Everyday Life* (1984). Although Certeau's theory refers to the growth of power and control in neoliberal capitalism, his distinction between 'strategies' and 'tactics' is pertinent to the case at issue here. What makes *roentgenizdat* stand out is not the action performed by them per se, but the way this very performance affects the production of a subjectivity. 'Strategies' are the characteristic actions of authorities. They aim at ordering and disciplining behaviors and have to do with the use of power as 'top-down' and

normative, from those who are in a position to give orders to those who must heed the command. Conversely, 'tactics' come from below and can be understood as actions which re-appropriate spaces or objects by subverting, perverting, and converting their original uses and habits. Certeau describes 'tactical agency' as an attempt to rewrite subjectivity, which "operates in isolated actions, blow by blow. It takes advantage of the 'opportunities' and depends on them" (De Certeau 1984, p. 37). Tactical agents improvize using materials and artifacts they find in their everyday environment, transforming them according to their own and collective needs and desires. This concept is useful for explaining what led to the conversion of a strategic technology (radiographic imaging) into a tactical vehicle aimed at satisfying the desire for jazz. The opportunity for tactical action presented itself as an assemblage of the *affordances* of radiography and the engagement of subcultural subjects[4]. There is therefore an interesting encounter between the spontaneity of the subcultural subject's tactical actions and the power of a given artifact to inspire these actions.

Theoretical Framework

The production of unusual material for listening to forbidden music is an effective illustration of the mutual and reciprocal connection between matter and human subjects. In other words, there is a sense in which material artifacts participate in the creation of potential action, of which they are an integral part, and can therefore be considered to have some degree of agency. Latour (1987; 2005) situates this exchange within a network of actions in which neither humans nor non-humans can be viewed as primary actors. According to the principle of *generalized symmetry* (1993), any distinction between *actants* is, if anything, generated within the network, but does not pre-exist the encounter. The subject is not the sole efficient cause of action and matter is divested of its specific receptive and inert value. As Ingold notes, the study of material culture has tended to endorse this dichotomy:

[4] The term first appeared in the 1979 book, *The Ecological Approach to Visual Perception*, by American psychologist James J. Gibson. It is defined as a set of actions that the object suggests can be performed with it. Seeing a needle involves intuiting a particular way of being able to pick it up, which will not be, for example, with the palm open.

> On one side is the raw physicality of the world's 'material character'; on the other side is the socially and historically situated agency of human beings who, in appropriating this physicality for their purposes, are alleged to project upon it both design and meaning in the conversion of naturally given raw material into the finished forms of artefacts. (Ingold 2013, p. 27).

Human action necessarily involves a series of material objects, constituting an assemblage in which the idea of singular agency becomes problematic. As Bennett (2018) points out, "The locus of agency is in practice always a human–non-human collective" (p. 448). I therefore define agency as a *collaborative action* or *enactment*, rather than as a *quality* that someone or something has. Agency is thus distributed as, in the words of the anthropologist Alfred Gell, "a global characteristic of the world of people and things in which we live, rather than an attribute of the human psyche, exclusively" (Gell 1998, p. 20).

I started with Latour because his theory of Actor-Network Theory (ANT) importantly emphasizes the role of artifacts in the constitution of subjects' modes of being and acting. By taking up artifacts, subjects collude in a constituent interaction. That said, according to the ANT model, objects are given up completely in the development of the networks in which they participate. The artifact is exhausted within the multiple and hybrid connections it establishes and comes into contact with. In this way, the agency of a given object is finite, though it is continually redefined and renegotiated in the networks of encounters and forces through which it passes. The case of music on bone shows us an important moment of creative manipulation that occurs *before* these material prostheses enter a network.

> What is lost is the creativity of the productive processes that bring the artefacts themselves into being: on the one hand in the generative currents of the materials of which they are made; on the other in the sensory awareness of practitioners. Thus processes of making appear swallowed up in objects made (Ingold 2013, p. 7).

At a preliminary stage of putting media and artefacts into circulation, matter itself is a site of open and emerging potential. From Spinoza's *conatus* through to Hegel's *Sprödigkeit Materials*[5], Western philosophy has attempted to recognize

[5] Spinoza describes *conatus* in the *Ethics* as the effort of an entity to actualize its own essence. Hegel, on the other hand, deals with the rebelliousness of matter, in the *Lectures on Aesthetics*, as a resistance of the

the ways in which matter itself acts, distorts, opposes and assists the subject's actions. New Materialists pay particular attention to matter along these lines, starting from the seminal work of Karen Barad and her notion of agential realism[6]. In her framework, matter "feels, converses, suffers, desires, yearns, and remembers" (Barad 2012, p. 60). Matter thus has a 'vibrant' character and influences the direction of events and actions. It has propensities; it is a site of multiple, complex, and potentially contradictory connections. Matter ought to be understood as a "path or trajectory through a maze of trajectories" (Ingold 2013, p. 31). Above all, focussing on the vibrant and contradictory character of matter allows us to think of our co-constitutive relationship with artifacts in terms of intra-action. Barad proposes the concept of intra-action as an alternative to interaction. In the latter case, the human and non-human actors, whose agencies constitute a given phenomenon, are supposed to pre-exist their constitutive relationship. Whereas, as Barad writes:

> The notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. It is important to note that the "distinct" agencies are only distinct in a relational, not an absolute, sense, that is, agencies are only distinct in relation to their mutual entanglement; they don't exist as individual elements (Barad 2007, p. 33).

The concept of intra-action is useful in resisting the tendency to consider the agency of objects and that of subjects as predetermined and autonomous. What I am arguing is that, within the theoretical framework of New Materialism, one can better conceive of the encounter between producer and material (in terms of an intra-action) in the stages of creating new functional media. This epistemic framework allows us to focus on how matter offers 'suggestions' which are intercepted by the subject in what Ingold calls a process of 'correspondence'—again, radically different from an interaction: "In the act of making the artisan couples his own movements and gestures – indeed his very life – with the becoming of his materials, joining with and following the forces and flows that bring his work to fruition" (ibid). Ingold draws attention to a reliance on material

sensible, its disobedience and indocility. It is the task of the artists, according to Hegel, to recognize this force of matter, to overcome it for their own creative ends, but to do so in accordance with its inclinations.

[6] Agential realism proposes a relational onto-epistemology in which phenomena and reality are dynamically materialized by composing matter and meaning together. Agential realism is at once an ontology, namely a theory of being, and an epistemology, i. e. a theory of knowing.

intelligence that emerges in production processes. A transformative flow, similar to what Malafouris calls "thinging" (Malafouris 2014), involves subjects and matter beyond intentionality. In this process, matter and artifacts, although 'vital' and 'vibrant', have no intention or will. The point, however, is that even subjects act without explicit intention in this performative engagement with the material:

> That is, we see a flow of energies within and between varieties of materials. This is how energies are being transformed into agencies. Agencies when embodied in living bodies can also acquire experiential content and sometimes develop awareness, i.e., a 'sense' of agency. But this awareness of agency, characteristic of human bodies, is largely an illusion. There is no agent apart from the action. (...) Agency is not a permanent feature or property that someone (human or non human) has independently of situated action but the emergent product of material engagement seen in our image as a creative tension of form and flow (Malafouris 2019, p. 11).

The subject is therefore a site traversed and immersed in entangled relations with matter. The subject's intentions are softened; it allows itself to be guided by the encounter with the material in a co-constitutive process of interweaving that destabilizes expectations and revives possibilities for manipulation and creation. In this way, agency is about "changing the possibilities of change" (Barad 2007, p. 178), as a generative power rooted within the process and not driven by an accomplished output. The distributed agency between subjects and matter acts as a force capable of illuminating latencies inside the artifacts themselves. The emerging "spectrum of agential capacities" (Coole 2005, p. 125) can materialize these latencies as further "modes of existence" of artifacts (Simondon 1958). In this sense, material artifacts are never fixed or complete. Rather, they are always open and available to be transformed according to new meanings and uses. Actor-Network Theory has already shown us how objects can mean different things in changing contexts. They can be reused in the context of the networks to which they belong. In contrast to the ANT paradigm, however, objects "withhold a part of themselves from every relation (we can never know an object in its entirety)" (Papadopoulos 2018, p. 205) because every performative intra-action with matter brings out a new possibility of material engagement.

The Role of Material Imagination

We are only telling half the story if we explore the subcultural subjects' actions without paying special attention to the material conditions of craft production. In the case of music on bones, non-human entities are indispensable partners in the processes which constitute subcultural subjectivities, so one might venture that "objects create subjects much more than the other way around" (Miller 2008, p. 287). At the heart of the production of bone music, along with jazz enthusiasts and *stilyagi*, are the X-rays themselves. It should be clear at this point that any design intent, driven by the subject's intentions, is mediated, reconstituted, and modified by the encounter with the material and aesthetic properties of the artifact. To sum up, we can conceive of the relationship between matter, creative action, artifact, and subject beyond a theoretical limit; the matter that makes up the X-ray plate is not exhausted by the sum of the ways in which, throughout its history, it has been variously rendered functional by the practices of human subjects. It would be easy to neglect the latent potentialities of matter in radiography by 'reabsorbing' them into the networks analyzed above by Latour's theory. It is not possible to specify in advance what matter can and cannot do through a cognitive act of prediction. Rather, I sense what I can do with the matter as it teaches me, in a relationship of exchange; it exerts a force on my imagination while I exert force on its features. As Pietro Montani points out, the role of the imagination gains new significance in this process. The Italian philosopher's theoretical frame of reference in his treatment of the imagination derives from Kant's critical philosophy. According to Kant, imagination "primarily means interacting with the world-environment" (Montani 2020, p. 187). It is commonplace in the history of philosophy, following Aristotle's model, to distinguish between 'sensual' or 'experiential' imagination, understood as "the capacity to create the inner sensation of perceptual or kinesthetic experience" (Gosetti-Ferencei 2018, p. 8) and a 'deliberate' or 'cognitive' imagination, involved in mental processes in a representational sense. The interactive aspect of imagination is concerned with what the imagination 'does' rather than what it 'is'. In Montani's words,

> The imagination feeds on the world-environment, thanks to the fact that it opens spaces of play linked to the identifiable salient affordances in the world-environment. (...) This interactivity is not simply free play, it is also a way of provoking the world-environment, an energic way of uncovering the hidden virtualities: the supervenient affordances (Montani 2020, p. 192).

The 'sensitive' and 'intelligible' character of the imagination is subordinate to the encounter between subjects, their sensorium, the environment, and its affordances. The interactive imagination is therefore both receptive and active, producing but at the same time absorbing information. In our case, subcultural subjects' imagination is actively guided towards possibilities that would satisfy their desire for music. But interactive imagination is also determined by an ecology of aesthetic-material forces and features, which direct its conduct. At the same time, the imagination is receptive to the *habitus* which frames encounters with these objects, as well as generating alternative and unusual practices. The concept of a "space of affordances" (Gallagher, Ransom 2016) is useful in showing how the setting of an action involves not only the materiality of things, but also a series of habits, skills, and customs that "constrain the affordances presented in any environment" (Gallagher, Ransom 2016, p. 341). The effects of habitual engagement with an artifact determine my ability to grasp possible relationships with it. However, it is precisely through a perceptive-motor relationship with the compositional material of an artifact that the imagination can propose reconfigurations of these habitual uses. Malafouris discusses "material imagination", focusing on the enactive character of imagination; "The things through and with which we think and create" (Koukouti, Malafouris 2020, p. 31) act as a continuous stimulus for the imagination. While manipulating an existing technical object, jazz enthusiasts were able to imaginatively conceive of a new medium, not yet completed but almost-present. They saw in X-rays the possibility of transporting music. I argue that all artifacts possess a certain indeterminability derived from the vitality of the matter of which they are composed, and that this vital matter intra-acts with the imaginative process of the subjects involved. A new refashioned artifact is produced together with a new subcultural subjectivity. Finally, this intra-active process is *situated*: it develops in a specific historical and socio-cultural context. Without a situation of "creative constriction" (Hagen,

Denora 2012, p. 441) resulting from Russian censorship, the use of X-ray plates to transport jazz music would not have been thought up, and this specific latent quality of X-rays would never have been materialized.

Conclusion

This article has discussed the case study of bone music production through a manifestly interdisciplinary theoretical approach. This has presented an opportunity to study subculture, their development, and related practices from a mediological perspective. Subcultures often arise around musical styles, specific objects, or counter-interactions with the media. Onto this mediological investigation, I grafted a series of conceptual tools concerning agency and the latent potentialities of matter. This theoretical shift – far from an impromptu parenthesis – provides a keener insight into the processes of creation and individuation of objects and subjects in a given subculture. The creation of new material objects shapes social practices, and, at the same time, socio-cultural conditions more or less actively encourage how artificers and artifacts meet. On the one hand, the history of music on bones tells us about the plasticity of media and their open and indefinite nature. On the other hand, "there are inescapable constraints built into materials" (Adorno 1984, p. 213) that obstruct the complete reversibility of media. Music on bones highlights the link between subcultural subjectivities and the refunctionalization of objects or media; informal practices, tactical action, and counter-cultural attitudes here emerge together and are based on refashioned objects, bootleg recording devices, and the counter-use of technical prostheses. This confluence illustrates how the vitality of matter and the imagination of subcultural subjects are bound together, such that we can discern the plastic and co-constitutive character of subjectivity and mediality. Both receive and influence shape and purpose at the same time.

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