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The Timbre of Trash: Rejecting Obsolescence Through Collaborative New Materialist Sound Production

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1. Introduction

Late capitalist production is highly dependent upon the continuous manufacturing of new goods to be brought to market. The implication of obsolescence plays a key role in this process, as new commodities replace older, presumably less effective products (Slade 69). The modern conception of obsolescence became prominent at the end of the 19th century, as the industrial revolution and mass production permeated most of the Western world. Previous to this time, the idea of conservation and thriftiness was the norm - to dispose of something before it has completely worn out was a sign of wastefulness, akin to the sin of sloth. The purposeful production of disposable goods during this time cleared the way for radical change in the expectations of consumer products, as items from watches to handkerchiefs became more expensive to mend than to discard. Then-prominent economist Joseph Schumpeter took note of this burgeoning process of waste and consumption. Borrowing the term 'creative destruction' from Karl Marx, Schumpeter recast it in a positive light, purporting that obsolescence was beneficial and necessary to the expansion of industry - an assumption that echoes to the present moment (Schumpeter 82).

The field of digital audio devices is not immune from the process of obsolescence, and falls in line with the production of other technological commodities, whose manufacturers seek to drive trends and increase consumption of their products. Many audio goods are often produced as essentially disposable items with little regard for sound quality or long-term use value. The manufacturing conditions of these products are similar to those of major electronics companies, in that they are often produced in conditions that are environmentally destructive and socially exploitative. This offers up ethical questions for sound artists whose practices often involve technologies that demand consistent hardware and software updates to remain current. How can sound practitioners account for this tacit contribution to the detrimental effects of obsolescence involved in the tools of their craft?

I offer that new materialist philosophy affords a perspective on the physical world that can shift understandings of technological tools from being objects vulnerable to obsolescence and disposal, to ones of self-reflection and respect. Key to this perspective are the views of three central authors in the field: Karen Barad, Rosi Braidotti, and Jane Bennett. In this text, I will be drawing from these authors and comparing aspects of their work to the practices of selected electronic sound artists. In brief, Karen Barad offers an insight on matter that understands the ontology of the physical world as being made of phenomena, not particles. Her conception of objects complicates the nature of physical boundaries, rendering them as porous and active. In such a cosmology, the borders between humans and objects become moot (Barad 136). Portions of Rosi Braidotti's discourse on materiality extend this

permeability to the 'natural' world, considering technological systems as the ecology of modernity. In other words, technology *becomes* nature, and is understood to include wider systems of power and culture that are embedded in technological objects (Braidotti 64). Jane Bennett's conception of vital materiality extends the Victorian notion of an immanent life force within physical things, offering a way of thinking about non-human objects that considers them part of the cycle of life and, in a broad sense, as being 'alive' (Bennett 17). Collectively, these perspectives contribute to an understanding of technological objects that puts them on a more equal footing with human beings, making them more difficult to be considered obsolete and disposable.

For electronic musicians, this re-configuring of perspective can be applied to technological sound objects through artistic practice, changing their operation and meaning. The following presents five sound practitioners, who exhibit aspects of new materialist tendencies towards obsolete or disposable objects in their work. This examination begins with Reed Ghazala, whose seminal practice of 'circuit bending' envisions technology as a part of the natural world, and technological objects as quasi-living things, capable of creative collaboration. The view of technology as inhabiting the effects of larger socio-economic processes is further explored in the practice of Curtis Rochambeau, who utilizes the disused practices embedded within medical equipment as partners in his musical creation. The lively agency involved in the process of material decay is also examined in the disintegrating tape loops of William Basinski, and the cooperative sonic dissolution of disposable household goods that Scott Smallwood and Stephan Moore perform. Finally, Suzanne Thorpe introduces a more measured approach in considering the animal-human boundary of her sound art practice.

2. Qubais Reed Ghazala

American musician Qubais Reed Ghazala is widely known as the originator of an informal practice that embraces obsolescent technology as a sonic raw material. Commonly known as circuit-bending, the method developed by Ghazala can be used to transform disposable or disused electronic objects into electronic musical instruments. This is accomplished by removing the device from its case and deliberately shorting parts of the circuit, while listening to the results. When an interesting effect is found, the short is noted and then later permanently re-wired, resulting in unique bespoke musical instruments drafted from mass-produced devices.

Ghazala stumbled upon the technique as a teenager, when a small open-backed amplifier shorted out onto a metal drawer and began producing unusual sounds. He became fixated on producing the shorts himself, and the amplifier was soon remounted into a larger enclosure and expanded with components pulled from any source he could find. This original circuit-bent object eventually became an elaborately constructed sound-maker in a custom-made cedar box (figure 1). Ghazala describes the original impetus for the craft as one directly related to his social and financial status at the time. Being underage and without the funds to purchase a synthesizer, he had to rely on the self-creation of sophisticated sound technology via discarded or extremely inexpensive materials.



Figure 1: Original Circuit-bent amplifier (photo courtesy of Reed Ghazala).

Ghazala positions the development of the process as one that is based on a reciprocal ecology between human beings and things: that it is within human nature to "musicalize" objects. He likens this to coconuts washing ashore on a hypothetical deserted island. When found by human beings, these objects can be made into all manner of musical instruments depending on the identification of the physical sonic potentials of the interaction between the object and the human being; a coconut can be fashioned into a percussion instrument, a wind instrument, etc. depending on how one imagines an interaction with it (Ghazala 100). He extends this analogy to electronic waste products as well:

Our society's electronic discards, like coconuts fallen to the sea, collect at the high-tide lines of garage sales and flea markets, second-hand shops and garbage bins. ... These circuits are coconuts of our island. Adapt the coconut, adapt the circuit. (Ghazala 100)

Ghazala likens the castoffs of decades of obsolescence-driven technological production as the byproducts of the ecosystem of modernity in which human beings find themselves. In this context, the conversion of obsolete objects to personal, creative ends is like the adaptation of any organism to its environment.

In her text *The Posthuman*, Rosi Braidotti exhibits a similar perspective. She projects a view of the material world in which self-organizing, living matter is fundamentally entangled with non-living matter, compelling an understanding of technological and informational systems as a relational part of that assemblage (Braidotti 64). In this sense, technological objects and

systems become part of what gets considered as environment; technology becomes the new nature. This perspective questions predominant utilitarian views of commodified technological objects: "The technological apparatus [becomes] our new 'milieu' and this intimacy is far more complex and generative than the prosthetic, mechanical extension that modernity had made of it (Braidotti 83)." This understanding of the electronic object as inhabiting a space that is caught up within the same systemic process as all living things, not only imparts a kinship with the seemingly obsolete, but also the consideration of technological objects as being imbued with a sense of living animus.

The inclusion of objects within the ecological sphere also aligns with Jane Bennett's conceit of 'vital materialism', which encourages a strategic partial embrace of anthropomorphism to project a sense of 'living thingness' into inanimate objects. This is done in order to counter the tendency for humans to think of themselves as being separate from the ecological, political and economic systems in which they live (Bennett xvi). Her projection of human qualities into things is not meant in a strictly literal sense, and its purpose is not to promote obscurantism or to replace scientific inquiry. It is done, in part, as an effort to expand the understanding of humanity to a more systemic perspective that positions objects on a more equal footing with humans. By doing so, we can begin to include material objects, including technological waste objects, within our own personal sense of self-interest: our fate becomes bound up with theirs (Bennett 12). With such a view, the conception of casually discarding an often fully-functional piece of machinery for an improved one can take on an aspect similar to that of disposing of an old friend.

Ghazala's comments on his work seem to resonate with this inclusive understanding of electronic objects, identifying the physical limitations of certain circuit-bent devices as being "living instruments" (Ghazala 101). By this term, Ghazala is describing the tendency of the operations of some circuit-bent instruments to change over time and even to cease functioning. This is due in part to the bending process, which re-wires circuits in ways they were not designed to function, often putting extreme strain on the components. He describes this tendency in a way that includes human beings in its definition:

You and I are living instruments. We accept that our voice will change, become deeper over time, quieter in the end, and will some day fail. ... Some bent instruments do age and sound different as time passes, as they consume their accelerated timeline. The instrument grows a little older, moves a little closer to early demise, every time you turn it on. Don't play it to save it? Play it to let it sing? (Ghazala 101)

Ghazala's anthropomorphic projection here seems to impart a sense of empathy and concern for the objects' wellbeing, juxtaposed with his desire to experience the sounds they produce. This sense of projection and empathy is also reflected in his conception of the interaction between circuit-bent instruments and humans via direct connection with the physical circuits themselves. Because the human body has resistance properties, it can itself act as a component in a circuit. By deliberately building in metal 'contact points' in a device, sound can be altered by merely coming in contact with them. This touch-based interaction can be further expanded by contact with other humans, creating a sound situation that can be performed by touching other people as well as the technological object. Ghazala describes this extended instrument as a 'BioElectronicAudiosapien', or 'BEAsape' (Ghazala 101). He portrays the experience of participating in these types of human/object interactions as one that

is collaborative and mutually transformative: "I was changed and the circuit was changed, and I had trouble deciding where each of us began and ended. I simply concluded we were something new, and we were one (Ghazala 101)." This body contact experience, for Ghazala, is ultimately one that troubles easy boundaries between objects, bodies and technological waste. His understanding is one that compels us toward a conception, through sound, of a more entangled place in the continuum of objects and being.

The consideration of a diffuse boundary between individual objects and subjects lies squarely within the wheelhouse of posthumanist theorist Karen Barad. By her lights, material objects are not fixed, stationary, separate entities, but a continually shifting result of constant action. Barad describes matter as "...a dynamic and shifting entanglement of relations, rather than a property of things (Barad 224)." This is not merely metaphorical, but quite literally a condition of materiality. Drawing on particle physics, Barad demonstrates that the hard edges humans perceive to be inherent of individual objects, are in actuality more porous than might be expected. Upon close inspection, the clearly defined edges that humans perceive to form the outlines of physical things become diffuse. Specifically, they begin to exhibit the same diffraction patterns that particles can produce when behaving as waves. In other words, the 'hard edges' of material objects when directly observed, enact wave-like behavior. The boundaries of objects reveal their ontological nature as phenomenal, not stationary. Their hard edges blur to an energetic, permeable flux, that bears striking similarity to the porous relationship between objects and humans that Ghazala's BEAsapes exhibit (Barad 156). In this way, Ghazala's practice embraces the technological as part of a natural habitus that includes humans in a shared discourse, where the separation between the physical object and the human subject is called into question.

Inhabiting this sort of sensibility compels an understanding of technological objects that belies any sense of obsolescence in favor of a more equitable, respectful placement of objects within the continuum of beings. New materialism extends the concept of shared physicality as one that is also expressed in expanded material assemblages that include the socio-political and economic spheres as well. As matter is enacted by the differential comingling of varying states of phenomena, political and economic power can likewise be seen as being produced by a differential comingling of bodies and objects on a larger scale. Like objects, power is also a 'mattering': a doing that is physical as well as social, a "dynamic and shifting entanglement of relations, rather than a property of things (Barad 225)."

Within this explication of power, we can see similarities to Marx's construction of the reified body. That is, that the value embedded in commodities is present within the objects themselves as a sort of crystallized form of labor power (Wendling 118). This identification of a commonality between human and non-human objects via agency, allows for the consideration of commercially-produced objects to be sites where human subjectivity embeds itself within the non-human physical world. The scope of a new materialist conception of reification however, goes far beyond Marx's interpretation of capital. Where Marx is solely concerned with economic issues, new materialism urges us to push past the compartmentalization of specific areas of interest. Instead, the frame is widened to bring into view the recognition of a vast system of entangled interactions between subjects and objects, producing power relations as they produce physicality. Seen in this way, the actions and materialities of bodies, labor, and objects can be considered as part of the technology of capitalism in further relation to the totality of interconnected cultural and political systems (Barad 237).

3. Curtis Rochambeau

In their interactions with mass-produced electronic audio technology, musicians often explore and alter a playing field that is not of their own devising. As such, they are in effect working and improvising not only with the objects, but also with the cultural and functional assumptions of the use values embedded in them by their designers (Fenn 71). Like the material in which they are ensconced, these vestigial intentions can play a role in the development of aesthetic.

This work of Springfield, Illinois-based noise musician Curtis Rochambeau echoes this conception. Performing under the moniker [view], Rochambeau creates dense, often punishing sheets of noise. In his performances, he uses a variety of electronic devices to make sound, although many of them were never designed for music production at all. Specifically, Rochambeau uses midcentury electronic medical equipment such as nerve and muscle stimulators to create his unique soundscapes. His fascination with the devices was derived directly from the perception of an embedded past in their form and operation: after receiving an old piece of text equipment from his uncle, Rochambeau immediately began experimenting with the generated voltages to alter the sound and function of his synthesizers. Rochambeau was taken by the heft and history of the unit, and was soon scouring online auctions to buy other obsolete equipment to alter his sounds (Tammik).

Eventually, instead of using the machinery to control the modulation and frequency of his synthesizer, he plugged the output of the medical units directly into the audio inputs of his mixer. The medical equipment was designed to send electrical impulses of over 100 times stronger than standard audio signals. This complete mismatch of expectations and cultures of practice embedded in each technological object, produced sounds totally different from those of his audio generators. In addition to the extreme voltage difference, the advanced age of the components in the machines caused them to behave erratically, changing their activity over time and in response to their surroundings.

Like Ghazala, Rochambeau imparts a perception of anthropomorphic agency to the actions of the failing, misused equipment; seeing them as friendly co-workers:

[They] have a mind of their own...I can leave it on...go putter about and come back and it's something different. I find that endearing. It is kind of like a trusted bandmate. They are going to do their thing, while I'm doing something else, and it will continue to work itself out. (Kaiser 122)

For Curtis Rochambeau, the traces of cultural and functional perceptions imprinted in his technological objects become the raw material with which he molds his aural aesthetic. It is very likely that, had the extreme high voltage not already been part of the physical makeup of the medical equipment, he would never have added a crucial part of his aesthetic to his practice. The actions of the misused equipment become a vital part of his creative engagement, enacting an anthropomorphically cooperative assemblage in which human intention is on more equitable terms with physical objects.

The conception of non-human objects inhabiting and exacting physical action in the world is also a central tenet of Karen Barad's perspective. If matter is ontologically based on activity, then it enacts influence on, and in relation to everything else. In other words, objects have agency. Extending the understanding of the agential association between objects also changes the perspective of ownership and utility in terms of the relationship between humans and the material world. Collective agency as seen in this manner transforms objects into doings, calling into question their status as inert possessions and bringing to the fore an acceptance that agency not just human. This is not to say that humans do not have a significant part to play in the physical world, but the role they do play should allow for a conception of the human body as but one site in a constant co-construction of a materiality with fuzzy borders (Barad 172).

4. William Basinski

As was the case for the voltages in Curtis Rochambeau's obsolete equipment, the potential for audio technology to impart its own agency on sound and meaning can have a drastic effect on human creative practice. In William Basinski's case, this agency played a crucial role in a years-long process of preservation, memory, and decay.

In the early 1980s, William Basinski moved from his native Texas to New York City, where he began a practice of experimenting with a variety of methods of recording onto handmade analog audiotape loops. With limited funds, Basinski purchased inexpensive tape recorders and began making tape loops from a variety of sources, bouncing the recordings among various recorders to create endless layers of dense sound. The process he describes is one that plays with a personal understanding as well as a sense of agency imparted to the materials and technologies that he utilizes. He describes the unexpected qualities of working with physical loops of tape:

...there's something about the sound of analog tape ... they have wow and flutter. Sometimes, ... if it gets a little bit loose, ... there will be a little bit of a fade out or a drop out ... it might even pick up the reverse bit that's on the other side of the tape, which I always love.... Throw in a little bit of a surprise. (Basinski)

He highlights the lack of his absolute control in the process as being 'exciting' and that a major point of the work is a sort of collaboration with the machines themselves, pointing out a milestone in his technique when he "...learned how to stay out of the way and see what happens (Basinski)."

By the end of the decade he directed his efforts elsewhere, and put the loops away, storing them in take-out boxes, ice cream containers, whatever they would fit into. It is in this manner the loops remained for years until he decided to archive them into a digital medium. During the archival process Basinski noticed that because of the advanced age of the audiotape, the iron oxide particles embedded on it were dropping off as the loops were being played. Each time the loop went around, the tape lost a bit more of its magnetic material and some of its sound as well, fading away until he was left with a clear plastic tape that transmitted only silence (Gough 94).

Through the process of physical decay, Basinski gained a new understanding of the materiality of the media itself, as well as its potential effect on his sound practice. The media had exhibited another form of agency he hadn't count on. This change reflected not only his own personal sense of preserving his auditory expression through digitization, but how the material agency had recombined with the physical traces of his previous creative actions. Over time, the material agency of the magnetic tape had formed a new type of work, whose operation was not entirely human, nor entirely machinic.

5. Evidence

Similarly, the work of American performance and recording artists Scott Smallwood and Stephan Moore also involve the location of agency in physical objects. Performing under the name Evidence, their piece *Losperus* relies on an active layering of sounds on top of one another in real-time performance. The material nature of the objects work to produce sound that is integral to the performance of the piece. But unlike William Basinski's work, *Losperus* directs its focus not at a long-term sonic decay that animates audio media, but the use of audio technology to reveal the hidden sonic potential of common mass-produced household goods.

Smallwood and Moore describe the piece as a "performance of unstable sound sculptures, fashioned improvisationally from discarded household items (Moore and Smallwood, "e v i d e n c e")." Unstable is a very gentle way of describing the action that takes place during the performance: two plastic oscillating fans are placed on a table, their front guards are removed, and they are turned on. The spinning plastic blades then become the proving ground for a host of items the duo brings into their proximity. They coax the objects to touch the moving blades with various levels of force, producing sound that is directly related to the interaction of the manufactured materials along with the those made by the human performers. The results can be wildly unpredictable, with objects often being shattered, or cast into the air and into the audience.

In addition to the acoustic sound of the kinetic material confrontation, the duo use specialized microphones that allow a highly magnified, more proximal sonic interaction with the objects. With the microphones, a delicate layer of sonic world is exposed, allowing a glimpse into the interplay between objects on an intimate level, while being constantly on the verge of a cacophonously forceful decay into explosive chaos. This tension typifies the experience: between objects and other objects; between microscopic sound and destructive force; between the performers and both of these systems; and finally, between the audience and all of the foregoing. Scott Smallwood describes the use of the microphone as a vital element to the piece:

The mic ... adds an additional layer ... it's putting a microscope on it ... I think that layer is actually essential because without that layer, it relies solely on what I'm seeing from my vantage point... (Moore and Smallwood, "Personal interview")

Stephan Moore also describes the microphone as an investigatory tool into the miniature sonic world of the objects in the performance:

...we're able to get a microphone into the 'scene of the crime' and really crank stuff up ...getting in really close so that when you sort of 'zoom out' from it, you see the table and you see what we are trying to do... (Moore and Smallwood, "Personal interview")

In their performances, Evidence evokes an approach to industrial objects that inhabits the same kind of wonder that one might contemplate a natural scene: the humming of a particular HVAC system becomes as serene as the sound of a placid beach. Jane Bennett refers to these moments of cherished wonderment at everyday objects as 'enchantment.' She describes the practice as a sort of quotidian sense of sublimity, enabled by the troubling of boundaries between objects and humans to act as a point of entry for reintroducing the familiar with a sense of the profound. To be enchanted is "to be struck and shaken by the extraordinary that lives amid the familiar and everyday (Bennett "Enchantment" 4)."

This feeling of enchantment also invites a certain sense of anthropomorphic individualism to be imparted upon physical objects. Stephan Moore evokes a similar sense of individual history attached to many of the objects that are involved in the enactment of *Losperus*:

I feel that these objects, they've already usually had nice long lives. You can tell, especially with the fans, there is a nice layer of dirt and dust on it. ... So these objects get to have a second life. To me that just makes the thing more meaningful ... (Moore and Smallwood, "Personal interview")

The extension of a personal past to the objects used in *Losperus* also tends toward the consideration of these materials as agential beings in a collaborative performance, at times even projecting an anthropomorphic sense of animal action to them. Stephan Moore recalls a time when, in creative exploration, he placed an oscillating fan on its back and turned it on. He describes his perception of the object as feeling as if it was less mechanical and more organic, almost alive:

...it didn't seem as mechanical to me. It seemed almost like a newborn baby laying on a table who doesn't really know how to use its arms and its legs yet. Everything is just kind of moving and twisting in the way things are because they're not totally in control. I got this feeling that I was more in the presence of some small animal or some small human even. (Moore and Smallwood, "Personal interview")

This anthropomorphic projection also points to the enactment of a sort of shared agency between the performers and the objects, cultivating a sense of uncertainty relating to the perceived 'will' of the objects used in the piece. In this way, their actions give a voice to obsolescent disposable commodities, allowing them a new type of collective, collaborative agency, as Moore relates:

...it's also this sense of like 'I'm going to like try something, and nobody knows, including me, what's going to happen'. ...there's...these real questions being asked of these materials in terms of how they will perform - what the behaviors will be, what

the sound results are going to be and that we're all going to kind of figure that out together and it's actually happening in real time ... (Moore and Smallwood, "Personal interview")

This type of shared sonic and physical journey with objects into the unknown has some correlation with the active physical universe as described by Karen Barad. The differences in the active physical states of the human and non-human objects in Evidence's performance situation are directly tied into the resultant sound. Although the microphones alter the scope of the framed context, for the spectator the sound produced is deeply linked to the actions of the objects.

It is important to point out that these interactions are not always explicitly visible or intentional. Scott Smallwood points out the shared sonic experience as ultimately aimed toward musical ends. Although the physical action of their performances has the potential to be perceived as a destructive spectacle, there are subtle musical nuances that play out in their performances, like the interactions between members of a traditional instrumental ensemble:

I think its music. On some level we're musicians and yes, those things are all part of it, and there are subtle layers, there are hidden layers, we're definitely acoustic ecologists at heart in many ways, but on some fundamental level we're musicians, and what we're doing is making chamber music. (Moore and Smallwood, "Personal interview")

6. Suzanne Thorpe

Other tempering perspectives are also at play. Musician and sound artist Suzanne Thorpe has a history of work that questions borders between what it means to be an 'object', 'animal' and 'human.' For Thorpe, sound is not only a desired end result, but a part of a larger process involving intersecting systems that include the sound produced, the place it is enacted, living beings, means of production, and the materials involved in its creation.

Her sound installation *Listening Is as Listening Does* mimics the systems that certain animals use to interact with the material nature of their habitats. The piece uses echolocation, a process native to animals like bats, that projects sound into a given area and then derives information from the reflected echoes to construct an understanding of the physical nature of the immediate environment. Instead of navigation, however information from the reflected sound is used to drive changes in the audio sent back through the speakers in response to the material environment. In this way, the piece also works to promote an understanding of the material world that obscures boundaries between what we consider human, animal and object.

Although Thorpe works in close alignment with non-human objects and beings, it does not follow that she considers the agency of all parties involved to be completely leveled. She is careful to point out that she does not consider what she does collaboration, but a co-mingling of systems:

The term collaboration can be troubling because that implies that there is a will or willingness of these supposedly inanimate objects to be collaborating. ... I use co-operation. I often will put the hyphen in to re-emphasize my operation and the operation of other entities - its system with my system. (Thorpe)

6. Conclusion

In conclusion, the artists featured here differ, often vastly in their methods, trajectories and creative output. The contrast between William Basinski's personal sonic explorations and Curtis Rochambeau's embedded cultures of electrical potentialities, for example, are quite distinct. What they have in common, however, is a prevailing sense of the object as a shared partner in the creative act that compliments the boundary-challenging discourse of new materialist thought. From Evidence's perception of fans as living things, to Reed Ghazala's human-machine morphic BEAscape, these artists rely on their material counterparts for vital support in the crafting of sound, often enacting perspectives that countermand the drive for obsolescence that has for so long been a part of contemporary culture. In aligning these and similar actions with the specific philosophical perspective of new materialism, this sense of creative resistance to obsolescence through sound can be augmented by an ethical framework that may act as a catalyst for further creative acts.

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