UNIVERSITY OF CALIFORNIA, SAN DIEGO

High Static, Dead Lines:
Sonic Spectres & the Object Hereafter

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy

in

Art History, Theory, and Criticism with a Concentration in Art Practice

by

Kristen Brooks

Committee in charge:

Professor Norman Bryson, Chair
Professor Brian Cross
Professor David Serlin
Professor Lesley Stern
Professor Mariana Wardwell

2017

The Dissertation of Kristen Brooks is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

_____

_____

_____

_____

_____

Chair

University of California, San Diego

2017

Dedication

With special thanks to those who have read and edited things, travelled with me (and put up with me), encouraged me and provided opportunities and new connections—each playing their own wildly different forms of mentorship: Bernie Brooks, Dave Tompkins, and Steve Aldana. With thanks to faculty who have worked with me closely or have had an especially great impact on my creative and critical processes: Stanley Rosenthal (RIP) and Evan Larson at Wayne State University; Daniel Wojcik at University of Oregon; Norman Bryson, Mariana Wardwell, Lesley Sterne, Brian Cross and David Serlin at UC San Diego. My colleagues at The Henry Ford, who think *through* things with me every day, and whose support and belief in me along the path to becoming a professional curator has been paramount: Marc Greuther, Lisa Korsetz, and Jeanine Head Miller. Shout out to Mark Fisher in the hauntological afterlife.

Epigraph

Sometimes the dolls of the Hopi Indians of New Mexico have heads
which represent, schematically, a medieval castle.
I shall try to enter that castle.
There are no doors; the ramparts have the thickness of a thousand centuries.
It is not in ruins, as you might think.

Benjamin Péret

Table of Contents

Vita

2006	Bachelor of Fine Arts, University of Windsor
2009	Master of Fine Arts, Wayne State University
2011	Master of Science, University of Oregon
2013-2017	Curator of Communications & Information Technology, The Henry Ford
2017	Doctor of Philosophy, University of California, San Diego

Publications

"Squaring the Hypothetical Circle: Getting around Mathematica," *The World of Charles and Ray Eames*, Barbican Art Center, Thames & Hudson / Rizzoli, 2015.

"Joey Ruiter: Knowing Objects," *Michigan Artist Series* catalog essay, Grand Rapids Art Museum, 2014.

"The Fox Helps Part 1," "The Fox Helps Part 2," *The Fox,* Werkplaats Typografie, 2013.

"Turn Me On, Spaceman" *Subterreana: Unweave Journal*, Center for Curatorial and Discursive Practice: University of California, San Diego, 2013.

"The Gizmo and The Glitch: Telepathy, Ocular Philosophy, and other Extensions of Sensation," *Ashgate Research Companion to Paranormal Cultures*, Ashgate Publishing, 2013.

Spook Bundles: Salvaging Substance from Paranormal Cultures. Unpublished MS in Folklore Thesis. University of Oregon, 2011.

ABSTRACT OF THE DISSERTATION

High Static, Dead Lines:
Sonic Spectres and the Object Hereafter

by

Kristen Brooks

Doctor of Philosophy of Art History, Theory, and Criticism
with a Concentration in Art Practice

University of California, San Diego, 2017

Professor Norman Bryson, Chair

High Static, Dead Lines: Sonic Spectres and the Object Hereafter provides a textual expansion of ideas explored in Kristen Brooks's practice component of the PhD in Art History, Theory, and Criticism with a Concentration in Art Practice.

The condition of the "sonic spectre" is a form of "thickened" media or material culture with connections to sound theory and history—an invisible layer of noise that results from the self-obfuscating conditions of retreat found within the history of technological objects. The degradation of use-value, disconnect of

knowledge—the use and *misuse* of obsolete technological objects and media formats—are recurring examples that amplify the presence of such spectral conditions.

Historical artifacts, architecture, and recollections are invoked as primary research texts, exploring the intertwined boundaries between material culture, sound, and folklore. Methodologically, the essays, object lessons, and fictocritical interludes are arranged here to evoke a network of ley lines for the sonic spectre to travel along—and in-between. Each section takes on a theme: traditional haunting, sky borne frequencies, interactions of sound with the body, manifestations of spectrality in media and broadcast, performance rituals as contamination rituals, and finally—landscapes and their sonification.

The objects and stories themselves are varied, spanning the mid-19th century to present day. They touch upon military, communications, music, and cultural history—examined when appropriate through lenses of media archeology, folklore studies, landscape theory, the Anthropocene, Thing theory, and object-oriented ontology. Connectivity between these essays is found in the overarching presence of sound—audible sound, microsound, self-generative sound, the sonification of objects, remembered sound, and the contentious territories of supernatural sound.

Introduction

i. Summoning the Sonic Spectre

When I was eight-years-old, my mother and I lived in a house that was supposed to be haunted. Two weeks after we moved in, I developed a double-dose case of chicken pox and the measles. During my month-long quarantine, I was often left alone in the house at night when my mother left to start her nightshift as a waitress until my uncle came home from the brass factory. There simply wasn't enough money for a babysitter, and they likely thought I would sleep through the changeover, which I rarely did. The calming din of Detroit's WOMC-FM, "Oldies 104.3" was always left on in the living room as surrogate comfort in case I woke up. Underneath the warm radio static, it was the indisputable sound of silverware rattling away in the kitchen drawers that was the usual culprit for my awakening. Other nights, the phone rang for what seemed like hours, but whenever I picked up the receiver, the line was all dead air.

Late one night, bored with weeks of forced bed rest, I decided to brave a walkabout through the house. "I'll Turn to Stone" by the Four Tops playing on the radio as my soundtrack, imprinted strongly by the events that would follow. Knowing that I was alone in the house, I was able to act out on a compulsion to revisit the contents stored within the underbelly of an old wooden bench in the entry foyer. It is important to note something here: when we moved into the house, we essentially moved into a mausoleum. The house belonged to my mother's new boyfriend—a schoolteacher who worked in a remote mill town nine

hours north of us. His parents had died in quick succession, and he had never made the effort to deal with the estate sale. So the house on Elizabeth Street was full of the stuff of everyday living—furniture, kitchenware, a piano, books. There was moldering food in the refrigerator, expired medication in the bathroom cabinets, and an ancient load of laundry left in the washing machine which had compressed into a uniform cylinder of rotten, stinking fibers. Whenever we used the machine to wash our clothes, we contaminated ourselves with the sharp scent of mold, commingling ourselves just a little bit more with willfulness of the architecture. The house had been shuttered for at least five years, and was unlived in for a decade until my mother's boyfriend handed us the keys and we crossed over its threshold.

So, when I say that "I rifled through the bench's contents," I mean that I carried this action out under the sneaking spirit of discovery that colored life in that house, living alongside the *unheimlich* traces of someone else's life, always feeling like a guest. When I first flipped open the hinged seat of that bench, I found stacks of yellowing papers and sheet music copied in the old purple ditto ink style. The real object of my obsession, however, was a weird record stuffed between the pages of a self-help magazine from the 1960s. It was thin—as flexible as the magazine itself. I was compelled to rip the record out along its perforated edge and carry it to the toy turntable in my bedroom. As a toddler, I was infatuated with the country music my uncle played, and would try to make his vinyl resound by spinning them on one finger, using the other finger as though it were a record stylus, singing made up lyrics to "Your Cheatin' Heart" while the

adults laughed. By now, I was old enough to know that I needed a record player to release what was hidden in the grooves. I needed to hear what was on that record, and I finally had the privacy to do so.

Finding a music cabinet in the parlor, I put the thin piece of vinyl on the turntable and dropped the needle. The scratch and pop that followed shifted my state of mind to prepare for whatever the record contained, but I was not equipped to process what happened next. The sounds bleeding out over the speakers sounded demonic, like the beginning of Black Sabbath's "Iron Man," which my older brothers (then living with my father) would play at full volume to terrorize me while they flicked my bedroom lights off and on for an extra-distressing strobe effect. In retrospect, this is hilarious. But then, being left to my own devices in an apparently haunted house was preferable to the extreme teasing I suffered under the rule of my hesher brothers. The slow… chanting… voice of the man on the flexi-disc was slurring out incantations and commanding me to do things in slow motion: "Lissstennn nnnowww… Rrrreeelaxxx yourrrr thhhhoughtsssss…." Stuck in place for an eternity, I suddenly regained the necessary footing to sprint towards the bedroom and dive under the sheets, putting maximum distance between myself and the sounds coming from the record cabinet.

The record in the magazine was of course a 45RPM disc—but the turntable was set to a speed of 33 1/3. A simple enough technical fix—but it seemed as though a passé archetype born out of a horror film was being allowed to unleash something in the house, the recording giving it a space to become more concrete

than anyone would ever want it to. Set to the right speed—under those circumstance, in that house—the exchange of sound in space might have felt the same. I'd learned a lesson early: in playing a record backwards, letting a platter of lock-groove vinyl loop, testing out the variability of songs playable at more than one speed, the perfectly-timed skip—these things all "thicken" sonic media. They can create the feeling of sound coagulating into something protoplasmic, primitive sites for imagined callings-up to manifest with a greater efficacy. Several stories within this book are rooted to the Elizabeth Street house in rural Ontario, but this one is necessary to lay the groundwork for the idea of the "sonic spectre."

Finding ways to allow our media to haunt us is clutch to understanding it. Embracing these sorts of "thick moments" bring about subjective emotional responses. Reconnect the disconnect. Historically, soundwaves are the medium that joins ethereal and real dimensions, acting as unnerving translators capable of carrying messages between the living and the dead. "Media always already provide the appearances of spectres," according to Kittler.[1] An offhand remark made by Thomas Edison went too far: an alternate use for his phonograph might be to record the last words of the dying, using cylindrical wax tubes to capture the voice that precedes the death rattle. William Watson plucked fur from his beloved taxidermied pet cat to use in his electrical friction machine. Cat static. Emergency telephones, buried in coffins. Phobic lifelines for premature burials. We listen to

[1] Kittler, Friedrich A. *Gramophone, Film, Typewriter* (Stanford, Calif: Stanford University Press, 1999), 12.

the laugh-tracks of people who are long gone. *This is the habitat of the sonic spectre.*

The manifestations of the sonic spectre are hitched at the hip with the history of objects. They may take the form of innocuous wooden sticks planted near a lake, revived a century later through sonification. Or an entirely different stick, pounded upon the earth, resounding with abject affect, laying down an essential experience for the co-inventor of the Moog synthesizer. The sonic spectre may latch itself to miniscule and obscure pieces of material history now lost to us, only summoned into the present by way of description. They may form narratives around commercially available acoustic devices, "made strange" through the piggybacking of supernatural interaction. Architecture may swallow up its own insidious sound history, hiding it in plain sight: we might reactivate it by yelling out an infinite echo against the ceiling of an abandoned computer factory, or walk through a room that once hosted musical séances. Or, we might choose to turn ourselves into broadcast ghosts by swallowing a radio pill, allowing our voices to rocket through the air on beams of MASER light, or hijacking a television station to terrorize a city.

The entries found within this book are not intended to be generalities of "the haunted," and they do not dive deeply into the critical densities of paranormal culture and the nature of belief—these things have been written about enough over the last decade by myself and others, elsewhere. There is also a danger in forcing any and all "serious writing" about spectralities to act out against the polished epistemologies of hauntology, theories of capitalism,

feminism, psychoanalytics, and so on—or, on the other end of the spectrum—to reduce the power of the spectre (symbolic or actual) by filing its presence under "oddities, the arcane, and weird metaphysical shit." Of course, all of these vetoes listed above will appear throughout this book as contradictions, but will not overtake or posit that any one ontology is superior to any other. This is, in fact, the only paragraph in which you might find a word like "epistemology," but this should not indicate that this is a less serious study of the topic at hand. This book leans more towards the poetics of wild folklore than rational *academese*, alternating between the structures of personal narrative, historical encounters, and the essay. Sometimes, the two modes blur together as fictocritcism. The essays, object studies, autobiographical entries and visual expressions are arranged here to evoke a loose composition—a network of ley lines for the sonic spectre to travel along—and in-between.

The first section, *Dead Lines*, might be thought of as the "OG" approach to hauntings: séances, ghost cakes, and an oddball archive of material evidence where each entry was played a part in a poltergeist case. The second section, *Up There*, rises to sky-born segues with extraterrestrial radios, tree antennas, and stratospheric explorations. Next, in *Frequencies*, soundwaves are swallowed, hacked, beamed, crunched through computers, and used as quasi-fictional lifelines. In *Broadcast*, the ghosts of pure media manifest through televised interruptions with disturbing impacts, are recorded onto tape and tuned in to via textual freeform séances. Section five, *Playing the Spectre,* examines the collision between creativity, performance, and reach of the sonic spectre—within the

exhibitions of the UK collective AUDINT, to hauntological presence throughout the history of synthesized music. And last, in *Anchors*, the sonic spectre is linked to the natural and built environment—listening to the lies of wooden prospector's stakes, and as a perpetual echoes in a dark and storied Canadian forest or in buildings evading death in the Sonoran desert.

ii. Draining Away Opacities

Sometime in the autumn of 2013, just a few months after starting my job as a museum curator of technology collections, I received a garbled sounding phone message. Someone was mumbling something about "got your number from this woman" followed by some guttural chain of sounds in which I was able to pick out "want to donate this cell phone." I called the number back, and DJ "Uncle" Russ Gibb answered. For years, I'd hoped to discover the whereabouts of the microphone from WKNR-FM—the same equipment that filtered the spoken rumor of Paul McCartney's supposed death. But he didn't know. He did however have a 1970's-era suitcase-sized mobile phone that he used to use, and that his roommate—Eric Clapton—in a rage with Gibb, once threw in the Detroit River. Gibb fished it out before it bobbed away, and he said it worked "just fine" once he unscrewed the earpiece and allowed the Detroit River to drain out.

The objects that are under my curatorial care are essentially a huge collection of Latourian black boxes. They exist as physical proof that the more seamless and successful a technology is, the more mystifying and opaque its inner functions become to the everyday user. Objects may develop lives and stories of

their own, but they are self-obfuscating. With unrestricted access to an incredible archive of technology that lives just down the hall from my work office, I labor to reveal resonance within the collections, wringing out forensic-level details in order to broaden understanding and expose impact beyond the allure of sleek shells (or messy tubes and wires). I have immersed myself in the minutiae of systems engineering principles of communications media: variable condensers, polar relays, wavemeters, howl arresters, superheterodyne transceivers, and galena crystals. The challenge of studying the physical history of media, information, and communication is in knowing how to draw its scattered data back together again, and how to weave a story out of it, to make it accessible and interesting—all the while rooting it back to the object in question. Curators collect to neutralize the past, but we also collect the future in the present.

Sonic spectres run rampant through the history of sound, and sonic artifacts haunt daily life at the museum. Out of all of the collections under my stewardship—ranging from histories of computing, television, radio, film, photography, printmaking, and graphic communication—I have had some of the most palpable moments with sound reproduction artifacts. As is evident in the autobiographical recollections that interweave themselves throughout this book, this is not surprising, considering that sound has often served as the catalyst that locks a memory into place. The objects discussed in the chapters that follow vibrate with spooky resonance, although in the oldest instances, they may have been silenced for over a century. There is something not entirely rational about these objects (or maybe it is my own way of thinking about them that is

irrational). They have become, through their transition into becoming museum artifacts, rather continuing their lives as "use-value" artifacts—*more* alive—because in their silence, they seem to hold back secrets. *They are*, and yet, *they aren't*—they are present, and yet they shimmer at the edge of vision like ghosts. Black noise, waiting for someone to pay attention.

iii. Whistling into Walls

The writings of David E.H. Jones, produced within the subfield of sound studies known as "archeoacoustics," are often met with a raised eyebrow. While the study of ancient musical systems within archeological sites is considered legitimate, the idea of teasing historic sound vibrations imprinted on the surface of ancient clay pots, or the plaster trowel wielded by a whistling laborer embossing his song into the walls of a building—these are ideas that are too eccentric for most to take seriously.[2] Arguments against these sonic speculations are rooted in materials-based logic: the absence of the hills and dales needed for a record player's stylus to run through, or the hard science and necessities in the process of creating acoustic data by rearranging metallic particles on a cassette tape by way of electric current. The mechanisms and conditions of imprinting sound onto physical media hold true, despite ambitious hypothetical theories.

---

[2] Jones, David E.H. *The Inventions of Daedalus: A Compendium of Plausible Schemes*, W.H. Freeman & Company, 1982.

Which isn't to say that *some* kind of sound, *some* evidence of the conditions of time and place upon an object couldn't be recovered.[3]

The creation of the "stone tape theory" is often linked to a book called *Ghost and Ghoul* (1961) by Thomas Charles Lethbridge, an archeologist who later abandoned his field to become a full time parapsychologist. His theory posits that stone architecture and natural materials like quartz have the ability to serve as a recording devices, capturing historical traumas that can later be teased out by contemporary bodies, who act as organic detectors, decoders, and amplifiers.[4] Architecture may "give up its ghosts," if only momentarily, and always randomly. For Lethbridge, ghosts are residual recordings of the environment, spectral visions on an idiot playback loop, unaware of their corporeal passing and spectral anchoring within another reality. This theory was exposed to the general public in 1972 when the BBC aired Nigel Kneale's *The Stone Tape Diaries* on prime time television. In this teleplay, characters attempt to force a conversation out from the walls of a haunted castle via a powerful technological intervention. The communication proves to be one-sided, as a complex computer setup, flashing lights, and sonic scream helps to guide the screams of a dying woman out of the surface of the stone and into the room.

The same cacophony of residual voices were addressed in the 19th century by Society for Psychical Research member Sir William Barrett**:**

---

[3] See Feaster, Patrick. *Pictures of Sound: One Thousand Years of Educed Audio: 980-1980* (Dust to Digital, 2012).

[4] Lethbridge, Thomas C. *Ghost and Ghoul* (London: Routledge & Kegan Paul, 1961), 75.

> In certain cases of hauntings and apparitions, some kind of *local imprint,* on material structures or places, has been left by some past events occurring to certain persons, who when on Earth, lived or were closely connected with that particular locality; an echo or phantom of these events becoming perceptible to those now living.[5]

In 1959 the Swedish artist Friedrich Jürgenson essentially established the concept of "electronic voice phenomena," or EVP. The standard story is that after recording birdsong, upon playback, Jürgenson could hear the voice of his dead wife calling out to him, a singular wavelength within the chirpy mix. His paranormal acoustic experiments were some of the first to make use of a commercially available reel-to-reel recorder, essentially transforming it into an electronic channeling device. Miles upon miles of magnetic tape rolled gracefully by with the hope of recovering the fragmented conversations of the dead. Using Jürgenson's methods, Latvian parapsychologist Konstantins Raudive collected over 100,000 recordings using this method, portions of which were transcribed and published as *Breakthrough: An Amazing Experiment in Electronic Communication with the Dead*. All of that time, the sonic spectre was just waiting for recording media to improve enough so that it could be heard—dead chatter running in constant parallel with the sounds of everyday life.

We can stare a little deeper into the granite. While these historical psychical research pioneers and rogue archeologists suggest that rocks can record memory, among common superstitions, there are patterns of storytelling and enactments of banishment that position mineral elements as holding

---

[5] Barrett, William F. *Psychical Research* (Williams & Norgate: London, 1911), 197.

conversational power too. Driving out spirits can be done by way of the kitchen salt shaker, granular protection cast around a house in an unbroken barricade. Scraping brick walls in a cellar to harvest red dust, laid in lines over thresholds. Limestone along with quartz and magnetite have been loosely cited as geological spirit sinks in residual hauntings long before this idea was diluted by the trend in televised ghost hunting. In the 1974 Italian science fiction film, *Morel's Invention*, the shipwrecked protagonist spends the first half of the movie stumbling through a wasteland of modernism, dividing his time between a dust-covered museum built in the Brutalist style with an ominous engine room in the basement, and a desolate outdoor landscape. His clothing is the same tonal range as the scrubby desert through which he shuffles, unnecessary camouflage against the "new people" who suddenly appear. He has a one-way mirror view—he can see them, but they can't see him. He is a residual ghost, scratching out his time in a mirrored reality by making hash-marks with a rock on a cave wall. Strange vibrations ensue.

iv. Gut Feelings / Troubled Things

When objects congregate, either willfully or forcefully (as they are given space to do within this book), they produce theories of the *collective thing*. John Law[6] and Jani Scandura[7] both have interesting relationships with the animate,

---

[6] See Law, John. *After Method: Mess in Social Science Research* (London: Routledge, 2004).

[7] See Scandura, Jani. *Down in the Dumps: Place, Modernity, American Depression* (Durham: Duke University Press, 2008).

archival, and abject qualities of "the mess," as does Raiford Guins in his book *Game After*, where he gives biographies back to the rubbish heaps of video game disposal sites.[8] Gay Hawkins puts Bill Brown's theories to use in her essay entitled "Sad Chairs;" claiming that when objects are non-compliant, they "reveal their 'thingness,' and they shock us into an awareness…"[9] Stephen Connor (whose structures of delightfully tangential writing embody the mess) in *Paraphernalia: The Curious Lives of Magical Things,* situates the power of lively objects and their embedded "affordances" (as per James J. Gibson) into their metaphorical networks: "The pipe is a magical compromise between visibility and invisibility. Conspicuously, sometimes obscenely visible though they are themselves, pipes nevertheless conduct a secret ministry … The network of pipes, like the network of wires, turns a landscape, with all its jagged accident and lumpy irregularity, into an idea."[10] Appropriately, material culture is the site where the ethereal nature of the supernatural and the oscillating affect of philosophical thought unite. Tilley's phenomenological study of the materiality of stone[11] and Jeffrey Cohen's *Stone: An Ecology of the Inhuman,* can be extended into otherworldly realms to talk about things like the aforementioned stone tape theory, residual

[8] See Guins, Raiford. *Game After: A Cultural Study of Video Game Afterlife* (MIT Press, 2014).
[9] Guins 227.

[10] Connor, Steven. *Paraphernalia: The Curious Lives of Magical Things* (London: Profile Books, 2011), 151-52.

[11] See Tilley, Christopher and Wayne Bennett. *The Materiality of Stone: Vol. 1* (Oxford: Berg, 2004).

hauntings, or the phenomena of *lithobolia*—those stones, coal, or mud clods that rain onto the roofs of houses afflicted by the poltergeist.

The overlap between critical object studies and paranormal events most often occurs through the discussion of technological development in the mid-19th century and early 20th century. When the public adopted new communications systems like the telegraph, phonograph, telephone, or photography at a widespread level, the collisions between belief, reproduction, and creativity became permanently altered and inextricable from one another. While the telegraph and radio *closed* distances at a person-to-person level, they also underwent a simultaneous period of speculative application, to attempt to *extend* human capabilities, appropriated as lifelines to tap directly into "the ether."

Friedrich Kittler addresses the alternative lives of technologies in *Gramophone, Film, Typewriter* as a place where "the dead and ghosts become technologically reproducible."[12] In *Dumbstruck,* Steven Connor's phenomenological study of voice and disembodiment, he notes that the séance lets us hear "the workings of the *machine in the ghost*" (emphasis mine) and that in Spiritualism, "the voice became the most important form of embodiment and manifestation for non-embodied entities: it was at once the most powerful and the most versatile form of witness to the unseen."[13] Media archeologist Jussi Parikka addresses the psychosis that accompanied similar new media and "weird

---

[12] Kittler 10.

[13] Connor, Steven. *Dumbstruck: A Cultural History of Ventriloquism* (Oxford: Oxford University Press, 2000), 390.

objects" of modernity, as having their own material logic. He channels Kittler, claiming that "…the bodies of psychotics, or ghosts, is actually about technical media showing how they work as inscription-machines with the human body being merely a relay point for a wider discourse network."[14]

In recent years, as part of an attempt to better understand the nature of the poltergeist, psychical researchers have produced literature about the molecular nature, sound signatures, and geophysical qualities of objects and environments affected by these apparent spirits. In parapsychology journals, authors have produced an interesting lineage of articles intent on providing proof-driven scientific data, complete with images of sound waveforms gathered during research, presented as evidence. These cases are doubly rife for hijacking by object and sound theorists looking to apply methodologies in new ways. In an especially fascinating example from 2010, Barry Colvin transformed ten audio samples of the sound of purported poltergeist knockings into visual waveforms using spectrographic computer software.[15] He found that the data patterns of a human-produced knock display a peaked threshold, whereas the apparent poltergeist knock showed a slow rise in volume, as if the knock had been produced from *inside* the object being manipulated. In effect, Colvin's research attempts to demonstrate the absorption of the poltergeist into architectural space as a playback device—circling our thoughts back once more to all things "stone

---

[14] Parikka, Jussi. *What Is Media Archaeology?* (Cambridge, UK: Polity Press, 2012), 57.

[15] Colvin, Barrie. "The Acoustic Properties of Unexplained Rapping Sounds." *Journal of the Society for Psychical Research* (73.2 no.899, 2010), 65– 93.

tape." The poltergeist, as a "noisy spirit" is the most cut-and-dry example of the sonic spectre, where the concept of *the ghost* is absorbed and flattened into the tiny ontological space of *the material*, eager to manifest itself in order to be heard again.

Researchers based in the humanities studying the culture of the paranormal and those who gather data as parapsychologists alike have been using forensic methods to give objects and places voices before long before contemporary fields of object theory were defined. Despite chuckles of ridicule lobbed their way from bona fide scientific communities, psychical research laboratories attempt to be highly technical in dissecting and divining the root materialism and causal factors of physical manifestations and objects "touched" by the supernatural.

I don't purport to be an unwavering believer in any one subfield of object philosophy, to steadfastly declare myself as being part of a singular ontological movement in material or sound theory—or even (perhaps most frustratingly to some readers) to concretely position myself as either a believer or non-believer in the supernatural. I am rather, at a most basic level, most interested in exploring the boundaries between the trifecta of material culture, sound, and belief. I value the voice of the object, the *thing*, above all else, and prefer to give space for its natural narratives to escape. In choosing to listen, as a subject, one almost becomes as ghostly as *the thing itself*. Such attitudes of study where one is forced to consider "non-normative" reality as having equal weight as concrete fact can cause discomfort and distancing within intellectual circles. To study things within

the context of say, speculative realism, is much more acceptable than making a foray into the parapsychologist's laboratory. But the bridge between the two is certainly there, and a useful one that we are about to cross. One is not supposed to so wholly absorb themselves in or become "contaminated" by their research—but I am not the first, nor will I be the last.

Section One: Dead Lines

Electric Line Events

The smell of rose perfume floating through the sulfurous tendrils of extinguished candles. Cherry tobacco smoked in a pipe. The sound of thick pencils – a noise like "sssssssssshhck"--the belly of a snake sliding across rough paper. She could hear that the line was continuous. The pencil never lifted from the page, and so there was no tapping of lead on paper on top of wood. They were not making grocery lists down there. The snap of new paper being replaced under hands guiding pencil. Sometimes if things were not flowing smoothly, they used a planchette to aid in their receptions. The wood heart carried the pencil in a hole, raised on wheels with one slightly off track. Barely audible squeaks, in need of oil. Soft mumbling. Questions. Have you ever heard a ghost walk?

The shapes were coming down the stairs, behind her, as they always did, every second Saturday night of the month. She had learned, over time, not to be afraid of them. They were people once. "It's not the dead that will hurt you," her grandmother would tell her, "—it's the living." Since she had been old enough to escape her crib, K. had snuck out of her upstairs bedroom, tiptoeing to the edge of the landing, following the worn carpet runner so as not to make the hardwood floor creak. She wanted to listen to what was happening downstairs. Her clandestine movements were an unnecessary ritual, but she followed them anyways. She wasn't invited, yet *she* knew that *they* knew that she was up there,

listening. There were strangers in the house. Some of the voices were familiar. They spoke like they were from town; farmers with clipped Ontario accents. Other voices came and went, with more exotic accents, strained, and ethereal. She wasn't sure if it was her ears, but she was sure they spoke in other languages. They bled out from the shadows. Straining her ears to listen through the murky dark was tiring, and so sometimes, she would fall asleep, fetal form at the top of the stairs. She would wake up in her own bed in the morning, hazy headed and disoriented. Nothing was ever said of the discreet rejection of her bedroom, but she often pretended to sleepwalk, with the intention of perpetuating her innocence.

In the morning, if she was awake before anyone else, she would search for clues. A slim envelope of money that had not been there the day before, hidden in the back of the bread bin. The dining room table was the biggest and oldest piece of furniture in their house, and had "come over from the Old Country," according to her mother. They never ate at that table, and she wasn't allowed to work at it. Their family of five crowded around the Formica and chrome table in the kitchen instead. The dining room and its table were reserved for second Saturdays. Sometimes the adults didn't clean up from the night before, and she would find the tablecloth hand-tatted by great-grandmother, with its hilly landscape of white wax candle drippings in the center, thrown over that special table. Nothing else remained.

In family photo albums, she once found an image of her grandmother, back when she lived in the farmhouse too. Scalloped white edges with a date:

1959. Her grandmother sitting in an oversized armchair, wisps of smoke from the burn pile of leaves outside, reflected through the warbled glass windows and onto the peeling botanical wallpaper. The staircase in the background, fading into darkness at the top. Her mother always said she "got a chill" going up those stairs. One night before bed, she told K. the previous owner had hung himself there, "over a woman," on the fifth step. Knowing this, she avoided the step altogether for the next few months, double-stepping up or down.

As she grew older and the dining room continued to host second Saturday nights, K. grew bold, edging her way down the stairs, one step at a time. The thick wood slats of the banister provided her with ample reconnaissance cover. She discovered that if she leaned forward while sitting on the fourth step down from the top of the stairs, daring to put her feet on the fifth step, she could see the back of her mother's head, sitting at the dining room table. The table was round, but it was clear that her mother was the head of the table, ruling over the events. The patterns of this ritual were predictable, but the events were not. Candlelit faces edged out from her mother on either side, arms raised, elbows bent and hands clasped, enclosing her mother in the center circle of the circle, pencil on paper at the center, at the table. Their eyes narrowed in the dark, just barely swaying.

They did this while they waited for the pencil to begin moving, waiting to ask their questions. Her aunt L. and uncle R. were always there, and her grandmother. A few other faces she recognized from their town, but there were strangers there too, people "from away." The seats around the table were always full.

We are Not Yet Experts: The Mimetic Dead, Paranormal Acoustics, and the Medium Jesse Shepard

On 9 September 1920, the former 18th president of the United States Ulysses S. Grant spoke the following words:

> You are now at the cross roads. Take the wrong turning and you will come to the skull and cross bones. I could say much more but we are not yet experts in this new mode of inter-communication and must be brief.[16]

The "we" that Grant refers to is comprised of an indeterminate number of spirits in the afterlife, spirits who have recently discovered a method through which to communicate with the living. He counts himself among the spectral because he belongs there. In 1920, General US Grant was dead, and had been so since 1885. This message was "recorded," as the title page of the book *Psycho Phone Messages* suggests, by a Los Angeles Spiritualist named Jesse Shepard under the pseudonym of Francis Grierson.[17] These spirits claimed to be unskilled in the "new mode" of communication—a highly dubious claim—considering this form of messaging was just one more tally mark on a well-established timeline of Spiritualist séance and mediumship techniques. The "mode of inter-communication" used by the spirits was the Psycho Phone; its operator was Jesse Shepard.

---

[16] Grierson, Francis. *Psycho-phone Messages* (Los Angeles, Calif: Austin Publishing company, 1921), 26.

[17] For purposes of clarity, throughout this paper I will use Jesse Shepard's birth name, as opposed to Francis Grierson—a pen name he began to use in 1896. Grierson was his mother's maiden name, and Shepard was christened as Benjamin Henry Jesse Francis Shepard.

There are two forms of spiritual communication that will be referenced with regularity here: the resonating chamber of the séance room, and spontaneous sounds that are the production of purported hauntings. In the former, a recurring topic is that spirits and Spiritualist mediums alike, in the course of attempting to imitate speech or sound acts, or to act as living soundboards for disembodied voices, are highly implicated in acts of mimesis. In the latter, hauntings act as repetitious residues of the past, accompanied by the embodiment and reproduction of sensorial effects, projected by the *haunter* onto the *haunted*. Acoustic memories of the once-living disrupt the world of the everyday. Throughout the cultural history of hauntings, we see repeating narratives of apparent spirits reproducing the sounds related to actions they made while alive: footsteps, whistles, laughter, snippets of conversation, and occasionally sounds of distress. The simultaneous evolution of technology alongside supernatural experiences both aids and complicates these mimetic processes of the dead.

i. Communication & Mortality

Jesse Shepard's *Psycho Phone Messages* immediately calls to mind the trope of Edison's lost plans for a contraption used to contact the dead. Edison's invention of the phonograph inspired *Scientific American* to proclaim the standard "Speech has become, as it were, immortal."[18] But others have made

[18] Kittler, Friedrich A. *Gramophone, Film, Typewriter* (Stanford, Calif: Stanford University Press, 1999), 72.

ample mention of Edison's device, and so for purposes of brevity, regard the following statement of the Wizard of Menlo Park, from 1920:

> I don't claim that our personalities pass on to another existence or sphere … But I do claim that it is possible to construct an apparatus which will be so delicate that if there are personalities in another existence or sphere who wish to get in touch with us in this existence, this apparatus will at least give them a better opportunity to express themselves … I merely state that I am giving the psychic investigators an apparatus which may help them in their work, just as optical experts have given the microscope to the medical world.[19]

The *Psycho Phone Messages* seem to be in need of clarification. The vague descriptions Shepard used aren't much help: "The psycho-phonic waves, by which the messages are imparted, are as definite as those received by wireless methods."[20] Shepard's "waves" are not processed through aluminum horns, through balloons made fat by the breath of mediums, or derived via chemicals made cultic that cause antennas to vibrate and telegraphic arms to tap out messages from the dead. Although these machines exist elsewhere,[21] invented by others, Shepard's case is simpler than it appears to be: the Psycho Phone is a metaphor. The Psycho Phone is Jesse Shepard himself, acting as a "direct voice" communicator, listening and relaying the urgent messages of past politicians, abolitionists, suffragists, other such socially engaged personas via psychographic

---

[19] Edison, Thomas A. and Dagobert D. Runes. *The Diary and Sundry Observations of Thomas Alva Edison* (New York: Philosophical Library, 1948), 205.

[20] Grierson, 15.

[21] See Braga, Newton C. *Electronic Projects from the Next Dimension: Paranormal Experiments for Hobbyists* (Boston: Newnes, 2001).

or channeled writing from beyond the grave. “Discoveries,” Kittler notes “frequently start with metaphors.”[22]

Shepard’s concept of the Psycho Phone is further muddled by the existence of a motivational device with an identical name, invented by A.B. Saliger. The device consisted of a turntable which would be triggered by an alarm clock, and pre-recorded messages would penetrate (or annoyingly rouse) the sleeper’s mind. According to an advertisement placed in *The New Yorker*: “…this automatic suggestion machine enables you to direct the vast powers of your unconscious mind during sleep.”[23] Early patents were issued in 1927 and 1928, with US Patent No. 1,886, 358 granted on 1 November 1932 for an “Automatic Time-Controlled Suggestion Machine.” A popular recording available called *Mating* projected Saliger’s own pacifying voice over the horn of the player: “I desire an ideal mate. I radiate love. I have a fascinating and attractive personality. My conversation is interesting. My company is delightful …” et cetera, et cetera.[24] The absorption of the sounds of success while sleeping was only accessible to the wealthy, however, with the Psycho Phone’s price tag weighing in at $235 in the lean years of the Depression.[25] Occasional discoveries of Saliger’s machine in antique shops and listed as EBay auctions have produced misleading information among believers,

---

[22] Kittler, 30.

[23] “The Psycho Phone,” *The New Yorker* (New York: New Yorker Magazine, inc., etc., 1933: Vol. 9), 13-14.

[24] Ibid, 13-14.

[25] Ibid, 14.

certain they have exposed a physical example of Edison's lost etheric communicator.

Why did the supposed spirits channeled by Shepard feel the need to vocally indicate their trepidation with this not-so "new" technology? The first message Shepard claims to have received was from Speaker of the House and Republican leader, Thomas B. Reed (1839-1902). On 7 September 1920, Reed-via-Shepard stated: "I am placing you in communication with some of the most far-reaching minds of the past hundred and fifty years. The psycho-phone is new and we are using it for the first time."[26] The giddiness over new technology in the spiritual world imagines a clandestine gathering of ghouls, eavesdropping on an old fashioned rural telephone "party-line," and Reed being bold enough to be the first to speak up. It is odd that the "spirits" are so flummoxed with the Psycho-phone, because the Spiritualist belief system was scientifically saturated. The term "spiritual telegraph" was a term well in use by 1921, included in the title of the Spiritualist newspaper, "The Yorkshire Spiritual Telegraph" since its establishment in 1855.[27] Perhaps it was the medium's own tentative understanding of the terminology, absorbed from early sound recording and wireless transmission devices that was to blame for the confusion.

---

[26] Grierson, 23.

[27] Spence, Lewis, Leslie Shepard, and Nandor Fodor. *An Encyclopedia of Occultism: A Compendium of Information on the the Occult Sciences, Occult Personslities, Psychic Science, Magic, Demonology, Spiritism, Mysticism and Metaphysics* (New York: University Books, 1960), 877.

Parallels have been drawn by many others[28] of the fascination with the newly introduced telegraph and the operating modes of the "spiritual telegraph" of the séance chamber. As Connor notes:

> The séance in fact doubles, or ghosts, the structure of hapto-sonorous hallucination which made the technologies of the telephone, the gramophone, the radio, and the tape recorder, along with all their contemporary refinements, so comfortable and familiar from the outset. [29]

In her 1869 account of the history of Spiritualism, the medium Emma Hardinge Britten claimed that the version of telegraphy used in séances in fact originated from instructions given by spirits.[30] Another strange device, simply labeled "the signaling instrument," was discovered in a file of unattributed documents at archives of the American Society for Psychical Research.[31] The "instrument" was used to defraud séance attendees, with a medium placing a small telegraph in her bouffant coif, which ran a small wire up to the ceiling and over a chandelier. The wire ended at the hand of a conspiring assistant, who would tap out Morse code on the head of the seated medium. These examples are evidence of a lineage of communicative vessels put into to play in dark chambers. It is logical that the

---

[28] See Sconce, Jeffrey, *Haunted Media: Electronic Presence from Telegraphy to Television*., Sterne, Jonathan, *The Audible Past: Cultural Origins of Sound Reproduction* and Kittler, Friedrich, *Gramophone, Film, Typewriter*.

[29] Connor, Steven. *Dumbstruck: A Cultural History of Ventriloquism* (Oxford: Oxford University Press, 2000), 393.

[30] Davis, Erik. *Techgnosis: Myth, Magic + Mysticism in the Age of Information* (New York: Three River Press, 1998), 61.

[31] In 2008, the author conducted primary research at the American Society for Psychical Research in New York City. Much of this research was directed towards uncovering devices and tools for mediumship, used to perpetuate as well as detect fraudulent acts in the séance room.

prosthetics of channeling fraudulent or innocent would evolve from handwritten slates into planchettes on wheels fitted with pencils and then into the ease of electronic signals. The late Victorian paranoia of premature burial prompted the fiction author Walter Rathenau to speculate in "Resurrection Co." where a telephone network could be connected to every coffin in a graveyard.[32] Unfortunately, rapid technological evolution in combination with small production numbers of spiritual design solutions resulted in the loss of surviving examples in most cases. There is no distinct archive or museum to preserve the machinery of belief.

ii. Paranormal Music

Direct interrogation of the dead is a noisy process. Séance chambers play host to rappings, resounding voices, strumming airborne guitars; temporary possessions harness the vocal chords of the medium. Beside the acoustic manifestations of the séance room, there also exists a history of "paranormal music" – a term paramusicologist Melvyn Willin defines as "examples of music where no physical sound source is apparent."[33] It is important to note in this case that the aural experience is in contrast to the *singular* sounds that accompany the typical haunting (footsteps, disembodied voices or knocking), but rather take the form of multi-instrumental or multi-vocal songs and orchestral arrangements

---

[32] Kittler, 12.

[33] "Music and the Paranormal," Melvyn Willin. <www.hulford.co.uk/musicpa2.html> Accessed 30 January 2016.

that are performed with implied *purpose*. Recordings stored in the Institut für Grenzgebiete der Psychologie made by Marcello Bacci and Luciano Capitani apparently captured heavenly choirs using a radio receiver in the 1920s.[34] Scott Rogo received a letter from Elsie Haines, detailing how she woke to the sounds of beautiful orchestral music in 1921, and became "enveloped" by it. She noted: "I realized it was coming from Heaven …We did not have a radio or even a Gramophone."[35] Such reports of invisible choirs, or of the inner music experienced by early mystics and saints, could be considered as examples of a most odd extension of Pierre Schaeffer's notion of acousmatic sound:

> Behind the acousmatic curtain, behind the presence of audio, one finds the technological apparatus in retrograde—disappearing into the void that sound represents, shedding some of its history, its presence, and traveling under the radar of media critique to be remediated… [36]

In this sense, sound that issues from the most basic technology—human vocal chords—is severed from their source, and in their disembodied state, now reified, noise becomes a vessel for numinous experience and conversion of potential believers.

Music has been documented to manifest at the deathbed. The psychical researcher Ernest Bozzano published a collection of these narratives, including

---

[34] Fischer, Andreas. *Okkulte Stimmen - Mediale Musik: Recordings of Unseen Intelligences 1905-2007*. (Berlin: Supposé, 2007), CD.

[35] Rogo, D. Scott. *Nad: A Study of Some Unusual "other-World" Experiences* (New York: University Books, 1970), 43.

[36] Dyson, Frances. *Sounding New Media: Immersion and Embodiment in the Arts and Culture* (Berkeley: University of California Press, 2009), 13.

an account of the death of Wolfgang Goethe. Members of the household accompanying his transition were mystified by presence of music in the house:

> It's inexplicable! Since dawn yesterday a mysterious music has resounded from time to time, getting into our ears, our hearts, our bones." *At this very instant there resounded from above, as if they came from a higher world, sweet and prolonged chords of music which weakened little by little until they faded away* … It was thus that the mysterious music went on making itself heard up until the moment when Goethe breathed out his last sigh … [37]

Sources of paranormal music can be attributed to devious causes as well. The 1668 case of the Tedworth Drummer, recounted in Joseph Glanvill's *Saducismus Triumphatus*[38] (1681) is an early publication that would in effect, set the standards for future reportage on poltergeist events.[39] The problems began when Tedworth resident John Mompesson waged a lawsuit against an itinerant drummer, confiscating his most prized material possession — his drum. Soon after, Mompesson regretted his decision as his house was filled with vengeful nocturnal racket. Of course, even at this early date, suspicions of fraudulent behavior are suggested: "Sir Christopher Wren visited Tedworth, [and] noted that ghostly drumming noises seemed to emanate from the wainscoting only when a particular servant girl was in the next room."[40]

---

[37] Rogo 1970, 64-66.

[38] Also known as: *A Blow at Modern Sadducism … To which is added, The Relation of the Fam'd Disturbance by the Drummer, in the House of Mr. John Mompesson.*

[39] Finucane, Ronald C. *Appearances of the Dead: A Cultural History of Ghosts,* (Buffalo, N.Y: Prometheus Books, 1984), 10.

[40] Ibid, 12.

The British Isles have long been the site of portentous narratives of drums in the sky and ghostly pipers. An apparent haunting of Cortachy Castle in Scotland was attributed to "a fine young drummer boy" who was caught in an adulterous act with the Lady of the castle. "He was seized, boxed up in his own drum and flung off the highest tower to his death,"[41] and ever since, has continued to beat his drum whenever there is a death in the family. Duntrune Castle, also in Scotland, is the home of the "Piper of Duntrune." A common version of this story reports that the hands of the castle piper were cut off by the Campbell clan, who had captured his master's castle while they were away. The punishment came after he played "The Piper's Warning to His Master" at the top of the castle, effectively warning the Macdonald clan of the trap that awaited them. Later renovations in the castle uncovered two skeleton hands, the apparent source of ghostly pipe music that was heard around the castle.[42]

Other cases seem rooted to a "time-slip" effect, known as "residual haunting," in which tendrils of music that occurred in the past continue to bleed over into the present. These cases often involve spectral pianos and organs, as in the popularized experience of the Moberly-Jourdain Incident. While visiting Petit Trianon at Versaille in 1910, the two women believed they had fallen through a "time-slip." They published their experiences in 1911 under pseudonyms as *An*

---

[41]Brooks, John A. *Britain's Haunted Heritage* (Norwich: Jarrold, 1990), 215-16.

[42] Seafield, Lily and Rosalind Patrick. *Ghostly Scotland: The Supernatural and Unexplained* (New York: Barnes & Noble, 2006), 66-67.

Adventure,[43] claiming to have witnessed Marie Antoinette and heard paranormal music.

These cases all evolved from private events into publicized experience. The music was impermanent and unrecorded by media, and therefore its description evolves out of textual and oral documentation. Narratives of paranormal music that began as memorates become victims of the effects continuity and change as songs, locations, and emotional responses shift. As temporal distance lengthens, memorates enter the realm of pure legendry. While the sites of acoustic manifestations of the dead most commonly occur in areas where trauma has occurred, or by purposeful interrogation in the séance room, idiosyncratic experiences of angelic choirs may occur in mundane locations, producing religious conversion through mystical influence.

Paranormal music is always described in relationship to its spatial characteristics. Sounds are reported as faint, otherworldly, or entirely co-present; they are often from above, but may come from below, or be rooted to specific rooms of a dwelling. With the exception of music produced on instruments in the séance, their nature is consistently disembodied, without visible production. The transfiguration of sound particles to numinous experience has the potential to become an act of embodiment. The phenomena is alternately "taken in" to the bodies of believers – or deflected by skeptics. Believers source the sounds

---

[43] See Moberly, C A. E, Eleanor F. Jourdain, Edith Olivier, and J W. Dunne. *An Adventure* (London: Faber and Faber, 1931).

mimetically, to spectral hands mimicking live musicians, producing proof and assurance of post-mortem survival from a dualist perspective. Skeptics associate the sounds as being human hands mimicking the ghost, producing acts of fraud and allowing security in materialist values.

iii. Mechanical Mediumship

Before physical mediumship fell out of vogue, guitars, accordions, violins, and trumpets seemed to be the instruments of choice for mid-19th century ghosts. The famous Scottish medium, Daniel Douglas Home, was very skilled at coercing purported supernatural forced to produce music in the 1870s and 1880s. At one séance, the investigator (and professed believer) Sir William Crookes presented Home with a new accordion, hoping on some level to debunk Home's tricks. The accordion began in a cage, "… then it was taken out and put in the hand of the next sitter, still continuing to play; and finally, after being returned to the cage it was clearly seen by the company … moving about with no one touching it."[44] Jesse Shepard occasionally performed his musical séances with the lid of his piano closed. Emma Hardinge Britten, a medium who was present during a musical manifestation by D.D. Home, wrote extensively of the intersections of music within her practice as a Spiritualist: "At times the piano on which my choir

[44] Britten, Emma H. *Nineteenth Century Miracles; or Spirits and Their Work in Every Country of the Earth: A Complete Historical Compendium of the Great Movement Known As "Modern Spiritualism,"* (Manchester: W. Britten, 1883), 147.

rehearsed to my playing was lifted bodily up in the air, obliging me to request the good invisibles to let us proceed with our practice."[45]

With the discovery of the wholesale séance supplier catalog, *Gambols with Ghosts* (and its public shaming by stage magicians), musical séance manifestations needed to evolve in order to survive. In mental mediumship, subjectivity is also amplified, making exposures of fraud more difficult. And so this new kind of musical medium could act as a conduit for the spirits of dead composers, allowing the likes of Beethoven, Mozart, Liszt, and others to harness their hands to complete unfinished symphonies. Leading Spiritualist musical mediums unfailingly claimed no professional training as a musician, or asserted that their channeled music was beyond their own amateur abilities. Jesse Shepard, who would abandon the Psycho-phone for musical channels, *did* receive training in his youth, in spite of the rumors of divine inspiration. Shepard did nothing to quell the legend that became attached to his inspired playing.[46]

Some musical mediums "receive" "transmitted" performances as their hands are guided by the dead; others report visions of sheet music, transposing the notes to paper. Charles Tweedale claimed to have received the lost recipe for Stradivarius's violin varnish in a 1940s séance.[47] An article from a 1906 issue of *Annals of Psychic Science* explained the study of a M. George Aubert in detail.

---

[45] Britten, Emma H., and Margaret Wilkinson. *Autobiography of Emma Hardinge Britten* (Manchester: John Heywood, 1900), 53.

[46] Simonson 1966, 25.

[47] Willin, 56.

Aubert was taken to the Insitut General Psychologique, where he channeled a work by Mozart. This was no easy accomplishment, considering a phonograph was projecting a work by Verdi in his left ear and another machine played a Sellenick piece in the right ear. In another round of experiments, to prove the depth of his trance, a researcher "thrust a needle into the left hand without causing M.Aubert to wink or slacken by a comma the tempo of the symphony which he finished up with a masterly chord."[48] And no discussion of musical mediumship would be complete without brief mention of the "unfinished symphonies" channeled by Rosemary Brown (1916-2001). Beginning with a "visitation" by Liszt when she was seven years old, Brown's mediumship lasted for a period of twenty years, reaching its climax in the 1970s.[49], [50]

iv. Bookends

This is the point at which we return to the beginning. Jesse Shepard's timeline could be thought of as bookends that enclose a spiritualist Renaissance. His birth year of 1848 was the same year of the unofficial founding of Spiritualism in Hydesville, New York, and his death in 1927 occurred during a

---

[48] "Echoes & News: The Musical Medium, Aubert," *The Annals of Psychical Science*. (London: Office of the Annals, 1905), 129 – 131.

[49] Brown, Rosemary. "Rosemary Brown in Conversation, 1973," *Okkulte Stimmen - Mediale Musik: Recordings of Unseen Intelligences 1905-2007*, (Berlin: Supposé, 2007).

[50] Brown's compositions numbered over 600 compositions by 1965. As Brown's compositions were analyzed by professional musicians and historians, the obvious differences between her recordings or sheet music and the work of claimed composers reiterated that the quality and her claims were dubious.

phase of psychical research that was interested in combining science with higher consciousness, to discover the boundaries of exceptional human experience and survival after death.

San Diegans lay claim Jesse Shepard, due to the presence of his mansion, Villa Montezuma. In reality, he was a nomadic character with a complicated chronology. Shepard was born in England in September 1848 and moved to the Midwest of the United States in March 1849 with his immigrant parents. In 1867, he had a small amount of musical study and performed at several recitals in major US cities the following year. In 1871, he traveled to Russia, where he discovered Eastern Mysticism and attended his first séance performances. He was intrigued by these events, and so the Czar of Russia's medium, General Jourafsky, agreed to school him in the art of raising spirits.[51] Shepard's manifestations of spiritual presence included singing demonstrations and piano concerts, wherein he allowed his body to be taken over by one or multiple composers or exotic ancients. While travelling overseas, Shepard established a respectable reputation as an inspired performer, which allowed him to insert himself among royalty, the extremely rich, and the creative illuminati of the time. His supporters paid him in compliments as well as gifts of money and the material fineries that would eventually amass into a collection that would be housed within the Villa Montezuma.

---

[51] Crane, Clare. "Jesse Shepard and the Villa Montezuma." *The Journal of San Diego History* 16.3 (1970).
<www.sandiegohistory.org/journal/70summer/shepard.htm> Accessed 30 January 2016.

By 1874, he had arrived back in the US, and it was in Vermont where he met the founder of Theosophy, Helena Blavatsky. While there, he sang what he claimed were channeled songs for her, but Blavatsky soon discovered that Shepard deceived her, having learned the songs while travelling in Russia.[52] By 1880, he was divining the communications of Egyptian spirits in the borrowed séance parlor of Mrs. H.H. Crocker in Chicago.[53] In 1887, Shepard arrived in the Great Boom years of San Diego, by invitation of the High brothers, who built the luxurious Villa Montezuma for him. He soon began to lose interest in Spiritualism, however, and turned to writing. Not quite two years later, in 1889, he moved to France, where he would remain until 1913. In spite of Shepard's questionable relationship with Spiritualism, it is undeniable that he paid his dues as an author, with the publication of *Valley of Shadows* (1909) acting as the climax of his literary career. Back in the United States, Shepard once again turned to Spiritualism and toured to demonstrate his "spontaneous inspirational compositions" as the "World Famous Mystic."[54] By 1920, he had moved to Los Angeles, where he published his last book, *Psycho Phone Messages*, in 1921. In 1927, at the age of 79, he died, destitute, at his own benefit dinner, the events of which will be given momentarily.

---

[52] Simonson, 33.

[53] Simonson, 74.

[54] Davis, Erik and Michael Rauner. *The Visionary State: A Journey Through California's Spiritual Landscape* (San Francisco: Chronicle Books, 2006), 35.

v. Weird House of Ghosts, This

On 3 November 1920, the abolitionist and clergyman Henry Ward Beecher (1813-1887) relayed the following psychophonic message to Shepard:

> What is causing so much crime? Not one, but many elements of decadence, all operating together, among which I can name rag, jazz, high balls, cabarets, free verse, neurotic art, sentimental optimism, cheap notions of progress, neutral sermons, automobilism, lack of child discipline, absence of fear among people under the age of forty—evils which you may apply to all English-speaking countries.[55]

It is interesting that Beecher/Shepard should be so conservative in spirit, especially given the medium's own experience of growing to maturity in a time of great technological and cultural change. Between the years of 1886-1888, the town's population increased eight-fold, from 5,000 to 40,000 residents.[56] The city was undergoing a fast modernization of infrastructure, with the largest contributing factor of growth and prosperity being the result of the recently linked Santa Fe rail line. With such a swell in the populace, the reciprocal perks of city life were to be expected; these years "were the most gaudy, wicked, and exciting in San Diego's history."[57] With a fledgling city in full swing, locals desired to increase venues through which to engage with a cosmopolitan arts scene. It is in relation to this cultural sector, and this opportunistic and confident time that Jesse Shepard was brought to the city in 1886, and in which we find the origins of

---

[55] Grierson, 72-73.

[56] Crane, Clare. "The Villa Montezuma as a Product of its Time." *The Journal of San Diego History* 33.2-3(1987). <www.sandiegohistory.org/journal/87spring/villa.htm> Accessed 30 January 2016.

[57] Pourade, Richard F., *The Glory Years* (San Diego: Union-Tribune Pub. Co, 1964), 193.

the Villa Montezuma, a palpable reminder of the "Great Boom" era of San Diego's history.

Spiritualism in the 1880s was widespread across the country, and San Diego was not spared of the zeal of alternative belief. Two brothers, William and John High, were active believers in the community, and believers who ran a successful produce business. The success of their entrepreneurial efforts, however, was soon being funneled and eventually fully drained into the maintenance of Jesse Shepard and his companion, Tonner. The High brothers had been swindled by Spiritualist circles in the city previously, but the most grand of the High brothers' donations to the cause took the form of Villa Montezuma, an opulent Queen Anne mansion located at 1925 K Street in the Sherman Heights neighborhood. Acting on "instructions" relayed from William High's deceased wife, the High brothers were soon paying the architectural design firm of Comstock and Trotsche[58] to build the Villa as a form of memorial.[59] Of course, the spirit of High's wife was careful to relay the interior, furnishings, and house itself according to the exacting and exotically inclined aesthetic preferences of Jesse Shepard, who would take up residence within it as San Diego's leading medium.

---

[58] Crane, Clare. "The Villa Montezuma as a Product of its Time." *The Journal of San Diego History* 33.2-3(1987). <www.sandiegohistory.org/journal/87spring/villa.htm> Accessed 30 January 2016.

[59] Simonson, 37.

Historical records and local newspapers provide conflicting accounts as to whether Shepard's advantageous behavior towards the High brothers was born of malicious intent or if he intended to act in good faith. It is questionable whether he was committed to provide the people of the city a palatial home within which to experience supernatural marvels in his dim séance chamber on a long-term basis, or whether he intended to flee, as he did, in the short two years' time it took to drain the High's finances. Sam High, nephew to the brothers of the same name, published a defamatory narration of the loss of his rightful family fortune in the *San Diego Union Tribune* in 1913 under the headline "Weird House of Ghosts This / Built by Spiritualist as Home of Spooks."[60] High states: "…it was hypnotism and nothing else. That man had us so hypnotized that we would have done anything under heaven he told us to."[61]

Whether Shepard was a "genius" or an advantageous charlatan or a naive romantic is irrelevant here. The Villa stands as an embodied artifact within the landscape of San Diego, a structure whose conception to construction, architectural detailing to interior design were all embedded with Shepard's own beliefs as well as the beliefs of the Spiritualist community at large. The house is typical of the Queen Anne style: multiple stories with an asymmetrical floor plan, corner turrets, highly pitched roofs with multiple gables, a diverse array of window types, enthusiastic use of ornamentation painted in harmonious paint

[60] *The San Diego Union,* (San Diego, Calif: Union-Tribune Pub. Co., July 20, 1913), 1.

[61] Ibid, 29.

colors, imbricated wall shingle patterns, Tudor-inspired half-timbering, and allegorical Classical relief panels. The Villa fulfills all of these things, with the addition of a dramatic Arabesque dome that sits on top of the south corner tower of the house, topped by a metal finial, a serpent wrapped around it. This motif was carried over to a grotesque water spout attached to the southeast corner of the roof. The room beneath the dome acted as Shepard's study, and by extension, served as the foundation site for his literary career. The interior of the house echoes the excess of exterior detail: darkly stained wood paneling and coffered ceilings, deeply embossed Lincrusta wallpaper, elaborate lighting fixtures and carved wood detailing and columns at every turn.

The music room and conservatory dominate the majority of the ground floor. Hidden chambers and crawlspaces were discovered in the room, no doubt to aid in Shepard's séance effects. Windows at the ground level contain intricate stained glass with portraits of inspirational figures. Goethe,[62] Shakespeare, and Corneille represent literature. Raphael and Rubens personify fine art, and it is said that the beard of Rubens, in glass, continues to gray over time. Beethoven and Mozart embody music. A massive piano with carved legs sits below a window depicting Sappho the poetess, flanked on either side with allegorical figures taken from John Milton. Such sumptuous exoticism was not frivolous, but a necessity in the production of spectacle for Shepard. The multi-layered and hive-like

[62] It would be interesting to know, though no record of it has been found at the time of this writing, if Shepard would have been aware of the narratives concerning the paranormal music reported at the deathbed of Goethe.

arrangement of visual and tactile space acted as a containment zone on both acoustic and optical levels. As sight was fractured, trapped, and deadened among filigree and acanthus leaves, so too were the orchestrations of the alleged spirits absorbed by wool carpets, velvet upholstery and honeycomb ceilings. The music room was a space within which to prime believers for numinous experience; as Queen Anne detailing denied the logic of Euclidian geometry, its inhabitants became disoriented, and thus prepared mentally for anomalous events.

It is unquestionable that Shepard's inclusion of inspirational muses rendered in glass and brightened by the persistent sunlight of San Diego was a calculated decision. For Shepard to write beneath a serpentine finial believed to channel occult energies into the house, that, regardless of the truth of this particular narrative, acts as a signifier of belief on the landscape.[63] For Shepard to envelop himself into an interior as lush as any robber-baron's home should be – are decisions that express a purposeful way of occupying space. In a symbiotic relationship, Shepard intended the Villa to be a site of power absorption by way of contact magic and proximity to the beacons of creative process. Over time, the story of Villa Montezuma became absorbed by the legend of Jesse Shepard and he, by it.

[63] Local legends maintain the finial, which functions as a lightning rod, is most strange owing to the fact that thunderstorms in Southern California are rare. Many believe it to be a device used to channel occult energy into the house.

vi. Supernatural Execution

Shepard did not write explicitly and directly of his mediumship techniques. The Spiritualist journal *Light* published an account by Prince Adam Wisniewski, in 1894:

> After having secured the most complete obscurity we placed ourselves in a circle around the medium, seated before the piano. Hardly were the first chords struck when we saw lights appearing at every corner of the room … The first piece played through Shepard was a fantasie of Thalberg's on the air from *Semiramide*. This is unpublished, as is all the music which is played by the spirits through Shepard. The second was a rhapsody for four hands, played by Liszt and Thalberg with astounding fire, a sonority truly grand, and a masterly interpretation. Notwithstanding this extra ordinarily complex technique, the harmony was admirable, and such as no one present had ever know paralleled, even by Liszt himself, whom I personally knew, and in whom passion and delicacy were united.[64]

His performances were captivating and transformative according to the descriptions. Another account, equally poetic, described how Shepard:

> … seemed to keep notes suspended in the air for minutes. Now and then he would make a shining vessel out of such a chord, and then he would begin to drip little drops of melody into it, until the Grail seemed to rise before your vision, luminous with blood-red rubies.[65]

While we are left with many florid descriptions, Shepard's performances are essentially lost. He left no sheet music, and all attendees of his séances are now deceased. Early phonographs existed in 1886, but were not widespread, not did Shepard seem to be one to embrace new technology. As a result, no recordings from the medium's era at Villa Montezuma exist, and an equal—albeit strange— void exists in relation to his later Spiritualist "rebirth" period upon his

---

[64] Cited in Willin, Melvyn *Music, Witchcraft and the Paranormal* (Ely: Melrose, 2005), 55.

[65] Bkorkman, Edwin. "The Music of Francis Grierson," *Harper's Weekly*, LVIII (February 14, 1914), 15.

return to the United States. The impermanence of Shepard's music exists only through memory and oral testimony transposed to print at the time, unfailingly from the perspective of believers in awe of his abilities. In 1875, the *Oakland Tribune* published a description of a Shepard musical séance at Tubb's Hotel:

> After playing a few selections on the piano with the lights all on, he had the piano removed and the gas turned off, leaving the room in total darkness. He sang "Annie Laurie," in imitation of Kate Hays; a Russian song and one in which he took bass and contralto parts together, accompanying himself on the piano. The performance concluded with a terrific storm of sounds on the piano, in which the barbaric music of the ancient Assyrians and Egyptians was imitated…[66]

It is likely that this "barbaric music" being referenced by the article was Shepard's signature performance, *The Grand Egyptian March*. In this piece, one of his "impressionistic compositions," he would use only the piano and voice to create realistic simulations of the sounds of a battle: "… marching armies, trumpets, drums, tambourines, battle clashes and cannon booms" were all said to be mimicked in Shepard's séance room.[67] A motif that is present across many narratives is the medium's apparent ability to manifest the sounds of multiple instruments – even if only a piano and one performer were present – or sometimes, the sounds of entire orchestras. In one 1914 session, "…in the gloom, he improvised on the sinking of the Titanic,"[68] creating sounds that in turn would have resonated the very recent memory of the 1912 event among his audience. His chords were also described, in what is now problematic language and

---

[66] San Diego *Union*, October 2, 1887, 22.

[67] San Diego *Union*, June 12, 1887, 7.

[68] Bjorkman, 15.

thought, as "… haunting, monotonous, [and] primitive. It was as if the horns and drums of some African village had become civilized without losing their original weirdness – as if their uncouth noises had become miraculously transformed into genuine harmonies while still echoing the strife of primeval passions."[69]

The acoustic intensity of the séance room at Villa Montezuma and elsewhere was in part due to the production of notes that seemed to emanate from sources other than Shepard's piano. It seemed impossible that the medium could sing in two voices, or play compositions constructed for four hands.[70] These examples are given in order to demonstrate that alongside the most obvious relationship to mimesis, spatial characteristics are also a factor here. As Connor notes, "All sound is an attempt to occupy space, to make oneself heard at the cost of others. Sound has power."[71] In spite of being bound to the keyboard, or to one spot as he sang an aria, Shepard created acoustic effects that in turn mimicked different spatializations. The dead imitated the living, simulating the sounds of their former lives, copycat productions of other times and other places: "…the music swelled and became strangely urgent – I felt there was an image that wanted to break through – a consciousness of some mighty presence – and all at once it was there: 'The Nile!'"[72] The charged sounds of battle issued from the

---

[69] Ibid, 15.

[70] Willin, 55.

[71] Connor, Steven. "Ears have walls : on hearing art" (2005). *Sound*, ed. Caleb Kelly (London: Whitechapel Gallery, 2011), 136.

[72] Bjorkman, 15.

séance room consequently mimicked another time period, and through the slippage of time, additional effects of space and distancing were added to the production.

Ideas of mimesis are clear in acts of channeling: the living pass on information spoken by the dead, who are in turn imitate the processes and markers of the living. Using an approximation of living speech, the dead mimic their former selves. Shepard claimed to act as an advocate for these dead composers, surrendering his own agency in order to share lost, unpublished, and new compositions. As the standards of music performance were embedded with acts of magic, the recital space in turn became a mirror. The notes that sounded there became an incantation and a ritualistic calling up, an invitation to reflect upon the dead, as well as a demonstrative site for the reinforcement of belief. The piano was raised from its hefty earthbound presence to an intermediary tool used to unlock and tease forward evidence of the otherworldly. Shepard in turn doubled as a spectre, both living and temporarily dead, resting within the liminal space of musical performance. His music was "weird and emotionally powerful" and, as a site of mystical naiveté, "…in whatever theme he chose to develop, he thought its intrinsic spirituality could be imitated through music."[73]

[73] Ibid, 14.

vii. "I Can't Believe We Live Here…"

The time that passed between 1889, the year of Shepard's abandonment of San Diego for Paris, and 1971, the year in which the Villa was added to the National Register of Historic Places (Building #71000183), is littered with odd tales about the Villa. The house passed through several owners, and additional stories of séances, buried treasure, and violent behavior became embedded in its local history. Certainly these events contribute to the mystique of the house, but none of which are quite as exceptional as Shepard's own narrative. In 1968, the house was purchased with the intention of transforming it into a house museum, which it became in 1972, remaining open until a sudden closure in 2006.[74]

This building now acts as a text, albeit in the form of a detective novel. In life, Shepard did not write directly of his séance activities at the Villa Montezuma, with the exception of one brief mention implied in a letter to General Grierson, his father, explaining that he did not make music "in the day time."[75] In death Shepard's life at the Villa has been reconstructed using the intangible means of local legendry and gossip, the gaps filled in with ponderings based on architectural interpretation. As a result, the space has become an environment with varying layers of manufactured reality based upon echoed sentiments that are in turn echoed and encapsulated within the textual body of the house.

---

[74] "The Villa Montezuma: History of a House." *Friends of the Villa Montezuma*. n.d. <www.villamontezumamuseum.org/Villa_Site/About_us-Main_pg.html> Accessed 30 January 2016.

[75] Simonson 1966, 37.

Rumors of Shepard's continued spectral presence in San Diego have continued well into the 2000s, and are scattered across vernacular sources, in the form of paranormal enthusiast websites and message boards. While locals often report the appearance of "ghost orbs" in digital photographs, sightings of a seemingly immortal Abyssinian cat dubbed with the name "Psyche," or the shadow of a "hanged butler" in an upstairs window,[76] Shepard himself chooses to manifest in the manner that makes the most sense – acoustically. Reports of faint strains of organ music issuing from the Villa are common, in spite of the lack of musical instruments housed in the space as it is undergoing restoration. When the house operated as a museum, guests often claimed to experience private acoustic manifestations. "Deborah," a guest visiting the museum in 2003, stated the following:

> The youngest girl and I went to Jesse's bathroom to get some water and she got quiet and had this strange look on her face. After a moment she said she heard old organ music and a faint chorus above her. We told the Docent and he said there was an organ that wasn't working right upstairs above that area![77]

As Shepard once channeled the spectres of his own past, professed psychics living in San Diego claim to be in communication with Shepard. Local medium Bonnie Vent is one such case, using channeling methods identical to the Psycho Phone and prior generations of spiritual communicators. Even from the grave, Shepard continues to assert his championing of the coinage and concept of the Psycho

---

[76] "Montezuma Mansion." *Weird California*. 2006. <www.weirdca.com/location.php?location=64> Accessed 30 January 2016.

[77] "Organ Music." *San Diego Paranormal Research*. n.d. <www.sdparanormal.com/Villa_Montezuma.html> Accessed 30 January 2016.

Phone a full year before Edison's article in *Scientific American*.–But Vent also reported that Shepard gave the following message in 2002, a full 75 years after his death:

> I'm sure some people wonder if I am always at the Villa. The answer is no. I do enjoy coming to see the tours. [...] I usually like to stand right behind the actor and pretend I am once again putting on my show. Sometimes they sense my presence and forget their lines.[78]

Ghost hunters claim to have captured electronic voice phenomena stating:

> *"I can't believe we live here."*[79]

viii. Shepard's Final Performance

The January 18, 1914 cover of *The World*[80] shows a stylized drawing of a mature Shepard, piano keyboard underhand, eyes closed, in the throes of spiritual inspiration. He is a tightly wound spring acting the man possessed. In the undulating black cloud that Shepard and his piano emerge from, faces of séance attendees are also teased forward from the darkness to watch the performance in awe or scrutiny. Along with Shepard and his audience, flowing outlines of spirits in transitional states appear. The closest revenants appear as spectral white upon black, watching over the medium and aware of their being called forth to demonstrate. As they retreat further away from the piano, they

---

[78] Vent, Bonnie. "Jesse Shepard Channel: 12/07/2002." *San Diego Paranormal Research*. n.d. <www.sdparanormal.com/articles/article/274216/1670.htm> Accessed 30 January 2016.

[79] Davis 2006, 35.

[80] Image appears in Clare Crane. "Jesse Shepard and the Spark of Genius." *The Journal of San Diego History*. 33.2 (1987). <www.sandiegohistory.org/journal/87spring/shepard.htm> Accessed 30 January 2016.

transition to reenact scenes of battle from their life, becoming less present and responsive to the environment they have been called forth into, as they dissolve away back into the ether and into the white of the page. A byline above the image reads: “Psychic Pianist Paints Music-Picture of Your Moods.”

The facts of Shepard’s death are as theatrical as his mystical enactments. In 1927, at the age of 79, the medium’s destitution was at a critical peak. Los Angeles supporters rallied around him, attending a benefit dinner in his honor at his home. In the course of the evening, he would demonstrate his “instantaneous compositions” for the group of guests in attendance, echoing the scene described above. After playing several improvisations:

> …he turned to the instrument and announced that the next and last piece of the evening would be an Oriental improvisation, Egyptian in character. The piece was long, and when it seemed to be finished he sat perfectly still as if resting after the ordeal of this tremendous composition. He often did that, but it lasted too long and I went up to him – he was gone! His head was only slightly bent forward, as usual in playing, and his hands rested on the keys of the last chord he had touched.[81]

This was how, on May 29, 1927, Shepard’s chronology came to an end.

If we are to approach the production of para-acoustic sound as an extension of flesh that has been deterritorialized from the hands of which it was produced, it is in the process of its free-floating “collisions, abrasions, impingements or minglings”[82] against objects, environments, human ears, and minds where the narratives of this paper are created. The musical medium is an

---

[81] Cited in Simonson 1966, 137.

[82] Connor 2011, 135.

agent of liminality, as he plants one foot on the shores of life and the other on the banks of death. The history of musical mediums – Jesse Shepard among them – created, through spiritualistic mediation, a complicated sonorous void within which an audience could safely temporarily suspend themselves and float among the sounds of another time and place.

To experience paranormal music outside of the séance room is an unfailingly spontaneous event. Musical mediums working in the vein of Jesse Shepard created highly controlled environments where sound was seemingly brought forth on command, for a sustained period of time. Similarly, the rappings of the poltergeist, while initially chaotic, could be trained to rap in response to human interrogation, much as the foundational figureheads of Spiritualism Kate and Margaret Fox did. In these cases, séance attendees and mischievous girls were mentally prepared to either suspend belief or brace themselves for extraordinary experience, or to act the medium and interrogate the spiritual subject. These examples are in contrast to the effects of the feedback loops of everyday sound issued from a residual haunting, to deathbed music, to portentous pipers, and invisible choirs, whose impromptu recitals are unresponsive to human persuasion to perform on command.

In both cases, whether prompted or not, sounds of purportedly paranormal origin—like any sounds—become confused with the boundaries of ourselves. But perhaps more so than noises of mundane origin, the sounds with which this writing is concerned, expected or not, absorbed or deflected, live within us as parasites, embodying narratives to be shared as hopeful or willingly

blocked from memory as traumatic. The sounds of the séance room, of acoustic hauntings, and other anomalous sounds, are embedded with excess narrative, waiting to be received by “imaginative ears” desirous to tap into sounds that belong to an embodied network of belief that could never be locked down to notes and staff on paper.

Elizabeth Street Apports

The first afternoon when they entered the Elizabeth Street house, it was K., her mother, and her grandmother. K's mother had been given the key by her boyfriend the night before he left to return his teaching job in Northern Ontario. In K.'s memory, he never once came into that house while they lived there, and no one at all had been inside the house for at least five years. This is important to remember. The house was unnaturally unruly. The smell that poured over them while they stood in the entry foyer was not as offensive as it could have been. The air was stale with subtle undertones of sickness. Past the foyer, straight ahead, they entered a living room. To the right, a bright red door. This was the first portal they were compelled to open, beckoned by its emergency hue. The door opened up into the type of closet that contains the angled backside of the staircase, but it was quite cavernous—the size of a small bedroom. K.'s mother pulled the cotton string to trigger the hanging bulb overhead. This room, compared to others, smelled fresh. The smell of sweet dough and eggs and butter wafted toward the trio of women. There were two card tables set up alongside one wall. Their tops were lined with baked goods.

Nothing was moldy—in fact, K.'s mother, finding this discovery so strange, reached out without pause and ran her finger through the frosting on a white cake, stopping short at bringing it to her lips. Everything was beautifully arranged, artificial flowers surrounding tiered cakes on polished silver risers and platters of cookies. The cake's icing was fresh, like it had been spackled earlier in

the day. K's mother touched a pyramid of chocolate cookies and jumped back in shock, declaring they were warm to the touch. As an eight year old, the prospect of eating all of these desserts was very exciting to K. But her mother backed out of the room with confused horror written on her face, as though if she were to turn her back, the baked goods would revolt. She forced K. and her grandmother to follow. K. found this upsetting—what were they going to do about all of those treats? "Throw them out," her mother said. She was quite definitive about the whole thing. She was convinced they were a trap, a test laid out by a vengeful spirit in waiting. There could be no other explanation for their freshness. Both tables—pounds and pounds worth of hand-baked effort—were some of the first things that went into black trash bags and out onto the curb. They lived in the house for six months, but it felt much longer. K. often wonders if the house would have acted more amicably if they had partaken in its offerings.

Section Two: Up There

Nothing is Static in The Tides: From the Sea to Mars with Charles Francis Jenkins

i. Stand by for Weather Map

Descending from a flight over Portland, Maine via Detroit, I see spotty islands and stacked heaps of stone blocks forming cliffs below. Boats slice through the butter sea, raising triangles of white foam in their wake. The plane takes a sharp bank north, angling toward a half-round castle structure, secluded on its own island--a prison, a sanctuary, a quarantine bunker--or perhaps just a garrison fort whose presence was rendered ominous by its utter inaccessibility. Fort Gorges, as I would later come to know it, was in fact part of a triangulated defense line active during the American Civil War, working alongside Fort Preble and Fort Scrammel, a sod-roofed sneak camouflaging itself as a hillside. These two stone guardians of Casco Bay likewise emerge into view as the commuter plane lurches through a patch of turbulence and aligns itself with the landing strip.

The remote nature of these obsolete military strongholds summons an image to mind of a photograph I recently found of the laboratory and home of Charles Francis Jenkins. An aerial view of Jenkins' property, five miles north of Washington, DC, shows a flat sweeping field bisected by a dirt road. On one side of the lane, a domesticated gabled house; on the other, a simple building, house-

like but clear in its utilitarian intent. The building is locked into its own kind of triangulation, solitary and yet an essential part of a whole, anchored between two soaring communications towers. This structure is the Jenkins Radiomovie Broadcast Station (W3XK), the first station to be granted a commercial television license in 1928[83] – a modest hub that had grand designs to broadcast outwards and into the world. With an especially vicious Midwest winter quickly falling into the past, the onset of a rainy spring has had me thinking a lot about Jenkins' lesser known work on weather map technology; about radio waves and the sea; and the poetic systems that lay between all of these things, in Jenkins' time and our own.

Charles Francis Jenkins is best known as an underdog pioneer in the development of motion picture and television technology. In 1890, he began to experiment with an apparatus that would become the Phantoscope motion picture projector. By 1895, Jenkins and his collaborator Thomas Armat began to publically demonstrate an improved model.[84] Audiences were impressed, but bitter feuds broke out between the two inventors over ownership of the patent, ending in Armat burgling Jenkins' house to steal the prototype. When the dust settled, Jenkins was forced to walk away, and Armat sold his rights to Thomas

---

[83] National Capital Park and Planning Commission, *Maryland Historic Sites Survey (M:31-10)*, "Jenkins Broadcasting Station," Maryland Historical Trust, August 21, 1975.

[84] Lubachez, Ben J. *The American Cinematographer*, "The Beginnings of the Cinema: Birth of the Final Form of the Motion Pictures—The Work of C. Francis Jenkins," (Hollywood, Calif: ASC Holding Corp, May 1, 1922), 19.

Edison. The apparatus was rechristened as something living—the Vitascope—and Jenkins was forced to find his feet again.

A foundational memory in his autobiography describes him on those "occasions when he ran out of the house at the noise of awesome honking, to watch the wild geese flying over, darkening the sky with their numbers."[85] Skies heavy with geese and migration from one coast to another pushed a young and mobile Jenkins to explore the North and Southwest. With this walkabout complete in 1890, Jenkins settled into a job in Washington, DC, working as a secretary to Sumner Increase Kimball and his United States Life Saving Service.[86] As Jenkins transcribed reports on his typewriter at the USLSS, he was emotionally affected by their contents, describing the sea as conscious, and those who fought to calm its fury as heroic. He notes the efforts rescuers as "lonely patrols in blizzard weather; of sailors lashed to the rigging and drenched with freezing spray, or snatched overboard by the angry sea; and which often later laid the dead body on the beach, gently and tenderly, as though in atonement for her ungovernable fury of the day before."[87]

Within a year, Jenkins left the USLSS in order to pursue his mechanical experiments with motion pictures as a full-time career, but the magical qualities of wet weather systems continued to haunt him, even in the desert. In a letter

---

[85] Jenkins, C.F., *The Boyhood of an Inventor* (Washington, D.C: Printed by National Capital Press, Inc., 1931), 5.

[86] Jenkins, 67; Kimball was the first to unify local seafaring rescue organizations, an effort that would transform into the US Coast Guard in 1915.

[87] Jenkins 68.

written to a friend, Jenkins spoke of his adventures camping in the "sandy waste" of Canyon Diabolo, near Santa Fe, in 1899. He relayed stories of distress caused by broken compasses, of silence while sleeping in a nest of sand. His travels led him to the Hopi Snake Dance ceremony, which he filmed using one of his experimental cameras. "The whole is an elaborate prayer for rain, and rain it did that night. It poured. A dry sink near the middle trading post was now a lake around which I must detour."[88]

By way of invitation in September 1923, Jenkins found himself among a party of naval officers aboard *USS St. Mihiel* to observe "the experiment of sinking a battleship by airplane bombs."[89] Several missed targets later, the 10,000 pound TNT bomb finally struck the mark, anchored a safe distance away. He and the crowd watched as the ship reduced to sinking cinders. He wrote his wife (who was not invited) back at home: "We steamed over her grave in a great oil slick which marked the spot. … Those of us who watched her go down were silent and rather awed, I think. […] It didn't seem quite sportsmanlike. […] I had troubled dreams last night, dreams of again seeing the bombs strike." [90]

Jenkins found his second life in 1925 as the first American to demonstrate an invention that could transmit moving pictures by "radiovision."[91] This same

---

[88] Jenkins 96.

[89] Ibid 143.

[90] Ibid 143.

[91] "First Motion Pictures Transmitted by Radio Are Shown in Capital," *Washington Post*, (Washington, DC: June 14, 1925), 1, 3-4.

year, he was awarded a patent for "Transmitting Pictures Over Wireless," which we now more simply call *television*. Demonstrations were reported in the Washington Sunday Star in June, 1925: "…the image of a small cross revolving in a beam of light … while not clear-cut, was easily distinguishable."[92] The cross was in fact an image of a windmill spinning, a continuous four-foot loop of film that mimicked the motion of its contents, around and around, through the projector, for ten minutes. The wavering image was relayed from the Jenkins Laboratory to the Navy's Anacostia radio station on June 13, 1925; this was the foundational moment when objects at a distance were seen in this way.

The sea continued to find Jenkins. In July of 1926, the Navy, Weather Bureau, and a group of ship captains gathered in Jenkins' laboratory to discuss the development of an experimental weather map service using radiofacsimile. Jenkins was a fast worker, and by August, a prototype was ready to test. The transmitter consisted of a motor-rotated glass cylinder, with a printed map wrapped around its circumference. The idea was that, hour by hour, on board the ship, "after the usual code announcement, the radio man would hear: 'Stand by for a weather map' […] In a few minutes a weather map in red ink on the brown printed based map would be ready to hand to the captain of the ship."[93] The first map was telecast in this way on August 18, 1926, and Jenkins became the father of marine facsimile.

---

[92] "Radio Vision Shown First Time in History by Capital Inventor," *Sunday Star* (Washington, DC: June 14, 1925), 1.

[93] Jenkins 156.

A network of locations was outfitted with weather mapping instruments. Jenkins' rural laboratory remained the central observation site, with three additional dispatching devices sent to operators at the Navy, the Weather Bureau, and one to Chicago. They were placed aboard the Atlantic fleet flagship, the *USS Trenton*, and *USS Kittery*.[94] The ships cruised around hazardous sites in the Caribbean Sea known to cause major issues with static in on-deck communications devices.

Jenkins converted radio and wireless into lifelines—beacons to keep the ship buoyant against the volatile dangers of storms and fog. The legibility of warning signals sent by way of the earlier technologies of the telegraph could be slow. And messages ran the risk of becoming unreadable if static garbled transmissions being received by the ship's communication systems. Jenkins' weather maps, however, could be read for their context, on the whole—weather data was transmitted as a picture, printed line by line over top of a standard map base. So even if interference stalled the map for a few lines, it could still be coaxed into becoming comprehensible. This was especially useful in static-producing storms at sea. In September of that same year, the *USS Kittery*, facing the blows of the Great Miami Hurricane, was able to use the weather map system to change its course and avoid the "maximum fury" of the storm.

From September 1926 until March 1927, the collaboration between Jenkins Laboratories, the Navy, and the US Weather Bureau continued. This type

---

[94] Ibid 158.

of small-scale experimentation served as an ample proving ground, but there was no hope in competing with the improved systems being offered by major telecommunications powerhouses like RCA. Jenkins soon shifted focus to refine his efforts in mechanical scanning television. But the basic technology of his marine weather facsimile system remains a vital tool for anticipating the threat of sea-born storms, even today.

It is no stretch of imagination to believe that Jenkins would have encountered a slew of old sailor superstitions in his time working with the Navy and the US Life Saving Service—and that he could have recognized truth in some of them. As he worked to find a way to close the gap between the qualities of weather forecasting on land and at sea, the history of Jenkins' channeling of radiowaves to do the trick, along with the mysterious hold of weather upon is life—is fascinating. Perhaps even more so is the fact that he consequently rendered centuries of weatherlore obsolete, especially that old saying: "What the sea wants, the sea will have."

Mirages projected up into the clouds above the ocean -- fata morgana -- are tricks of the eye, dangers designed to lure sailors at sea to their demise. Spired castles packed with treasure, ships with sky-bound twin neighbors turned over easy, triple forms end on end, ghost ships that always remain out of reach, shifting

form and skewing like a misaligned vertical hold on a television screen. The potential for infinite reflections and diffractions in the low-hanging space that the water are a form of phantasmatic communication--mischief divorced from intent, long distance calls made by the earth to the sky. Here, the tides never retreat.

---

ii. Turn me on, Dead Man

October 12, 1969. Michigan fall, a blustery Sunday afternoon, all-day rain and fog. Broadcasting from WKNR-FM/100.3 FM in Dearborn, a city adjacent to Detroit, DJ "Uncle" Russ Gibb received a call-in from an anonymous student. The caller, identified only as "Tom," urged Gibb to play the Beatles' "Revolution No. 9" backwards, to partake in the garbled chant with him, "Turn me on, dead man." The rumor of Paul's death wasn't new—-it had been circulating college campuses for awhile, and the underground media stacked their own loose theories on top of vague suspicions. Wildfire rumors repeated the incantation, "Paul is Dead," and he had been so since 1966. Paul, or, perhaps his lookalike, made a public rebuttal in Life magazine. Superfans logged hours hovering over their turntables, teasing out secret codes from films, album covers and the backwards spin of Beatles records. Lennon in white led the funeral procession across Abbey Road. A rogue force was killing the rock star while he remained alive. Soundwaves are subject to

transformation, to carry messages between the living and the dead. For media theorist Friedrich Kittler, "death is primarily a radio topic."[95]

As the American frontier closed, there was a need to explore farther afield. In 1893, when Frederick Jackson Turner presented his "frontier thesis" at the World Columbia Exposition in Chicago, he declared that the "primal American experience was over."[96] The lines between civilization and the wild frontier had grown together. America had swallowed itself. The wilderness had shifted from land to ocean and from ocean to land, and so in a post-borderland society, where else was there to go? Alien forms operating behind the facades of landscape and humanoid terms were evidently absent in a closed frontier, and so we turned upwards to the sky once more, to make it *make strange*.

The French voyante Helene Smith talked to Mars long before it was fashionable to do so. Building her reputation among Spiritualist circles, Smith attained a degree of fame in the late 19th-century with her automatic writing transmissions. Her communications were received from her familiar spirit, Leopold, who had been reincarnated many times. In the most popular messages, Smith relayed stories she claimed to receive from Leopold's visits to Mars, which she would translate from an advanced constructed language of symbols (deemed authentic by de Saussure, no less) back into French. Theodore Flourney, her psychologist and friend, published *From India to the Planet Mars*, a book of

---

[95] Kittler, Friedrich A. *Gramophone, Film, Typewriter* (Stanford, Calif: Stanford University Press, 1999), 3.

[96] Edgerton, Gary R. *The Columbia History of American Television* (New York: Columbia University Press, 2007), 43.

transmissions grouped into various romances, and the "Martian" and "Ultramartian" cycles. Smith's "receptions" follow a chain of removal from the source that mimics media, like a radio transmission with increasing static.

The unknowable nature of outer space was united with an armful of fresh devices that could power and mediate fantastical thoughts, attempt contact, and measure things we couldn't see. Science and technology became part of the quintessential American experience, sufficiently alienating--making strange--what had only just begun to seem familiar. The retrograde cycle of settlement and the primitive began to feedback upon itself at a much faster pace.

The missteps of technological discoveries have their own idealistic value. The space of absence, the space between the steps to change superstition into science-- the act of simultaneously having *not known* of the existence of sound waves and of *now knowing* but *not knowing* their potential and boundaries of use--is a strand of thinking that questions common sense, and one that frees up space for wonder. The drive to eradicate superstition in modernity has led to a deflated believing subject. We accept en masse that we have lost our ability to deeply *know things* about magic. But the power of the ritual can be found buried within Media Things. When we record sound, we store time, archiving our own impermanence. When we are haunted by voices that stand outside of the exactly *here and now*, it is because we are being *touched, from a distance*. With the knowledge of sound wave properties becoming widespread, inventions were created to tap into them, see them, manipulate them, volley them for distances, repeated *ad infinitum*.

Consider a less common story of the spectral media variety, interleaved somewhere between media rumor hype and personal experience: the history of Charles Francis Jenkins and Dr. David Todd's experiments to try and "listen to Mars" in 1924. The markings of the rectangular slab of wood and metal I'm peering at through the black netting of an industrial warehouse shelf tell me that it was made by the National Electric Supply Co. in Washington, DC, and that it is a Model SE 950. Its record tells me it was made on March 26, 1918, and that it was a Navy-type radio receiver used by Jenkins in his laboratory. It was designed to solve a problem—to be rugged and reliable on the battlefields of WWI—but this SE950 clearly saw no action. It doesn't matter how forcefully I push the illuminated screen of my flashlight against the protective mesh barrier, casting light to get a better look--the experimental Jenkins radio is confident in its ability to remain an enigma. And so with no immediate legibility of use, it seems to have carved out a comfortable niche as a philosophical black box of the Latour variety, surrounded by other fragments of things that I "inherited" as a recently appointed museum curator at the Henry Ford Museum.

Charles Francis Jenkins was born north of Dayton, Ohio in 1867 to a Quaker family. Until the Great Depression hit, Jenkins had found some success with his invention of the mechanical scanning television in 1923, and was granted the first experimental television station license in the United States in 1928.[97] In spite of being considered the underdog inventor of early television, Jenkins never

[97] Edgerton 30.

referred to his invention as anything but "radio vision." He sold $7.50 "radiovisor" conversion kits to amateur radio enthusiasts (a price point less than it cost to manufacture them), in hopes that the circle of viewers for his regular telecasts would continue to grow and be entertained. These telecasts—what were essentially tableaux of moving silhouetted figures—were crude in comparison to later television technology.

In 1924, as Mars drew close to Earth, the excitement of the American public grew considerably. The oppositional distance of 35,000,000 miles was a long shot, but was still close enough to study the planet in order to test observations that had been made many years prior by astronomer Percival Lowell.[98] As the leading advocate for belief in an advanced Martian society, Lowell published a cycle of three books about Mars. With the first published in 1895, he became the first major proponent of an intelligent planet, to such a huge degree of depth, illustrations and all. The images of lines he saw through the eyepiece of his telescope appeared to be an intentional infrastructure. Lowell spent a large portion of his career promoting the idea that the lines were evidence, of Martian-made irrigation canals crisscrossing the surface of the planet. A web of canal networks like these, like "network[s] of wires, turns a landscape, with all its jagged accident and lumpy irregularity, into an idea."[99] As Mars' arrival loomed--an idea coming closer--the most unconventional scientists

---

[98] Connor, Steven. *Paraphernalia: The Curious Lives of Magical Things* (London: Profile Books, 2011), 152.

[99] Connor 152.

tallied up schemes to determine "how much water a problematical Martian would have for daily drinking bathing and shaving."[100] In the end, the canals proved to be optical illusion produced by a glitch of the observing telescope. Lowell was not the perpetrator of a purposeful hoax, but victim of persistent visual misinformation. The imminent arrival of Mars and the potential for interaction were serious business. The Chief of US Naval Operations, Edward W. Eberle, sent this telegram on August 22nd:

> 7021 ALNAVSTA EIGHT NAVY DESIRES COOPERATE ASTRONOMERS WHO BELIEVE POSSIBLE THAT MARS MAY ATTEMPT COMMUNICATION BY RADIO WAVES WITH THIS PLANET WHILE THEY ARE NEAR TOGETHER THIS END ALL SHORE RADIO STATIONS WILL ESPECIALLY NOTE AND REPORT ANY ELECTRICAL PHENOMENON UNUSUAL CHARACTER AND WILL COVER AS WIDE BAND FREQUENCIES AS POSSIBLE FROM 2400 AUGUST TWENTY FIRST TO 2400 AUGUST TWENTY FOURTH WITHOUT INTERFERRING [sic.] WITH TRAFFIC 1800[101]

Jenkins's "radio photo message continuous transmission machine," or more simply, the Jenkins Radio Camera, was to be put to task for the mission. The apparatus had the ability to picturize sound produced by radio phenomena, producing a long strip of photographic paper that could be developed to reveal

---

[100] "Mars' Latest Visit Leaves Riddle of Life Unsolved: Red Planet Probed by Watchers in Search for Clues That Life Exists on Its Surface," *Popular Mechanics Magazine* (New York: Hearst Corp., January 1927), 8-12.

[101] Telegram from the Secretary of the Navy to All Naval Stations Regarding Mars, August 22, 1924, Record Group 181, Records of Naval Districts and Shore Establishments, 1784-2000, ARC Identifier 596070, National Archives and Records Administration.

the chatter of sound waves.[102] "As the film unwinds, an instrument passes over it from left to right fifty times every inch. An incoming sound causes a light to be flashed on the film, and this produces a black line."[103] The Army and Navy proceeded to silence all radio transmission for short periods over the course of three days in hopes that any errant spikes on Jenkins's machine would pick up signals from Mars. Advertisements in radio magazines requested that enthusiasts cooperate with the radio silence, but the public proceeded to build and tune their own specialized sets to monitor Mars, hoping to record their own reports of unknown origin.

Doubtful that his Radio Camera would be useful to the cause, Jenkins nonetheless agreed to work alongside Dr. David Todd, the former head of Astronomy at Amherst College, and William F. Friedman, the chief decoding expert from the Army's Signal Office. In the event that communications were received, Friedman was brought on board to be a code-breaker to interpret what would surely be a complex language or mathematical enigma. Todd clearly believed in the gadget's capacity for success:

> The Jenkins machine is perhaps the hypothetical Martians' best chance of making themselves known to earth. If they have, as well they may, a machine that now is transmitting earthward their 'close-up' of faces, scenes, buildings, landscapes and what not, their sunlight values having been converted into electric values before

---

[102] "Weird 'Radio Signal' Film Deepens Mystery of Mars: Pictorially Recorded Messages Here Mere Tangles Mass of Dots and Dashes--Growing Wonderment May Bring Tenable Interpretation Theory," *Washington Post* (August 27, 1924), 3.

[103] Ibid 3.

> projection earthward, all these would surely register on the weirdly unique little mechanism.[104]

In preparation for the experiment, the US Naval Observatory sent an antenna 3000 meters above the ground in a dirigible pointed toward Mars. If anything interrupted the silence, the signals would be broadcast back down to the Jenkins Laboratory's receiver, which would in turn relay the triggering data to the Radio Camera. Recording commenced on August 21st for five minutes, at the top of every hour. For three days, everyone simply listened and waited.

When the film was developed 36 hours later, the American public was surprised when the print contained "messages" of dots and dashes and "a crudely drawn face," images that repeated themselves like a heartbeat down the entire thirty-foot length of the film. Jenkins, who had counted on the film being blank, refused to admit that the signals were anything but scientific curiosity divorced from any potential that the communications received were indeed from Mars. Instead, explanations for the signals range from the static of a trolley passing by on the hour to misaligned equipment to the natural symphonic radio waves produced by Jupiter. In the end, the static discharge of those passing trolleys muddled the results into a perfect canvas for the projection of the public's desire to believe in the possibility of extraterrestrial graphical communication. Jenkins feared that his machine would be perpetrated as a hoax and grouped with all

---

[104] Ibid, 3; Todd was an oddball character with his own story: his wife, Mabel Loomis Todd, had a longtime affair with William Austin Dickenson, brother to poet, Emily. The Todd Crater on *Phobos*, a satellite of Mars, is named after him, as are the asteroids *511 Davida* (the sixth largest asteroid) and *510 Mabella* (a minor planet that circles the sun). The astronomer apparently suffered from erratic behavior, leading to a gradual retirement from the Amherst faculty, and a series of institutionalizations in the last decades of his life.

other manner of pseudo-scientific apparatuses. Moreover, he worried that his reputation would be tarnished, so when he released the films to the curious public he did so with a caveat: "Quite likely the sounds recorded are the result of heterodyning, or interference of radio signals. The film shows a repetition, at intervals of about a half hour, of what appears to be a man's face. It's a freak which we can't explain."[105]

In her study of the soundscapes of the early 20th century, Emily Thompson talks about how the "rise of electroacoustic devices redescribed sounds as signals, which allowed for the measurement and standardization of soundscapes."[106] She goes on to talk of the sounds of one's time as "an auditory or aural landscape [...] simultaneously a physical environment and a way of perceiving that environment; it is both a world and a culture constructed to make sense of that world."[107] This is an important link that applies to Jenkins, who created the Radio Camera, a pioneering apparatus capable of capturing the graphical qualities of signal frequencies rather than just the fleeting and co-present auditory event.

Today, the graphical score to such events can codified back into sound again by using freeware computer applications like Nicolas Fournel's *Audiopaint*. The field of spectrographic sound recovery is a useful tool that has practical and

---

[105] Ibid 4.

[106] Helmreich, Stefan. "An Anthropologist Underwater: Immersive Soundscapes, Submarine Cyborgs, and Transductive Ethnography." *The Sound Studies Reader,* ed. Jonathan Sterne (New York: Routledge, 2012), 171.

[107] Thompson, Emily A. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (Cambridge, Mass: MIT Press, 2002), 1.

artistic applications. Patrick Feaster defines "educed audio" as a process to "bring out, elicit, develop, from a condition of latent, rudimentary, or merely potential existence."[108] The "intelligence" of the static read-outs that were produced in the Mars experiments are perfectly recoverable, using a menu of processes related to "paleospectrophony."[109] And if Jenkins' SE950 radio were to be powered on and attached to an amplifier, the "Martian static" could be re-territorialized back into space. The radio's operation wouldn't change at all from the last time it had been used in the 1930s, save for the fact that a large audience would be able to hear the audio, rather than just Jenkins and Dr. Todd, who were the only people present during its original capture.

The most active points of Jenkins' career were underway during a time of hopeful application of technology, before it became a measure of contemporary anxiety in the postwar and Cold War era. And while Jenkins' operated in a *physical* sense from his laboratory just outside of Washington, D.C., it was his ability to navigate and tame that mystifying *invisible* landscape of wireless signals, creating new mechanisms for their interpretation, that is most enchanting. By extension, Jenkins became a poetic conduit capable of seemingly otherworldly channeling of weather systems, of Martian communication, of the then-unknown electrical impulses that could be transformed into images and sound. He tamed the mentally contentious and grossly sublime space of

---

[108] Feaster, Patrick. *Pictures of Sound: One Thousand Years of Educed Audio: 980-1980* (Dust to Digital, 2012), 49.

[109] Feaster, 29.

electronic—and by extension—spatial, frontiers. By providing translation devices, he created carriers for new techno-sensual experiences in domestic space like "radio vision visors," and demonstrated how one could transform mediums, by fine-tuning radio frequencies to send "pictures through the air."[110]

Science and technology became part of the quintessential American experience, sufficiently alienating--*making strange*--what had only just begun to seem familiar. This indeterminacy makes the radio itself an example of an object that seems like it should "do more, and mean more" than it lets on.[111] It is a double-dealing thing, a pliable thing, something that can be used for conjuring, but ultimately and above all, it is a *non-compliant* thing. The Jenkins experimental radio was designed as a military-use receiver, an intention that became secondary to its eventual employment as a machine to capture extraterrestrial transmissions. Yet the connection Jenkins's radio was expected to make was a dubious task from the start, subject to doubt even if it were to have been successful in its ability to "listen to Mars." He asked radio to act in a way that was against its nature by asking it to reverse its ear and listen, and as part of the earth's nervous system, to become a detector of aberrations in the sky. Hannah Arendt refers to the rise of space consciousness in the 1950s as "worldly alienation."[112] It isn't too far of a leap to connect Jenkins' own nascent alienation

---

[110] "Moving Pictures Sent by Radio," *Popular Mechanics* (Chicago, Ill: Popular Mechanics Co, September 1925), 408.

[111] Connor 3.

[112] Crowley, David, and Jane Pavitt. *Cold War Modern: Design 1945-1970* (London: V & A, 2008), 165.

(minus any sense of paranoia) with the rise of space consciousness in popular culture in the 1950s-60s, and to the establishment of the extraterrestrial listening organization, SETI Institute, in the late 1990s. Ultimately Jenkins' belief that it was possible to scrub the airwaves back to their uncluttered, tabula rasa beginnings was a folly. When Jenkins and Todd took their chance to tap in to the possibility of extraterrestrial communication, they were divided between skepticism and hope, but united in curiosity.

The device from the Henry Ford Museum's warehouse shelf is in fact the receiving radio from the August 1924 experiment, otherwise known as the device that triggered the Photo Radio printer. The sound waves captured during the experiment are visual records of a piece of technology pushed beyond its limits, and denied any sense of passive documents. A collision of various phenomena, man-made and natural, forced the radio to record and to talk back, but the squeaks, yowls and squawks of early radio also had a visual counterpart. Static and noise can produce apophenia, the desire to see things where there is no thing—images buried in the sparks or the feeling of being haunted from the deepest point of a record groove. Nothing is *really* static.

Book Street Skies

K.'s life began as such: or, her life began as such in the sense that some vague logic of coagulating consciousness was by then beginning to occur. The time spoken of in this writing was the time when her childhood memories began to flow together, their importance (or conversely their mundanity) locking together to form the beginnings of a distinct personality.

It was August, and K. was very young – young enough to be in a sitting in a stroller on her grandparent's front porch. It was several days into an intense heat-wave, and everyone was sitting on the porch because there was a thunderstorm coming. This was not uncommon in the late summer, when the sticky heat was blocked in by the tall corn fields. No one in K.'s family had air-conditioning; and so on those days where no amount of air flow directed into the house by the noisy box fans in windows could take the edge off, they sat on their porches with sweaty mugs of pink lemonade and waited for the storms to break the humidity. She was not then, nor has she ever been afraid of thunderstorms. The rumble of the thunder seemed to signal a storm that could get away from itself but they stayed, with K. in her stroller flanked by her grandparents and a few uncles and aunts leaning against the railing. Like most storms, the air was addictive and terrifying all the same. Bravery diminished when the lightning became too intense and the pounding of the rain drowned out conversation. The storm tore through quickly, the rain lessened to a drizzle and the thunder receded. K. remembers the sharp smell of dirt and sulfur and chlorophyll in the air.

Everything that happened next happened in *front* of the clouds. The lightning had long retreated behind the bank of storm clouds, miles away now. This was something else. True, the flash and rumble occasionally lit everything up, but it was light behind an opaque screen. Purple twilight. The Libbey Glass Company -- the factory her grandfather had worked at since he was old enough to reach the assembly line by standing on a box -- was still operational. But it was a Sunday night, and so no lines were running and the lights were out on the cooling tower. This is important.

An oblong disc of light appeared in front of the clouds, hovering near the ten-story tall cooling shaft of the factory, like a celestial light switch had been flipped on, a firefly the size of an automobile that will always remain questionable in her memory. There was no travelling time for it to have come from elsewhere. It was very abruptly just *there*. The large disc of light produced three more. One disc plus three others, smaller but no less in intensity. The family on the porch were all gaping, pointing, and K., in her stroller, pointing too. No one was talking, only silently pointing. Soon others wandered off of their porches and out of their living room. She recalls how the streets nearest to her grandparents' house beginning to fill with people standing, confused, looking up and talking in hurried tones about the lights in the sky. K. wasn't talking, but her arm was stretched out, joining in the collective indication towards the oddities above. Child's arm as silent signal and way-marker to the sky. K. does not remember how that evening ended.

Squier's Music for the Trees

Dr. Walter Van Dyke Bingham, author of the 1901 *Studies in Melody* and professor at Carnegie Institute of Technology, was contracted by Thomas Edison in the early 1920s to conduct a study about the psychic effects of music on human mood. It was, at the root of things, about stimulation: stimulation of desire, and stimulation of efficiency. Marketed desire to promote the consumption of music for leisure at home (in the "realism experiment"), but it could also be inserted into the wider scope of synchronicity and scientific management, as background music in industrial settings. This was not music for creative effect, this was music meant to psychically drive its workers towards a greater efficiency in industrial production. The study produced, *Mood Music*, was the basis of a marketing campaign for phonograph dealers to sell customers on the idea of holding "mood changing parties" to modify the mental states of guests through the use of sound.

A 1921 advertisement from the James Hislop Co. asks readers to "…imagine you have just come home from shopping. You are tired and nervous. You step to the New Edison and put on an Edison Re-Creation. Gradually the music soothes you. You forget fatigue and your 'nerves' disappear."[113] The experiment was crowdsourced, inviting consumers to be of service to Edison directly: "…ask us for a supply of Charts and invite your friends for a Mood

[113] "The New Edison: The Phonograph with a Soul," The Paris Morning News (Paris, Texas, 13 February 1921), 12.

Change Chart party. They will find it more entertaining than the Ouija board. […] The New Edison has perfect realism."[114]

Edison and Bingham weren't the only people thinking about the power of music and sound for organized control. Towards the end of World War I, Chief Signal Officer for the United States Army, General George Owen Squier was responsible for spearheading the development of radio communications equipment for the military. Squier was a good fit for the mission: in the 1890s, while working towards his PhD in electrical science at Johns Hopkins, he experimented with remote detonation devices and radio controlled artillery.

It is important to note that before the United States entered World War I, communicating in the field via radio occurred through Morse code. The field radios that allowed soldiers on the ground to communicate with one another were cumbersome to transport, assemble, and knockdown. It took up to three pack mules to transport one radio. The inconveniences of this form of communication in grimy battle situations pushed Squier to use his knowledge of electrical engineering. He first improved radio communication by perfecting military radio tubes, creating standardized, rugged, and reliable alternatives. Squier wasn't shy in collaborating with established companies in the communication industry; his symbiotic work that joined the military with large communications businesses is one area in which he excelled.

---

[114] Ibid, 12.

Next, he founded a research and development laboratory at Camp Alfred Vail in New Jersey, an intensive training site for signal troops. Radio intelligence operators at Vail not only learned to quickly intercept messages (in English and foreign languages)—they also worked with the analog technology of the carrier pigeon. His staff of radio operators and engineers grew into the hundreds. It was out of this laboratory that the revolutionary Western Electric SCR-67 and 68 emerged.[115] These radios were celebrated for their ability to transmit the human voice—a much more immediate way to receive information, rather than dots and dashes of Morse code. The SCR series were also designed for the reception of messages relayed between aircraft and ground radio operators. The quality of these transmissions were lacking—airplanes were loud and drafty, making them a less than ideal environment for clear communication. The SCR-67 (for ground use) and SCR-68 (airborne) radio units made the channels clear again. These radiotelephones not only resulted in an easier exchange of information between pilots and ground operators—they also allowed controllers to direct precise formation flying, acrobatics, and to guide airborne gunfire.

But Squier's work with the SCR radiophone wasn't his only claim to fame. He also received patents related to multiplexing telephony in 1909—a concept that is integral to the modern communication age.[116] His particular variety of multiplexing allowed multiple voice messages to be sent over a single wire—and

---

[115] Beauchamp, Ken. *History of Telegraphy* (London: The Institution of Electrical Engineers, 2001), 361.

[116] US Patent #980357

in today's terms, is a concept that is integral to things like networked computers and the organization of the flows of data that rampage through that thing we now call "the Internet."

And then there is the curious concept of "Tree Telephony." By hooking antenna wires into a tree (preferably oak, and in full foliage), the inventor realized that he could listen to broadcasts being issued from the powerful Nauen, Germany wireless station. Rogue signals tapping out from within the trees. This was the same station that the Telefunken-run stations at Sayville and Tuckerton were communicating with—and that Charles Apgar was recording and decrypting messages from to pass off to the US Secret Service.

When the war ended, his life in invention carried on. In 1922, he filed a patent for "Electrical Signaling," which was the basis for his idea that, using existing electrical lines, business owners could receive piped-in music in their stores. [117] They would pay a subscription fee, and endless music would fill their shops through a wooden box provided by Squier. Intrigued with the made-up word of "Kodak," he combined "music" with "Kodak"—and Muzak was born.[118] Muzak is something we now equate with the sappy, soothing music heard in public spaces: department stores, offices, and grocery stores. Muzak is polite—it doesn't intrude—but recedes into the background, creating a mind-numbing palette of sound. The sounds we tend to think of when we are asked to recall a

---

[117] US Patent #1641608 A

[118] Lanza, Joseph. *Elevator Music: A Surreal History of Muzak, Easy-Listening, and Other Moodsong* (New York: St. Martin's Press, 1994), 30.

memory of Muzak is a sonic palette that is the outcome of the outcome of psychological research—an effect called "stimulus progression."[119] Easy listening tones build up in rhythm and intensity over the course of 15 minutes—the general lingering time of a shopper, or the time it takes a worker to perform an average task. Over time, Muzak tried to align itself as a form of time and labor management, taking cues from Frederick Winslow Taylor's 1911 classic, *Principles of Scientific Management*. This phase of Muzak occurred well after Squier sold his rights to the invention.

A hidden trace of Squier is found, inexplicably, in a quilt. In 1891 the Dryden Ladies Library Association held a fundraising campaign to build a new Methodist Church. They did this by selling quilt squares to prominent community members, who paid to have their name on the quilt, and then paid again for tickets to the raffle to win it back. On the upper left hand side of the Dryden Community Pictorial Quilt, the name of George Owen Squier appears encased within botanical parentheses, along with the rest of his family. Each square of the quilt is embroidered in fine detail, depicting farm animals, furniture, tools, horseshoes and flowers. In a transference of sentimentality, one can't help but wonder if any of the embroidered Dryden farmsteads and businesses survived the heyday of Muzak as aural witnesses to its saccharine tones.

Squier was often featured in enthusiast magazines for radio culture. The October 1922 issue of *Popular Radio* featured his image along with this caption: "Radio will bring to the people of this country the intellectual background which

---

[119] Lanza, 48.

heretofore only the rich could afford. Yet the work of the radio engineer as an educator has only just begun. Soon we will be measuring culture by watts." The wooden box that accompanied the original Muzak subscription has essentially become our computer, looped into digital music subscription services with their readymade "chill out" playlists. Squier's "wired radio" has become truly wireless.

Radio Cadiz: Up the Hatch with the Piccards

An image taken from lofty heights, long before sunrise. Below, something that could be real, or a stage set: a hemisphere of something as soft and white as a sheet is rising up from the ground. Blurred lights sketch out the boundaries of the tilted horizon, and car lights snake to and from the makeshift launch pad, revealing access points to the site. This could be a clandestine image of a secret government project involving recovered alien spacecraft—or it could be something less sinister. What is documented in this image is surprisingly and accurately connected to extraterrestrial explorations, albeit of the human-powered variety.

The image was taken from a dirigible mooring mast, overlooking Ford Airport field, on October 23, 1934. The white thing rising up from the earth is a partially inflated 175-foot balloon, growing swollen with hydrogen. Not visible in the image is a lightweight titanium gondola, awaiting its silent launch into the early morning sky, powered by grace of the (highly explosive) balloon.

The crowd of visitors and press that gathered on the ground below are swallowed up by height and the dark grain of the photograph, though the lines of their parked cars are visible. Other views of this event, brought down to earth, show school-aged children confusedly looking upwards in all directions, as though the sky could provide answers to the reason they have been hauled out of bed at 4:15am. In another staged media photograph, two angry-looking children plucked from the crowd and a few smiling adults, clearly of importance, are

standing in front of a metal sphere with an open hatch. The sphere looks like the type of contraption that daredevils used to launch themselves over Niagara Falls.

The hubbub captured in this series of images documents the Piccard balloon ascension, which rose nearly 11 miles high, into the stratosphere. A series of photographs taken in the daylight show cottony sheets of clouds and the view upwards, into the sewn patchwork of the balloon as it ascends to altitudes of 9000, 15000, 16000 and finally 57579 feet, at full inflation.

Jeanette Piccard, who manned the gondola below the hydrogen-filled balloon, was a "street wise" lady with impressive credentials. She was a graduate of the University of Chicago's organic chemistry program, and fearless aeronaut. She was the first woman to be licensed as a balloon pilot, became the first US woman to enter the stratosphere—and technically speaking, space. Jean Piccard, husband to Jeanette, was also crammed into the gondola, as chief scientific observer. Jean dealt with the sensitive scientific instruments throughout the flight, gathering data on the nature of cosmic radiation. The flight's overall inspiration, beyond any notion of record-breaking, was born out of an initiative by the physicist Arthur Holly Compton, who hoped to conduct a worldwide survey to measure the velocity and intensities of cosmic rays.[120] The Piccard's also brought along their pet turtle, Fleur de Lys—another record-setter as the first reptile in space.[121] The role of the turtle is undocumented, and it does not seem to

---

[120] "Strange Instrument Built to Solve Mystery of Cosmic Rays," *Popular Science* (New York: Popular Science Pub. Co., April 1932), 60.

[121] Crouch, Tom D. *The Eagle Aloft: Two Centuries of the Balloon in America* (Washington, D.C: Smithsonian Institution Press, 1983), 629.

appear in any photographs. Presumably, Fleur de Lys was brought along to study the effects of altitude on animals, over a decade before fruit flies and Albert II the rhesus monkey were launched from V-2 rockets at White Sands Proving Grounds in the late 1940s.

Radio reached lofty heights on the day of the Piccard's flight too, setting a record for high-altitude radio communication. A shortwave radio was built by William Duckwitz (with the help of William Gassett) to keep the lines of communication open during the Piccard ascent. Duckwitz's design was based upon plans taken from an article in *QST* magazine; its exposed knobs, wires, and tubes are typical of the DIY ethos and pure functionality found in amateur radio at that time.[122] Duckwitz's call sign, W8CJT, is burned into the wooden base of the radio's antenna as a point of pride—branded as a player in the hydrogen-fueled fervor of the Piccard's journey.

Radio equipment was installed in the gondola, and Duckwitz's homemade transceiver found a home in the backseat of a "radio car"—a standard Ford V-8—that trailed the flight on the roads below. Originally, it was calculated that the Piccard's balloon would drift towards Cleveland, so the radio car headed to the city airport, attempting contact every half hour. But the day was overcast, and the when the balloon was blown off course, Duckwitz's radio didn't act as planned: "Several times it was thought that the voice of Mrs. Piccard could be heard, but

[122] Reminiscence, "Written Reminiscence of the Piccard Stratosphere Balloon Flight of October 23, 1934," ARCH.13, Box 18, Folder: "Piccard Stratosphere Balloon Flight, n.d., Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

no useful information was forthcoming."[123] When an airplane managed to track the Piccard's balloon—which by this point was beginning its descent—an estimate of where it was headed was radioed to Duckwitz. The V-8's fast engine made it possible for the radio car to blast down the country roads at speeds of 75-mph. The caravan of newspaper reporters following behind couldn't hope to match this pace. Finally, near New Philadelphia, "a signal was received from the Piccards which was quite loud but not very intelligible and the conclusion was reached that the cosmic ray apparatus must be causing Mrs. Piccard considerable trouble in operating the radio."[124] The Piccards seemed to have their hands full with other equipment and preparing for a bumpy landing.

While the Piccards were quickly shoveling as much ballast out of the gondola as possible to stop their alarmingly fast descent towards the roof of a farmhouse, the radio car was speeding along the highway, heading towards the vicinity where it was believed they would land. The written reminiscence detailed how: "As the radio car came to a stop the button controlling the siren, which had been installed so as to make better time through traffic, was accidentally touched and this added to the screech of brakes and ten men climbing hurriedly out of the cars caused the bystanders to believe that a holdup or a gangster killing was to be enacted before their very eyes."[125] This sonic blast from the radio car was too much for the locals, who were feeling justifiably jumpy due to events from the day

[123] Ibid, 3.
[124] Ibid, 4.
[125] Ibid, 6.

before. A lethal shootout just 50 miles north between the FBI and "Pretty Boy" Charles Floyd had ended the bank-robber's four-year fugitive run.

The Piccards "safely" crash-landed with minor injuries at 2:40pm. They had travelled approximately 400 miles from their launching point, rolling to a stop in a farm-side forest outside of Cadiz, Ohio. With an official launch time of 6:57am, they had been in the air for almost a full eight-hour workday. One image of the landing aftermath shows balloon guy-lines and rigging tangled up in the trees, curious onlookers and a shaken-up Jeanette standing with her back to the camera, perhaps unready to face it. Another image, this time constructed for the press, shows the couple posed in a happy embrace with their heads poking out of the gondola's hatch.

In 1986, a mashed-up legacy of the high-flying and deep-sea seeking Piccard family (August, Jean's brother, was also a famous explorer) would be honored by creator, Gene Rodenberry. The name of Captain Jean-Luc Picard, fictional leader of "going boldly where no man has gone before," is no coincidence. Jeanette Piccard once said: "When you fly a balloon you don't file a flight plan; you go where the wind goes. You feel like part of the air. You almost feel like part of eternity, and you just float along." [126]

---

[126] Sorenson, Paul. "Looking Back…" *Aerospace Engineering and Mechanics Update* (Minneapolis: University of Minnesota Institute of Technology, 1998-99), n.p.

Section Three: Frequencies

Tune in to the Tummy: Vladmir Zworykin's Radio Pill

> *"The time is coming when the doctor won't stop to ask you where it hurts. He'll just tune in on the radio and listen to what it says."*
> - *The New Scientist, 18 April 1957*

What if you could eat a radio station? A battery, transistor, condenser, coil, oscillator and diaphragm—crammed into the space of a capsule about an inch long and a half-inch in diameter—make up the "world's smallest FM radio broadcast station."[127] Developed in 1959 by Vladmir Zworykin in conjunction with RCA, the Veteran's Administration Hospital and the Rockefeller Institute, this medical grade "endo-sonde" was designed to sail through the thunderstorm of the stomach, and crawl through 10-odd meters of bio-sludge in the human intestine.

Ten thousand dollars for fifteen hours of battery life is a tough pill to swallow, but that is exactly what Dr. John Farrar did. Farrar was the first test patient to ingest the prototype Radio Pill, as Zworykin watched. Before the capsule entered his gullet, he was sure to tie a paranoid string around it, in case an emergency retrieval became necessary, exit through the entrance. In later iterations, if the Radio Pill stalled, a more level-headed approach was used: x-

[127] "FM Signals Sent as 'Radio Pill' Passes through Body," *Electrical Engineering*. 76.6 (New York: American Institute of Electrical Engineers, 1957), 551.

rays revealed its location, and magnets were applied to the skin to steer it back to the proper path.

The pill is cylindrical, with one end covered by a thin rubber membrane that vibrates to the beat of gaseous pressure waves exerted by the intestine and body fluctuations. These vibrations make their way to a diaphragm, then to an electric coil, and the oscillator. The oscillator, acting out on information several steps removed, broadcasts a continuous radio signal to an antenna, outside of the body.[128] The resonant-cavity construction of the Radio Pill is not unlike that of "The Thing"—an espionage listening device embedded in the carved wooden seal of the United States Embassy at Moscow. The Thing in the seal was built (under proto-KGB duress) by Leon Theremin, and gifted to US Ambassador W. Averell Harriman as a "friendly gesture" in 1945.[129] Ironically the foundations of The Thing were developed at Zworykin's own home-base of RCA in 1941, adapted a few years later by Theremin as Cold War spy technology.

In a 1961 Pathé medical demonstration film, a doctor unwittingly plays the body of a woman who has swallowed a radio pill, sounding like shades of one of Theremin's spacey instruments. The doctor applies pressure to his patient's house-coat clad gut to change the pitch and tone of her amplified body, without ever actually touching the device transmitting within her.

---

[128] Lear, John. "Now, the Broadcasting Pill," *New Scientist* (London: New Science Publications, 18 April 1957), 20.

[129] Glinsky, Albert. *Theremin: Ether Music and Espionage,* (Urbana: University of Illinois Press, 2000), 260.

Over the course of the Radio Pill's two-day journey, an antenna-wielding doctor may tune in, the signal bounced into a device much like an electrocardiogram, drawing waving lines across a piece of paper, or onto the screen of an oscilloscope. This addition of a visual record makes the body more like a television station than radio station, as the pill talks its data onto the oscilloscope's CRT screen. Another comfortable connection to Zworykin's legacy, as the fathers of the iconoscope—the first successful vacuum tube that made electronic television video cameras and transmission possible. But, despite all of these celebratory demonstrations of transmissions swallowed down with a sip of water, the pills were actually entrenched in the signals of war: "The power for transmission of the signal is amplified by a transistor hooked up to a storage battery which was originated in WWII to set off anti-aircraft shells when they neared invading planes."[130]

The radio pill also used telemetry—technology-assisted exploration undertaken in dangerous or inaccessible landscapes—to explore the uncharted areas of the digestive tract, and the deep and mysterious terrain of the right side of the colon. And somewhere in the bowels of collections storage at the places like the Henry Ford and the Hagley Museum—versions of Zworykin's radio pill have been swallowed up too, locked within the permanent strangleholds of the tangled guts of object history.

---

[130] Lear, 20.

Charles Apgar & Sordid Frequencies

In 1911, the Stollwerck Brothers Company purchased a 79-acre plot of land in Sayville, New York, reportedly, to build a candy factory. Locals dreaming of confectionary employment, however, experienced a fast cycle of giddiness, confusion, disappointment, and then back round the bend again to pride when they discovered that concrete pads were being poured to serve as anchors for a wireless radio station. The radio tower would reach heights of 477 feet, making it the most powerful communications hub in the vicinity. In 1912, about 150 miles south of Sayville in Tuckerton, New Jersey, ships began unloading sections of an even bigger radio tower onto dry land. This tower was described as being raised quietly, with no fanfare; its construction was nearly complete before the US government realized it had started. How someone could *quietly* build two of the most powerful communications towers in the country—Sayville being an 820-foot behemoth only rivaled in height by the Eiffel Tower at that time—seems outrageous now. The radio towers were soon discovered to be a ruse, and the chocolate factory had been a front all along. The owner of the stations—the Atlantic Communication Company—was the American subsidiary of the German telecommunications firm, Telefunken. Some of Telefunken's principal staff had even been high-ranking members of the German army. The red flags of suspicion began to wave a little brighter.

In August 1914, the US government seized the Tuckerton station, claiming a lack of proper operating licenses. By the following spring, the Sayville tower—

still under German ownership—increased the power of its transmitters to make up for Tuckerton's loss, and started skipping Morse code radio messages like stones above the ocean, all the way to Nauen, Germany. The lengths and bounds of this type of power in wireless communication, void of a relay station, was a feat previously unheard of, and proved to be a more powerful communication method than the German telegraph cable that the British had dredged up from the bottom of the sea and severed in two. United States President Woodrow Wilson visited the Sayville tower soon after it opened, sending Kaiser Wilhelm II a strained-through-the-teeth "Happy 55th Birthday" greeting in January. In May, the British luxury liner *Lusitania* (secretly carrying munitions in support of British troops) was torpedoed into the ocean by German submarines. This was the final straw, causing mass distrust of Germany's true intentions and a pledge of US commitment to the war effort. Posters depicting graphic interpretations of the horrors of life lost on the *Lusitania* acted as rallying cries for enlistment.

Three months later, with the Declaration of Neutrality in place, the American government was granted the right of refusal in issuing radio operating licenses to foreigners, and to prohibit citizens of "belligerent nations" from owning and operating wireless stations on "neutral" American soil. Just before the bill was filed, the US Navy grew wise and preemptively seized the Sayville tower. The seizure of Tuckerton, and later Sayville, are some of the first "hostile actions" taken against Germany by the United States in WWI. Curiously, they allowed several Telefunken employees to remain until 1917—an act of goodwill that later proved a mistake. Officials in the US Navy were meant to monitor &

censor Sayville's outward flow of communications, but secret workarounds were found, causing leaks in what was perceived to be a tightly run ship. Several messages were rejected by censors on the grounds that "they were too obviously not what they pretended to be."[131] What the self-negating messages actually *were* was yet to be known—the content was far from hollow. Speculation at the time, and even now, connects the conspiratorial transmissions coming from Sayville and Tuckerton as being the source of intelligence that led to the *Lusitania*'s loss, sparked off by two foreboding words: "Get Lucy."

Charles Apgar was a salesman and broker by day, amateur radio operator of the Westfield, NJ station, W2MN, by night. In the early days of radio, before voices sang over the wires, Apgar took in radio traffic in the forms of dots and dashes, which he would convert into legible information: weather reports, shipping chatter, time stamps. In 1913, Apgar became a fledgling inventor when he jerry-rigged an Edison wax cylinder device to record these radio transmissions. Apgar's recordings are believed to be the first to permanently commit wireless telegraph signals to physical playback media. His desire to record the late-night signals and static being sent out of Sayville was born out of a gut feeling of suspicion. The Chief of the US Secret Service, William Flynn "the anarchist chaser," was quietly apprehensive about the station too, and when he heard about Apgar's recording contraption, he promptly asked him to "get

[131] "The Quenching of Sayville: The Close of a Sordid Story," *The Wireless World 3, no. 32* (November 1915): 515.

busy."[132] Perhaps it was innocent, or perhaps this was tongue-in-cheek, but "get busy" reads as a close vengeful cousin to the doomed message, "Get Lucy."

Like a modern DJ cross-fading records on a double turntable system, Apgar set up two phonograph machines, switching an Amplifone receiver back and forth, allowed him to change out cylinders as they filled up without missing a beat. In an article titled "How I Cornered Sayville," Apgar says: "That not a single message was missed and hundreds were recorded is evidence that every instrument and device of my home-made set did its duty fully and promptly; which is to me, of course, very gratifying."[133] A Dr. Frank, of the Atlantic Communication Company, seemed threatened by Apgar's airwave prowess: "The statement that Mr. Apgar can record messages sent out by wireless on a phonographic cylinder is hardly worth discussing. That is physically impossible. […] If Mr. Apgar has accomplished it he should get his idea patented and perhaps we will buy it."[134]

But Apgar wasn't lying. For fourteen nights straight, between 11pm and 2am, Apgar built up his stockpile of "canned" wax recordings, handing them off to Secret Service encryption specialists. Once Sayville sent out its nightly test signal, Apgar had to work quickly to synchronize his own tuning: "There were several circuits to be looked after, their various condensers, inductances,

---

[132] Apgar, Charles E., "How I Cornered Sayville," *The Wireless World 3, no. 32* (November 1915): 519.

[133] Apgar, 519.

[134] "The Quenching of Sayville," 517.

batteries—everything, had to be practically in perfect harmony the instant Sayville began sending."[135]

It turned out that all of those vague suspicions were not unfounded: overtly commercial messages were being run through with hidden cipher code. The curious spaces, repetitions, and extra letters sprinkled into censor-approved messages were providing intelligence to the German U-boats, circling like sharks out in the deep sea waters. The messages travelled far, point-to-point: from Sayville to Nauen, and then relayed back out to the submarines, now grown wise to the location of neutral ships. The human ear alone couldn't be blamed for missing the security leaks; Apgar's phonograph recordings helped to amplify the issues. Embedded acrostics in the transmissions, "time spacing," words slipped between "mistakes," repetitive spaces and letters of suspicious variations, and an overemphasis on "message checks" (like a fax confirmation). This added noise was not innocent. These secrets hidden within the spaces were passing right under the noses of US censors. The Secret Service thanked Apgar for his service, and promptly put legislation into place to ban all amateur radio activity for the remainder of the war.

This wireless radio equipment was used to reveal mass insecurity of the American airwaves in the WWI-era, and played a role in publically exposing this breach. The two towers at Tuckerton and Sayville—like Apgar's recordings and transcriptions—are now lost, but his radio equipment has been preserved—as

---

[135] Apgar, 519.

have its effects. What presents itself here is a wooden ghost box with dials, and a stacked metal guillotine trap to filter and tamp down ethereal radio waves for human ears. Peeking under the metaphorical lids of these objects realizes a "sordid" story of sound, unbound: ciphers, codes, proto-cybersecurity—and the value of amateur ingenuity.

Calling, Haunting

When K. was in the fourth grade, her cousin told her how to make the phone ring. They dialed the test tone number #4343295543#0000. The phone rang, and it rang longer and louder than it should have. The sound seemed ominous, and so she slammed the phone down. It kept ringing, and just as her fear rose to a pitch, the noise stopped. Later, when her mother was home, K. dialed the numbers again. Her mother didn't know about the test tone ring, and was convinced it was her dead aunt calling, harnessing the phone lines to make her presence known. K. perpetuated the haunting for a few days, making the telephone ring whenever her mother was around. She soon grew bored and stopped.

All Together Now, Speaking on a Beam of Light: An Impure History of the Maser and Laser

i. Assembly

On December 12, 1960, Ali Javan and William Bennett—two researchers at Bell Telephone Laboratories in Murray Hill, New Jersey—tested the first helium-neon gas "MASER." The word MASER itself is likely a mysterious one; it is an abbreviation for Microwave Amplification by Stimulated Emission of Radiation. Just as masers fracture and reassemble language, images, and materials—the word is itself an acronym—a complex assembly of other words. When technical developments made it more logical to replace the word "microwave" with "light," the much more familiar term of "laser" emerged. The difference between the laser and the maser is in one short letter: the letter 'L.' One thing evolved out of the other. As a device that began its life working in the microwave spectrum, a short shift transferred its effects into the optical areas of ultraviolet and infrared. The same letter 'L' suggested that this was a device that could generate light in a controlled way.[136]

A clear-cut lineage, as clear as laser-cut glass, of masers and lasers alike is chaotic. Their histories and functions are caught up in one another, a confusion that belies the precisely ordered physics of these devices. Point A to B histories are muddled by patent claims and big voiced corporations, overlapping research

[136] The Bell Laboratories film, *Principles of the Optical Maser* defines the technology as such: "An optical maser is an optical oscillator, in many ways similar to a radio oscillator, except that it gives out light waves instead of radio waves." "Radio and light are both electromagnetic waves."

across laboratories divided between the West and Russia, shared Nobel prizes, grey areas in function, and slight iterations in paper and physical form over less than a decade. At the risk of my own defamation at the hands of technology historians, the invention and function story in their pure form is not the point of this essay, but rather a series of sub-histories, material archaeologies, creative hijackings, and conspiracies surrounding the maser and laser.

As the dust of scientific speak settles, the core history of the maser and laser are contingent upon a few essential moments. The maser began as a university-funded theory on paper, shucking the fantastical trope of "birth by sparking science fiction" in a mad doctor laboratory. Two papers,[137] written by Charles Hard Townes, James P. Gordon, and H.J. Zeiger in 1954 and 1955, outlined the team's explorations with the microwave-emitting maser. In 1953, these same three physicists, led by Townes, had built an ammonia maser at Columbia Radiation Laboratory. It was the size of a small refrigerator, appearing in photographs as an impressive, if static contraption. Truthfully, and initially, maser research was an invention without purpose; it was a "solution in search of a problem."[138] Townes was established as a key figure in the history of maser and laser technology from this point onwards, appearing in different roles as the

---

[137] These articles are: "Molecular Microwave Oscillator and New Hyperfine Structure in the Microwave Spectrum of NH3," J. P. Gordon, H. J. Zeiger, and C. H. Townes, *Physical Review 95* (1 July 1954), 282; "The Maser—New Type of Microwave Amplifier, Frequency Standard, and Spectrometer," J. P. Gordon, H. J. Zeiger, and C. H. Townes, *Physical Review 99* (15 August 1955), 1264.

[138] The quote is often cited, but its origin has become apocryphal. It is often attributed to either Irnee D'Haenens or Theodore Maiman. See Jeff Hecht, *Beam: The Race to Make the Laser* (New York: Oxford University Press, 2005), 9.

device evolved. But all notions of there being a glowing line of light illuminating Townes's retinal pride at this early date should be scrapped, at least temporarily.

The emissions of the first pulsing ruby masers were demonstrated via their influence on other materials—a powerful flash of light leaving char marks on a target travelling at speeds so fast, its line of action was rendered invisible to the naked eye. The laser as the classic heist movie portrays it—a basket of colorful security beams, woven spaces that exist for the sole purpose of being bypassed by the controlled tumble of a masterful sneak to snatch an object at stake: a treasure illuminated by a perfect downward cone of light. The archetypical beauty of this kind of uncontained red beam-blast came later, once maser research moved into the optical range in 1960.

The first mental marriage of lasers and visible beams of light was again, theoretical, appearing in the 1958 Townes & Arthur Schawlow *Physical Review* essay "Infrared and Optical Masers."[139] The essay essentially sparked off what would become a global race to invent the technology into becoming a reality. Their idea remained locked in text form for a full two years, before the first physical light-emitting optical maser was finally announced to the public, made viable not by Townes, but by others. This is the point in which the maser shifted taxonomy, and became the laser; the optical maser and laser at this point, became interchangeable words with identical meaning.

---

[139] The pair had been thinking together along parallel lines since the late 1940s. Schawlow worked with Townes while on a fellowship at Columbia, and they would co-author the book, *Microwave Spectroscopy*. Schawlow left the university, but was reunited with Townes in the mid-1950s, when they began maser research in their spare time.

Townes and Shawlow's work was enough to be granted US patent #2929922, "Maser and maser communication systems." In a simple sense, it imagined a device where "light itself could be amplified by making the waves travel back and forth along a long thin column of amplifying substance that was contained between two very flat mirrors."[140] In this scenario, one mirror is polished to be highly reflective, the other, not so much. The beam of light feeds back upon itself, travelling through an "amplifying substance" (usually gas), between the mirrors—this is how feedback is introduced into the equation. This feedback excites the gas atoms into a higher state, and "stimulates" them by microwaves. All of the light bouncing between the mirrors that isn't travelling at perfectly right angles is allowed to escape. The light that remains isn't diluted, but is radiant, intense, and coherent; stimulated into concentrated light or high frequency radio waves. This, at its most basic physical element, is what creates the coherent beam of microwave radiation—stimulated escapist energy—this is the base maser beam. In a highly simplified alternate analogy, if a stone is thrown with a strong left hook against the wall of a well, the clack and bang and 'plop' when it hits the water at the bottom it resonates back up to whoever has ears dangling over the entry to the well—amplified sound observed from the top of an echo chamber. The excitement of the maser and laser is similar—a process in a contained resonant space whose feedback builds it up into something else. In the

---

[140] *Laser Light; a New Visual Art: Organized by the Cincinnati Art Museum and the Laser Laboratory of the University of Cincinnati Medical Center, Cincinnati Art Museum, November 12 Through December 14, 1969* (Cincinnati Art Museum, 1969), 7-8.

well, the echo effect has shifted an action into new aural forms; in the laser, the production of "coherent light," is more intense than "normal" light. At least, for a non-scientist, this is an approximation of how it all happens.

While Townes and Schawlow were working away at Bell Labs, the theoretical aspects of the maser were also being explored independently by Nikolay Basov and Alexander Prokhorov in Russia at the Lebedev Institute of Physics. Coinciding with the first Townes papers, the Russian's first paper was published in October 1954. Townes, Basov, and Prokhorov would share the Nobel Prize for Physics in 1964.[141]

A similar situation/confusion of this timeline arose in 1960 when the title of first practical laser was claimed by Theodore Maiman at Hughes Aircraft Company in May of 1960. This closely coincided with Ali Javan and William Bennett's work at Bell Labs in December of the same year. Maiman's maser sent stuttering pulses of light through a ruby (pink--not "pigeon blood") into a xenon gas-filled tube; the Bell Labs version produced steady, continuous light by discharging an electrical current through helium and neon gas.

Coinciding with the early years of maser research, the military provided a well-padded pocket for research and design projects that accelerated electronics. Electronics were at the heart of powering missiles, used against the invisible threats of the Cold War. Ironically, optical devices were simultaneously

---

[141] Albert Einstein is the root of maser history, with his 1917 paper, "On the Quantum Theory of Radiation," where he lays down hard facts about stimulated emission. But he was a busy man, and left his theories as speculation on paper for others to make viable.

considered as anti-ballistic devices, and laser and maser communications were somehow immune to the tabula rasa magnetic boom of nuclear weapons.[142] Federal military funds for electronics research were increased dramatically in the years of and following the Korean War (1950-1953)—a trend that continued until "the euphoria was over and a period of more sober research succeeded."[143]

ii. Chatter

Optical masers produce concentrated, clean, and sharp beams of light—the type of light that could serve well as a noise-free information carrier. The microwave's short wavelengths produce higher frequencies, and in turn, these high frequencies are able to hold more information. The frequency beam of the maser is extremely fine-tunable because it is narrow. In this case, the term "talk sharp" becomes literal.

A 1963 educational film, *Principles of the Optical Maser*, claims that "a single maser beam might reasonably carry as much information as all the radio-communication channels now in existence." Or, a similar comparison of simultaneity: every living human could pick up the receiver to hold a conversation with another person. The speculative scenarios of these maser-guided communiques imagine a super-loading of the network—a future with all able-eared and mouthed citizens participating in a global phone-in, their

---

[142] Cubitt, Sean, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels* (Cambridge, Mass: MIT Press, 2014), 224.

[143] Bromberg, Joan L., *The Laser in America, 1950-1970* (Cambridge, Mass: MIT Press, 1991), 12.

conversations riding alongside one another, on beams of pure light illuminating the grid.[144]

The potential for synchronized chatter with the maser is comparable to the excitement that followed the laying of the transatlantic telegraph cable in 1858. Multiplexed conversations tamped down into dots and dashes, switch-back riding through the wires of barnacled hemp and steel tube lying on the Atlantic Ocean's seabed, between Heart's Content, Newfoundland and Valencia, Ireland. This "wireless" method of transmission was as murky as the silt it laid in, but it was vital to connecting continents and culture at the time. Submarine telegraph cables are riddled with valorous stories of wealthy technological dreamers forced into situations of seafaring pluck. As more cables were laid and connections made, wires began to wave around the ocean floor like mats of seaweed. They're still down there.

The year that JFK was busy getting sworn into office, Javan and his crew were burning spots into their vision and swigging secret celebratory libations from beakers at the Murray Hill laboratories.[145] In December 1960, Javan took part in the first telephone conversation using lasers as carriers for human speech.

---

[144] Alexander Graham Bell, for his part, invented the photophone in 1880, 73 years before the maser, throwing his "speech on a beam of light" hat in the ring when he discovered that reflected sunlight could be modulated with sound vibration. See US Patent #235496A.

[145] Bell Labs had an official ban on liquor in their employee's work areas, but optics specialist Don Herriott bucked the rule with a celebratory drink in hand in this image. Ed Ballik, a technician, supplied the libations. See Jeff Hecht, "History of Gas Lasers," *OPN Optics & Photonics News*, (The Optical Society, January 2010), 17. Ali Javan's personal website recounts that the following day, a secretary pushing a mail cart distributed notices to staff: "At Bell Telephone Labs, we want to reiterate that there shall not be any alcohol beverages served or consumed in the premises EXCEPT they are over 100 yrs old."

The day after he and his team successfully created the helium-neon maser beam, Javan called the lab from home after a late start: “One of the team members answered and asked me to hold the line for a moment. Then I heard a voice, somewhat quivering in transmission, telling me that it was the laser light speaking to me.” The voice, transposed to laser light, was transmitted as a light beam that was shot across the lab Javan worked in, discharging into a light detector and broadcast as a voice signal into the telephone.[146]

Elsewhere, speech becomes fractured—spectral, just for a moment—dematerialized down into those submarine wires, a new layer in the substrata of the ocean or earth to be reassembled. Receiver to receiver. The lack of such a robust support grid hushed the voice of the maser before it ever had a chance to compete. Maser light was free of congestion, but sensitive to external interference when shot freely through the air, as it was discovered when a team of Bell Labs scientists shot “a pulse of laser light twenty-five miles through the air from Crawford Hill in Holmdel to the Murray Hill labs.”[147] It is easy to conjure up ambitious language when imagining this event: rather than the intense flash of ruby-powered light, a steady laser beam being “cannoned” or “shot” across those twenty-five miles is an easy mental exaggeration to make. Weather patterns and the bend of the earth, ungrounded static and storms all jockeying to splinter the

---

[146] For an extensive personal oral history written by Ali Javan see “The Historic 12 December Event: The Year 1960,” *The History of the Laser* (2012). <www.alijavan.mit.edu/Original/Historic/12December1960event.htm>

[147] Garrett, CBG, "The Optical Maser." *Electrical Engineering*. 80.4 (1961), 248-251.

purity of the signal. A resonant sheath of some kind, like the hemp and tar that protected the telegraph cable, was needed to contain the light.

> Enter the age of fiber optics, when it was discovered that:
> A coherent waveform, on the model of radio waves, can function as a carrier, with modulations to it decipherable as signals. After experimenting with airborne transmissions (rain, fog, and air pollution degraded the signal unacceptably), experimenters in the US, UK, Russia, and Japan eventually converged on getting coherent light from lasers to travel through flexible glass pipes: fiber optics.[148]

This is the maser-laser beam contained—language broken into signal, knocking against once-molten silica doped with germanium and fused into the purest of pure hair-caliber fiberglass threads. There are shades of Rammellzee here, something Gothic Futurist about such a reduction. Imagining pure speech travelling through glass as energy. Symbolic warfare as though the words lobbed from one earpiece to another mouthpiece would travel like sentient balls of light, exploding upon their arrival as word bombs into the ears of listeners.

A standard plane of glass, turned on its edge, shows a boundary line with hues of blue or green. These are impurities and the condition that leads to the "bad connection." Fiber optic glass strands rely on the most pure of pure materials; the strands were a new form of manufactured purity invented by Corning. They would allow utter clarity of signals, access points into the backbone of what would become the Internet, and the delivery of mainlined digital desire. Rogue signals flash through tubes of light, tugging at the glassine

---

[148] Cubitt 224.

hair of the Rusalki[149] stuck in the drainpipe, trying to escape from the tangle and blast out into dark bodies of water.

iii. Purity

Photographs of the helium-neon optical maser in operation make everything *but* the coherence of light fade away. The device is photographed in black and white, in the dark, to make us unquestionably aware of its overpowering inner light. The intensity of the maser beam is pronounced—a high-contrast addition, swelling to create space for itself within a concentrated absence. All trite comparisons of light conquering darkness aside, the maser is light on overdrive. Photographed in color, the helium-neon beam would glow red; the pamphlet to accompany the 16mm film of the same name, *Principles of the Optical Maser*, reflects this in the form of a high-key color exploration, purity of red against black.

In contrast with the rebellious laser, free of containment, other sources of light are produced and amplified specifically through conditions of restraint. The filament of the incandescent bulb is protected by its thin shell of lamp glass. The fluorescent tube creates a nearly imperceptible vibrating pitch that grows louder as its lifecycle ends, mercury and ionized argon and arcs and ballasts all working to entrap the buzz.

---

[149] The Rusalka is a mythological female water deity found in Russian and Scandinavian folklore. Loosely translated, the Rusalka shares many qualities with the mermaid.

Ordinary light is "incoherent"–a muddied pool of frequencies—coming from all directions and phases. A Bell Laboratories display further degrades these types of light sources as being suitable for only "the crudest signaling purposes."[150] Marine lanterns and smoke signals and searchlights be damned. But a laser is given the clear-headed attribute of being "coherent." This mannerism is rooted in the thin beam of light, its single frequency, and utter purity, producing "light waves exactly 'in step' with each other."[151] The light of the maser and laser both operate on an ordered logic—a characteristic that turns a *process* into an *object*—a thing to be controlled. There is no better quote to fall back on than McLuhan here: "The electric light is pure information. It is a medium without a message…"[152] But the optical maser bucks against this. It is synthesized light, unintended for illumination, and is a carrier of all that McLuhan is negating.

iv. Dazzle

The differences between the laser and maser are distinctive in some areas, grey in others. John Pierce, Bell Labs engineer, researcher of communications satellites, and memorable maker of techno-quips said "the laser is to ordinary

---

[150] Explanatory image supplied by Bell Laboratories at time of donation of artifact, found in an accession file at The Henry Ford Museum, Dearborn, MI: 63.173.1, Laser (optical instrument), "Bell Laboratories Helium-Neon Gaseous Optical Maser, 1963."

[151] *Laser Light: A New Visual Art,* 7.

[152] McLuhan, Marshall, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), 15.

light, as a broadcast signal is to static."[153] He also said "Funding artificial intelligence is real stupidity."[154] For communications purposes, the maser is to satellite and radar what the laser is to holography and sensing. The maser can penetrate through living tissue or clouds without causing disturbance. But microwaves can also cause the sensation of searing flesh, as seen in the military's Active Denial System, or the ability of the US Navy's Laser Weapon System (LaWS) mounted on destroyer ships, to target and "kill" the motors of smaller attacking boats. Beamed dead in the water, rather than smoke on the water. Laser light can, depending on how far its intensity is dialed, act as a guide, or as a weapon. High powered lasers can be violent, reductive: they can cut through wood and steel, drill, and weld automotive parts.

Typically, dialing back the juice, the laser in its gentler forms is used to hang levelled picture frames on walls. But the same red laser dot can turn deadly when it supplements the gun-sight. The "laser dazzler" is used in military conflict to temporarily stun and confuse enemy vision—or, a consumer grade laser pointer might be used in the same way. This happened at a 1998 KISS concert, where some joker shone his laser light in the drummer Peter Criss's eyes while the band was performing the song "Beth."[155] But the Catman didn't want to play;

---

[153] Gertner, Jon, *The Idea Factory: Bell Labs and the Great Age of American Innovation* (New York: Penguin Press, 2012), 255.

[154] Quote gathered from the liner notes of the vinyl re-release of music programmed by John Robinson Pierce on an IBM 7090 computer, *John Robinson Pierce: Music From Mathematics, Volume Two* (Finders Keepers Records / Cacophonic: CACK4504, 2013).

[155] "Laser Pointer Irks Kiss," *Beaver County Times* (Beaver County: PA: McClatchy-Tribune Information Services, November 24, 1998), n.p.

a pissed-off Paul Stanley stormed the mic and mouthed off to the crowd. Shining a laser onto the body of a police officer or into the cockpit of an airplane is illegal, and has more deadly potential than getting told off by the Starchild. Although, case in point, amateur astronomers *do* sometimes use green beam lasers on moonless nights to sketch out constellations for bystanders.

In the 1950s, toy death-ray guns existed before the maser was ever a public notion. And by the late 1970s, there were toy signaling flashlights and luminous tubes meant to fuel space-war-adventure fantasies. There is irony in the fact that directed energy weapons were undergoing serious military study at the same moment. But due to the expense of commercial laser diodes at the time, these toys lacked *real* lasers—they only referenced the *idea* of the laser.

v. LASER: ART: MEDIUM

As the maser was coaxed away from its military roots, technologically-driven artists sought out ways to harness it for immersive environment work. Laser light was explored as a medium, as an *object,* by artists in the mid-1960s and 1970s. Its physical nature was manifested as a presence that could modulate space, render signals visible, reference purity both in terms of its color palette and coherence. In some ways, the wondrous effect of the laser—those plasmatic beams, working within highly controlled scenarios—harken back to the "pure spiritual forms" of glowing ectoplasmic productions conjured up in the Spiritualist séance room. Creative frauds (for the most part) worked in dark chambers, calling up seemingly untamable forces, referencing new forms of

communication in collision with wild speculation. Belief and wonder combined with light effects was a medium exploited through the science demonstration, the séance room, and the art gallery.

The laser relies on the persistence of vision—viewers experience its visual presence via the vibrational afterimage. But plundering the documentation of these early projects, despite being so recent, reveal the afterimage to be long gone. There is a misalignment between the level of excitement with the new medium of laser technology and the degree to which its deployment was visually documented: a small handful of images seem to exist of David Tudor and Lowell Cross's *VIDEO LASER II* in the 1970 Pepsi Pavilion in Osaka, Japan. These projects have receded into the background, as muddy as the exterior of the building shrouded in a misty "cloud sculpture."

The path of the artist-wielded laser runs alongside the spectralization of sound. To make sound a visual experience, in the mid-1960s, Lowell Cross began experimenting with electronic music when he "connected an RF modulator to a television receiver to interpret his own music as well as the works of composers John Cage and David Tudor."[156] By 1970, Cross directly collaborated with David Tudor at the Pepsi Pavilion in Osaka, Japan, where he and Carson Jefferies used Tudor's music to influence the patterning of their laser system installed in the darkened entry room to the pavilion. The entry was called The Clam Room.

---

[156] Daukantas, Patricia, "A Short History of Laser Shows," *OPN Optics & Photonics News* (The Optical Society, May 2010), 44.

In 1967, Robert Whitman's predictable-when-you-see-it *Straight Red Line* was installed at the Pace Gallery in New York. The following year, Keiji Usami created a "walk-in" laser show called *Laser:Beam:Joint*. Why the abuse of all of these colons? And the direct naming of material? Most painters wouldn't think to call a painting "Painting:Oil:Sailboat." In any case, Usami, working under the E.A.T collective (Experiments in Technology), shot a red and blue laser beam through green plastic panels depicting running men. The viewer, standing in the middle of all this laser action, experienced "a network of symbolic relationships." John Anthes and Tracy Krisel also of E.A.T, created the *E.L.L.I* (Electronic Laser Light Image) project at MoMA in 1967, which produced laser light images controlled by audio signals. There were a few modes of operation, allowing automatic generation of signals via magnetic tape loops, or an audience-prodded synthesizer keyboard. Complexity to the image could be added in this way through the use of chords. According to the MoMA catalog, E.L.L.I was "…a three-dimensional light image that responds to information given to it. The viewer can have a dialogue with image (extension of ELLI's soul)… the image has dialog with surroundings."[157] At Caltech in July of 1969, the physicist Elsa Garmire[158] worked in her downtime to create the "Cybernetic Moon Landing Celebration," an argon laser light "wall" to celebrate the US lunar landing. In

---

[157] Hultén, Karl Gunnar Pontus, *The Machine as seen at the End of the Mechanical Age* (New York: The Museum of Modern Art, 1968), 216.

[158] Garmire was mentored at CalTech by none other than Charles H. Townes, laser pioneer. Excited by the possibilities of the create applications of the laser, Garmire was eventually taken into the E.A.T. fold by Billy Klüver.

1969, the Cincinnati Art Museum held what is credited as being the first major laser light exhibition in the United States. Within the exhibition *Laser Light: A New Visual Art*, several artists explored the capacity of sound vibration to affect laser beam patterns, including James Rockwell's *Laser Beam: Synthesizer*, which showed "a changing oscillating pattern on a rear projection screen to the electronic sounds of a twelve harmonic wave synthesizer."[159]

Science centers gobbled up permanent laser demonstrations, and art galleries became temporary science centers. Dazzled by in-person experience and the density of colorful light in the dark, viewers of these early moments in laser art installations collectively seemed to decide that no recording medium could capture the intensity of the experienced reality—and so chose not to document much at all. By the time art historians thought of lasers as anything beyond a misguided infatuation with new technology or a penchant for schlock, beam aesthetics had been made mundane by the ubiquity of the technology.

Ivan Dryer was introduced to the laser in 1970 one day when he visited Caltech, with a head full of filmmaking aspirations, ready to capture Elsa Garmire's laser projections. He is in fact quoted as realizing that no film stock could do the saturated sublimity of Garmire's laser-vision justice. He also came to another conclusion: "When the laser turned on, so did I."[160] With a bit of convincing, Dryer's personal ode to the laser—an hour-long live "Laserium"

---

[159] *Laser Light: A New Visual Art*, 12.

[160] Schulman, J. Neil, Appendix: "Violet: House of the Laser," in *The Rainbow Cadenza: A Novel in Logosata Form* (New York: Simon and Schuster, 1983).

show—was given space to play at the Griffith Observatory in 1973. Visitors imbibed in substances of their choice in City Park before heading in to an hour of whiplashed necks frozen upwards, taking in prismatic explosions on the Planetarium ceiling. The "laserist" kept abstract time with the classic rock of ELP, Floyd, and the Stones, the Moog-y envelope generations of (not-yet-Wendy) Walter Carlos, and straight-up classicism of Johann Strauss. By 1984, Pink Floyd's *Dark Side of the Moon* Laserium concert became a staple rite of passage for teenagers and awkward first dates for generations of Los Angelinos. The Laserium created an impermanent architecture, given temporary lease to play within a historic site—the domed ceiling of the 1933 Griffith Observatory distorted into a "media temple" that Dryer referred to as "new entertainment" working in the "environmental" approach.[161] He said "What we're talking about now is the creation of new realities, indistinguishable from the old one we now share, at least in their verisimilitude," while a 1978 issue of *Arts Magazine* claimed the Laserium contained "seeds of what will become the high, universally acclaimed visual art of the future." High, indeed.

vi. Novelty

While a presentation laser pointer in 1981 cost hundreds of dollars, cheaper diode production finally led to affordable lasers by the 1990s. The laser

[161] Nascent ideas of this kind of aesthetic lineage can be found in Stan VanDerBeek's 1965 *Movie-Drome*—an immersive, multimedia art installation in a recycled grain silo. It was envisioned as a communications system or "experience machine." See Gloria Sutton's *The Experience Machine: Stan Vanderbeek's Movie-Drome and Expanded Cinema* (Cambridge: The MIT Press, 2015).

in its modern form is now miniaturized, diverse, and abundant. It is in the barcode scanner at the grocery check-out line, it scans Blu-Ray discs; it is at the heart of computer printers and holograms; it corrects vision with the Lasik procedure, and removes hair from unwelcome places.

The laser, exchanging the bottom of the nobility barrel for the top of the novelty pile, is also what powers the common laser cat toy. As the cost of laser production plummeted, a clutch moment in its growing ubiquity also coincided with the 1993 patent, "Method for Exercising a Cat."[162] The sole patent listed under Kevin T. Amiss and Martin H. Abbott's name, the patent applicants note that "cats are not characteristically disposed towards voluntary aerobic exercise," and provide a means to change this:

> The coherent nature of a laser light beam results in a small intensely bright pattern of light clearly visible in normal day light or artificial night illumination, small enough relative to the paw of the cat to cause interest without posing a threat, and sharply defined over long enough distances (e.g., up to 150 feet) to provoke a full workout with long sprints for the pet. Ideally the bright pattern of light is directed along the floor, steps or wall at speeds sufficient to exert and entertain the cat but not so discouragingly fast as to dissuade against the chase, i.e., typically in the general range of 5 to 25 feet per second.[163]

A series of adventurous iterations followed the root of Amiss and Abbott's brainchild including a patent for a "Method and apparatus for automatically exercising a curious animal."[164] With direct reference to the types of laser pointers that 1990s-era businessmen used to circle eye-boggling informatic

---

[162] US Patent #5443036 A.

[163] US Patent #5443036 A, 3.

[164] US Patent #6701872 B1.

complexities in Powerpoint, and that art historians used to highlight browned-out Kodachrome slides in lectures, the laser was denigrated to the position of exciting the lazy housecat into action—a cat toy.

vii. Darkside

Stepping back to those years when scientists were starry-eyed about the applications of the maser, in a moment before the SETI Institute was formed,[165] and before anyone ever landed on the moon, Townes, now working with a scientist named R.N. Schwartz, was already considering far-flung possibilities. The maser could theoretically amplify the fields of radio and infrared astronomy, with "…the possibility of interstellar communication by radio-waves in the microwave region…to search for signals from intelligent beings on planets associated with nearby stars."[166] With the assumption that some advanced society on a brother planet would have a sister earth ray, the uncut visible power of maser beams tumbling from one planet to the next, an agreed upon signaling language—and the naked human eye—would be the only tools necessary to hold a conversation, light years apart. The earthbound end of the maser chain would be more powerful if put into practice on "a very high altitude balloon, a space

---

[165] SETI (Search for Extraterrestrial Intelligence), is a non-profit organization formed in 1984. Its members use earth-bound, scientific modes of monitoring (radio, telescope arrays) to capture communication attempts from other worlds. Charles Townes was once associated SETI.

[166] Schwartz, R.N. and C.H. Townes, "Interstellar and Interplanetary Communication by Optical Masers," Institute for Defense Analyses, *Nature: Journal of Science* (London: Macmillan Journals Ltd, April 15, 1961), 205.

platform, or natural Moon—a possibility that may not have been seriously considered a few years ago, but should be more acceptable today."[167] On May 12, 1960—four days before Maiman laid claim as inventor of the first working laser—the following was published in *New Scientist*:

> Will it be possible, one day, to make a beam of light of such intensity and so nearly parallel that one could project a visible spot of light on to the dark limb of the Moon? [...] even if it did [exist] the construction of a lunar sign-writer would be daunting indeed.[168]

At this cusp of a moment, popular science was angling for the most radiant future possible for the maser in the form of "moon-writing." But by 2015, these shots in the dark mirrored an image of Planet Earth, talking itself in circles. As the Curiosity Rover roams Mars, looking for signs of ancient habitation, it zaps rocks to discover chemical compositions with its infrared laser ChemCam, and its maser-boosted communication systems beam information back to NASA.

The Spirit rover, in one of its last hurrahs, harnessed the power of humanoid pattern recognition and immaturity. While running in land exploration mode and banking a sharp turn, its six-wheeled advantage left a permanent joke in the sand: a giant Red Planet penis.[169] The Face on Mars, popular in 1980s tabloid newspapers, couldn't compete with the modern trolling

---

[167] Schwartz & Townes, 207.

[168] "Making the Perfect Searchlight," *New Scientist* (London: New Science Publications, May 12, 1960), 1185.

[169] The popular Internet community, *Reddit*, first drew attention to the image on NASA's Jet Propulsion Laboratory website on in 2013 with the comment thread "Mars Rover = $800m, Team to Operate = $1b. Drawing a penis on the surface of another planet = Priceless." The popularity of the image being viewed temporarily crashed the NASA server holding the image.

power of the Internet, and The Face melted back into the mesa it always apparently was.

Jack Morton, vice president of electronic technology at Bell Labs, personally presented a rare working model of the helium-neon gas maser to The Henry Ford Museum in 1963 at the meeting of the Institute of Electrical and Electronics Engineers. Audience members were treated to a selection of scientific films created by Bell Labs and a lecture by Morton called "Cracking the Numbers Barrier in Electronics." When the maser was presented on the stage of the museum's theater by Morton to then-curator of technology, Frank Davis, it was done so with the belief that the institution would be a fitting repository for this device, and cataloger of its history.

The first transistors—the pervasive nervous system that would power everyday life in the electronic age—were transformed into viable products under Morton's leadership at Bell Labs in the late 1940s and early 1950s. In an odd twist of conspiratorial murmurings, the transistor project has been claimed by some to be an outcome of "recovered and replicated alien technology" from the purported 1947 UFO crash at Roswell, New Mexico.[170] Some naysayers would have it be that the efforts being undertaken at Bell Laboratories were beyond this earth—beyond human intellectual capability—and that shrinking the power of the vacuum tube into something the size of a pencil eraser was to be credited to the grey men with bug eyes. Morton of course, purportedly played a direct hand in

---

[170] *The Day After Roswell* was written by Philip Corso and William Birnes as a populist expose of this theory (New York: Pocket Books, 1997).

this cover-up. How else could he have written up the report on transistors requested by his temperamental boss, Mervin Kelly, in a week's time? In the middle of one night in 1971, Morton's Volvo was transformed into an inferno outside of New Jersey's Neshanic Inn, his gasoline-soaked bodily husk was found within it once the smoke cleared.[171] Some believed it to be part of a murder-for-hire conspiracy. Jack's alcohol-fueled sloppiness made him a time bomb who could unleash "the truth" at any moment, and he was silenced accordingly.

A fragment of text typed on the maser's accession record catalog is filled with uncertainty: "Tho^i^s is a laser presented by / this is a laser presented to the museum bh / ~~jabk a moroth~~ VP in charge of Bell Labs / April 25, 1963." And then, handwritten, to clarify, the name spelled correctly, "Jack A. Morton." Included with the maser was a set of instructions for its operation. Crystal maser clear. General Instruction #1? "Never look directly into the maser beam."[172]

---

[171] Riordan, Michael, "How Bell Labs Missed the Microchip," *IEEE Spectrum* (New York: Institute of Electrical and Electronics Engineers, 1 December 2006). <spectrum.ieee.org/computing/hardware/how-bell-labs-missed-the-microchip>.

[172] The Henry Ford Museum, accession file #63.173.1.

Hello My Name is Votrax

100 PRINT#-2, "Hello my name is Votrax"
200 A$= "That is incorrect": PRINT #-2, A$
- Votrax Instruction Manual

Through constant decay /
Uranium creates the radioactive ray
- Kraftwerk, "Uranium" (spoken through a Votrax)

"It's the sorest voice on record, bonecake-dry."
- Dave Tompkins, on the Votrax, *How to Wreck a Nice Beach*

A dark theatre, empty save the seats filled by myself, sound historian Dave Tompkins, and my partner, Bernie Brooks. Paul Elliman is a grey-shirted shadow on the stage, hand held above his eyes to shield against the overhead can lights, peering into the empty venue, asking: "is there even anyone out there?" He starts up a recording of a Votrax SC-01 circuit talking itself back to life. A breathy rising rumble from the deepest surface of its chip-gut, breathy aspirations building into layers, and then come the exasperated moans and digital drones. Next, a cycle of root phoenemes and dipthong sequences: an "ehhhh" and an "eh" and an "eeee" and a "zzz" and a "schhhh." It tentatively tests its ability to string the sounds together with a quick singsong of vowels. And then the SC-01 begins to laboriously stumble over the shapes of words as it remembers how to speak: the deep demon growl of a slowed-down record, catching speed and stumbling across the broken segments of its first word: "aa—a—bom-in—nuh-nation…"

If time and space were to overlap between now and then, between 2014 and 1963, Elliman would be standing in or near the spectral shoes of Jack

Morton, Bell Labs engineer and manager of their transistor development project. Morton gave a lecture from the same stage, presenting an optical maser to the museum. And the transistor is in fact a key component of the integrated circuit that powers the lungs of the Votrax.

The Votrax Type ‘N Talk is a text-to-speech synthesizer, developed out of work begun in 1970 by Richard Gagnon. Working in his basement laboratory after his day job was finished as a computer engineer at Federal Screw Works in Troy, Michigan, Gagnon delivered a viable prototype back to his employers. His project was impressive; Gagnon was promoted to head up the newly-formed Vocal Division. The first commercially available devices produced in the Vocal Division belonged to a product line called “Handivoice,” marketed in 1978 as mobile prosthetic aids for people with speech impairments or paralyzed vocal cords. The Votrax could also dictate written words on a monitor for the visually impaired. As is the case in many early assistive technologies, the energy Gagnon put into the Votrax was personal—he needed to build a device that could support his own failing vision.

The Votrax worked to re-humanize the human voice using technology, in a realm that was always hungry to de-humanize speech. Engineers like Gagnon wanted to produce smoother-sounding synthetic voices capable of realistic expression, natural slides between syllables, and the ability to convey emotion. To do this, he exploited the use of the phoneme—the most basic building-block of sound, assembled together piece by piece to form human speech—and modeled the output to mimic his own vocal cadences.

Human speech resonates through frequency bands called formants; the Votrax exploits this acoustic energy with a filter that acts like a copycat for the human vocal tract. Hertz by hertz, sound and its frictions excite the Votrax circuits; the phoneme sequences are triggered and "talk back" according to pre-programmed rules. Adjusting for this kind of man-machine interface sometimes required the words to be spelled phonetically:

circuit became cirkit

generator became generayter

machine became mosheen

radio became radeo.

In 1980, the company produced the first integrated circuit speech synthesizing chip—the SC-01—present in the Votrax Type 'N Talk model. The LVM-80 model could "'speak' words and phrases with a quality that is said to be 'virtually indistinguishable" from that of the original speaker, whose voice is previously recorded, digitized, and stored in the form of individually addressable messages." Two knobs on the front allow a person to adjust volume and frequency, to create louder and faster-speaking voices with higher and lower pitch. Limitations on certain models of the device dictated that a faster voice always sounded feminine, and a slower voice carried a more masculine timbre. The Votrax was not gender-sensitive. It could also be interfaced to work with a computer and modem to increase access of information and communities among

vision impaired users. Programmers who didn't have the stamina to read their programs in monochrome all day used the Votrax to narrate their screens. With the addition of custom cables, the Votrax could be linked up to a classic lineup of early home computers: the Apple II, the Atari 400 and 800, and the IBM 5150 Personal Computer.

The particular din of golden age video game arcades owed a lot to the distinctive sound of the SC-01 chip. The Gottlieb arcade game corporation used it in their pinball machines and consoles. Flippers, pop bumpers and drop targets on the playfield of Black Hole were augmented by SC-01 sound effects. When Q*Bert runs into an enemy and lets loose with his foul-mouthed string of "***@!#?@!***", the synthesized swears in the cabinet are Votrax-powered. In the Wizard of Wor, as players—or "Worriors"—move through layers of digital dungeons, they are mocked by synthesized drone of the Wizard as he flits and teleports around the screen. And when the maligned Radioshack TRS-80, or "Trash-80," spoke through its "Speech Module" in 1979, it was actually calling back the memory of Gagnon's vocal folds opening and closing in 1970, synthesized and amplified ten years later, now made anonymous and forgotten.

Gagnon's daughter, decades later, wrote about the appearance of her father's voice in the music of Kraftwerk:

> I can recognize it immediately. I was born in 1975. The year that Kraftwerk first used my father's voice. I remember starting to listen to the Votrax on a daily basis around 1978 through the 1980s. And I guess you could say I have an ear for his voice. It is my father's voice, his alter ego. The Votrax *is* my father if that makes any sense.[173]

---

[173] Elliman, Paul. "Detroit as Refrain." *The Serving Library,* Bulletins of The Serving Library, no. 8 (2014). <www.servinglibrary.org/journal/8/detroit-as-refrain> Accessed 5 March 2016.

Florian Schneider of the German electronic music band, Kraftwerk, fortuitously discovered the Votrax speech synthesizer in 1975 in Detroit while on tour for the album, *Autobahn*. Schneider, a "collector of artificial voices," and his band were the first to harness the robotic drawl of the vocoder.[174] And the Votrax one more filter in the archive. Gagnon could be billed as an honorary member of Kraftwerk, as the Votrax—sometimes filtered through a vocoder—staggers its way through "Uranium" on Radioactivity, and chants out multilingual "Numbers" on Computerworld. The fragments of Gagnon's voice made their appearance not just in Dusseldorf electro-tracks, but spilled over into techno and early hip-hop: cemented into the sonic landscape of Detroit radio by Electrifying Mojo, Kurtis Blow, and captured in a grainy but beloved Youtube clip salvaged from Detroit's cable television program, *The New Dance Show*. Recorded at Club Studio III in 1991, a women opens the dancefloor with an impressive launch off a stage, landing in full splits (in heels, no less); the Detroiters making up a regimented dance line then bust out and take their turns vamping down the aisle to "Numbers."

This is all testament to the Votrax's breakout desire to sing. People who owned and used the device often talk about one amusing aspect: if you powered your computer down before turning off the Votrax, it would utter an amplified death knell of: "AAAAARRRGGGHHHH!" But this protest of a repeating sonified

---

[174] Tompkins, Dave. *How to Wreck a Nice Beach: The Vocoder from World War Ii to Hip-Hop: the Machine Speaks* (Brooklyn, NY: Melville House, 2010), 185.

death is smoke and mirrors—a calculated and thinking performance—because the Votrax always seems capable of self-resuscitation: “Now You’re Talkin’!”

Fetch X. (Living Ghost Lifts up the Receiver)

She darkened my path, like a troubled dream,
In that solitude far and drear;
I spoke to my child! But she did not seem
To hearken with human ear.

She only looked with a dead, dead eye,
And a wan, wan cheek of sorrow;
I knew her fetch! – she was called to die,
And she died upon the morrow.

- *John Banim, The Fetch, 1825*

i. X Reports

She didn't mean to cause a haunting. She was, however, well aware of how it came to be. Words to define that particular time would be 'malignant,' 'lost,' or in more paranoid times, 'premeditated.' A phrase might be better: *The wooden anchor would hold if only it were larger, thinks the fool.* Part of her would always remain there, in that cobble stone cottage on the shores of the shallow lake, where shipwrecks were so common as to line the bottom, buried in silt. It was important that she leave that place. Improvement surpassed its own definition once she cut her ties, but the experience was traumatic, and so a part of her had remained behind. For a time, she became a living ghost anchored to that back room by the shock of white that cropped up in her hair soon after. She had not left soon enough to prevent this.

She became suspicious when reports from her ex began to trickle in. He asked leading questions that skirted around larger questions that he would never

have the nerve to ask directly: “Have you been having dreams about the cottage lately? Have you had any of the old death dreams? When you dream, do you wander far?” But never, “I’m sorry.”

Before he called to ask these questions, it was obvious he had attempted exorcisms of his own. He did this multiple times, realizing the gravity of the situation and his earlier lapse in kindness and humanity. He burned sweet sage and tobacco and spent the night sleeping surrounded by white candles. She liked to imagine him doing this at his most dramatic, listening with affected sincerity to the lyrics of Leonard Cohen. These thoughts made her smirk and thank her resolution to abandon ship. She was made to feel her claims of innocence were selfish. Apparently, she had not made clear the urgency of her state of illness before slipping into a coma on the bed for three days. A recent infection had inspired in her a penchant for nervous depression and a tenuous slippage towards mild psychosis. And so, at that time, she hid any evidence from him, hoping that he would stop treating her like the hysteric character in *The Yellow Wallpaper*.

Haunting a house was not something she ever intended to do, especially since she was undeniably alive. Years later, when she asked about those missing days, he insisted that she had been up out of bed. She had been up and walking around the house, albeit as a ghost. And things from that time became haunting to her, too. In that purple limbo state, she had unconsciously wrapped her body in the white sheet cross-stitched with deer and flowers by her great-grandmother. It became the hint of a burial shroud. At some point, probably on the second day,

she expelled the yellow bile of an empty stomach onto it, and afterwards, although it was her favorite linen, she could never touch it again. The sheet became tabooed. Before realizing this, she made the mistake of putting it on her bed one night, and when she touched it to peel back the covers, she felt the electric shock of the intensity of near-death experience return.

ii. X Loop

He didn't realize the gravity of the situation until her mother called in a panic. She was returning a call she received from that electronic Otherplace, and the emergency of her lying state upstairs became known. She lay in bed, unconscious, with vague dreams about making a phone call to her family. And so it was that a piece of her split away and found its way into the telephone wires. She slipped through the phone lines towards her family. She thought about making all of the telephones in their house ring louder, and longer, but the sound that came through on her mother's end announced itself like bells buried underneath cotton. When the line clicked open, her repeating loop began:

"Hello…hello…hey…It's very important that you call me…"

It was her crisis apparition calling.

This narrative repeats itself as a trope: *phone calls from the dead*. Spectral use of mundane technology as such:

"*I am telephoning you -- telephoning to tell you and to warn you of X.*"

Self-conscious informants recount the time that their favorite uncle, who had slipped into a coma in the hospital, reached out moments before his death and made a collect call. The operator patched the call through. Beyond the strained muddle of the line, the informant recognized the uncles' distinct timbre from a time when he was healthy, yet focused on something closer to his death. Simple, but charged words were relayed:

"Hello, dear. Don't forget to put the X away."

Of course, temporary amnesia blocked the receiver of the call from realizing that the conversation was an impossibility until the line went dead or the voice faded away. Fainting of informant sometimes occurs here.

iii. Fear of X

> *Mrs. B., wife of a doctor in good practice and general esteem, looking towards the window from her pillow, was startled by the appearance of her husband standing near the table .... Now, the living and breathing man was by her side apparently asleep ... After gazing on the apparition for a few seconds, she bent her eyes upon her husband to ascertain if his looks were turned in the direction of the window, but his eyes were closed. She turned round again, although now dreading the sight of what she believed to be her husband's fetch, but it was no longer there.*

> *Next morning, Mr. B., seeing signs of disquiet on his wife's countenance while at breakfast, made some affectionate inquiries, but she concealed her trouble … Meeting Dr. C., in the street … he asked his opinion on the subject of fetches. 'I think,' was the answer, 'and so I am sure do you, that they are mere illusions produced by a disturbed stomach acting upon the excited brain of a highly imaginative or superstitious person.' 'Then,' said Mr. B., 'I am highly imaginative or superstitious, for I distinctly saw my own outward man last night standing at the table in the bedroom … I am afraid my wife saw it too, but I have been afraid to speak to her on the subject.'*
>
> - The Doctor's Fetch, Patrick Kennedy, 1891

iv. X Unbound

The fetch is a living ghost, a roaming bi and multi-local double of the self. It finds its way into folklore of the British Isles as a harbinger of death, and sometimes (though very rarely) as an indicator of a long life. To see one's fetch is to see an omen of mortality, to witness one's own "giving up the ghost." It is the wraith or *taradh* in Scotland – *manadh nan daoine bko* (the omens of living man). It is the shade or double in Britain, and the double walker or *doppelgänger* in Germany. The fetch is a signature, an authority of presence in a place where your living body is not.

Their form shifts and is made of shadow, reconstituting itself to the memory of the beholder in order to be recognized. An eerie glow emanates from within. A black glow. The fetch reflects and refracts light, an aesthetic akin to the idea that all light that has *ever* existed is drawn towards it and deadened by it. Abnormal light defines the fetch as *something else*, recognizably *not present*.

His inquiries of wandering dream states concerned her, because she had always had her suspicions that she was walking and muttering half-lucidly abroad someplace else. She often woke up exhausted—throat scratched hoarse—and so she took proactive measures to reclaim her personhood, to reunite her distributed body with her fetch. The anthropologist Alfred Gell speaks of the notion of *exuvia* – unbound pieces of oneself, cast around in a purposeful act of power, to fetishize and distribute oneself in order to travel, to control. This was not her intention. She and her fetch became confused, and the more confusedly they entwined, the more intense the activity during his waking hours became.

The living dead girl once interrupted Christmas dinner when she announced her name, seated prim and semi-transparent by the cobblestone fireplace. Sometimes the bed would pulse, just so, just perceptibly enough to question the dependability of his senses. There was no question that he could hear wheezing out in the hallway. The sound of clothing – swishing of a wool skirt – came from the direction of the guest room and towards his door, over and over again. She would pass over his inert body, retreat, and return again. Other times, he would wake up in the middle of the night, and it would become clear that the lull of the surf breaking was not the lake, but the sound of rhythmic breathing, hovering five inches or so above his face. Wafts of her scent filled the room. He could feel the air move with each discarnate breath, but he could not move himself. He attempted the sign of the cross with his tongue, but that ward failed him because he was too afraid to be faithful. Body parts distinct from a body – a forearm or a hand, a thigh or a single lock of hair, would present themselves as

accusations in dreams. The knocking and creaking of the room – much like a bow of a ship, would sound itself as a distress call. He learned Morse code, and deciphered the signals. They mirrored her crisis phone call:

"…terribly important…call me…hello…"

How else could it be?

She burned sweetgrass and salt too, of course, but it wasn't strong enough. So she washed her floors with Buffalo Ammonia. She lit candles and had others light them for her, too: Cast Off Evil, Fear Not to Walk Over Evil, Fiery Wall of Protection. She bathed in charmed bath crystals: Banishment, Go Away Boy, Come to Me. She burned incense: Clear Away That Evil Mess, Run Devil Run, Psychic Uncrossing. She went so far as to work a Break Up spell onto herself.

The cottage was built in the late 1880's as a summer getaway, guided by the hand of his domineering grandmother. Later generations weatherproofed it and lived there year round. In the dead of winter, the lake would freeze solid. And at the end of the season, when everything was perfectly aligned, the tension would come to a head on the lake and the ice would explode into shards of tall floes. The sound was deafening, followed by crystalline tinkling and thunder, and it would wake the whole house. The night she became a fetch was not accompanied by such natural dramatics.

He considered bricking up the windows of the bedroom, and paneling over the door. It would take a lot of work, since the room itself was bordered on three

sides by paneled glass casement windows. Best to brick the whole thing in – that room was always cold, anyhow. It would remain concealed until some other family member found the room from the outside of the house years later, looking up to the jutting addition and realizing no pathways led there.

A bricked-up window is a window to be looked upon with suspicion.

He weighed his options of defiling the memory of his grandmother's pride against the inevitable continuity of being haunted by the "phantasm of the living" who loitered there. There were many other rooms in the cottage, and so he carried out his plan. He left the fetch to find its way home.

Over the course of two days, she began to feel an increasing sense of suffocation, and couldn't understand why. This carried on for several years.

One day while searching her own name on the internet, she found her own obituary in the form of a memorial photograph. A friend found it too, and when he couldn't find traces of her life online, assumed her dead for many years. It was an image of her favorite cat, with the byline:

"*In memory of X.*"

The image and the X., bound to her, were to blame for this. There were people walking around, believing she had died, and mourning for her. Finding the site of the image as grounding point for her fetch in the digital ether was not something she had accounted for. All of those traditional means of banishment

and reunion were all for naught. Her body had been floating through the phone lines, and he grounded it via the dial-up modem in his room. She was the source of the haunting, but he had caused its continuation.

She called him with the solution, annoyed at his stupidity and private apologies directed everywhere but at her. She asked him to remove the image. He refused, but removed the byline. It was enough to break the connection.

v. Fetch X.

She lit my path, in a carefree dream,
In that empyrean far and revered;
I spoke to my child! But she did not seem
To hearken with human ear.

She only looked with a quizzing eye,
And a fateful cheek of sorrow;
I knew her fetch! – she was called to die,
But would live the long, long morrow.

- John Banim, The Fetch, 1825, False Variant

Section Four: Broadcast

We Haunt You While You Watch:
TV Hijackings, [The Eerie in the Middle, and Cochlear Control

i. Ears that Ring like Test Tones

I couldn't tell you exactly when it became clear that my ears became scrambled. I assumed, at first, that the high pitched whine I heard (intermittently, and unpredictably—was coming from somewhere in the house. A lost signal from the old wires in the black mass of the basement or clairaudience brought on by an electrical socket gone rogue. But driving on the freeway one summer night in Detroit, the squawk rose up in my ear under decidedly non-domestic circumstances, more deafening than ever, and sent the car to feel as though it was spinning across the crumbling pavement. This loss of ground was wholly internal, however; I stayed seated and the car stayed true to its lane under the hands of my partner, while I floated out of sync with my body and sideways through my seat, until the sine tone subsided and the world merged back into proper register with itself again. But something also became permanently decoupled that night; the looming threat of the return of a crippling banshee blast from somewhere within my left ear. The diagnosis I received of Ménière's disease—commonly the creative person's bailiwick—is an alarming, yet fitting condition for a sonic researcher who is obsessed with the history of anomalous experiences.

The drop-out of my cochlear microphonics quickly became zombie-like. Several times a day, as the unstoppable hum rose up into a high screech and met the threshold of an unknown internal noise floor, my ears became deader, yet more sensitive. Internal worlds amplified, while the external one was filtered out through a whomping deep sub-bass filter that sounded like surfacing from the bottom of the sea over the course of 30 seconds. Describing how my day-to-day hearing had changed to others, I would compare my head to a sound mixing board, with all of the channels spiked into the red. In a diner, the sound of eggs sizzling on the grill were perceptually at the same volume as a conversation happening across the table. These newfound bat ears were made useless by information overload, and the intense pressure that accompanied the tinnitus felt a bit like having a plunger stuck to the side of my head. The tinnitus was subjective—my body decided to deploy high frequency warfare upon itself. The threat of bio-acoustical failure came with each bout of tape hiss drop out and squeal. The space between my ears began to feel like the jumbled guts of a cassette tape, defiled and stretched out to rot in the sun. I asked a friend to put his ear to mine, to see if he could share in the metallic tone my ear was emanating. Apparently in some extreme cases of tinnitus, this is a possibility, but not in mine.

Ears that ring like a test tone have been an ongoing disruption, well before the ghost of Prosper Ménière drop-kicked his way into my head. That same test tone sound permeated the latest of late nights of a 1980s childhood, a key bit of aural memory in that futile game of testing the boundaries of what staying up late

could mean (but usually falling asleep on the couch). Once, I was upturned from slumber by the panic-inducing ring of klaxon horns as the nuclear bomb dropped in Raymond Brigg's betrayal of a cartoon, *When the Wind Blows*.[175] This particularly scarring revelation sparked off a life-long cycle of apocalyptic dreams and the fissionable connection to anxiety that the emergency snow horns in my neighborhood produce, even today.

There was also the utter dread of waking up (confusion rising with awareness from not having realized sleep had won out) to the Canadian national anthem playing over the television. Somehow being met with such bombastic pageantry always seemed more menacing than whatever late-night horror film or underground music program I'd been watching. There was a very specific kind of sleep disturbance linked to the era when television stations habitually signed off at night, when the last hurrah of the channel invaded the edges of sleep. Whether anthemic, the recitation of a poem, a montage of natural scenery, city skylines, scenes of broadcast workers and their equipment, singing children's choirs, or animations of sleepy cartoon men locking up the house before getting ready for bed—every geographic area had its own unique television sign-off, every locale had its own particular intrusion into thick dream cycles of accidental armchair sleepers. This was the bookend to the day of an absolute variety—a signpost that read "you have reached the time that that is *beyond late*." The end of the sign-off

---

[175] *When the Wind Blows*. Dir. Murakami, Jimmy T. Writer. Raymond Briggs. *When the Wind Blows*, (New York, N.Y: IVE, 1986). Film.

segment conjured the inevitable arrival of the SMPTE gradient of color bars forward, weighted with black at the bottom, sounding off with a scream.

ii. The Grinning Horror

Rebuilding the cradle of culture in November of 1987 finds us deep in the era of Reagan (or in my case, Brian Mulroney). "I Think We're Alone Now" and "Heaven is a Place on Earth" ruled pop radio—while *Night Flight* and *Dr. Demento* were late-night staples of Chicago talk radio. The year 1987 marked the Jim Bakker scandal and the start of *The Simpsons*, the debut of Prozac and AZT, DNA-based convictions and one very expensive search for Nessie that turned up empty-handed.

On November 22, 1987, two Chicago television stations found themselves playing unwilling host to a signal pirate in a Max Headroom mask. At 9:14pm, PBS-affiliate WGN's signal clipped to black and then flicked back on to reveal a charlatan in a Headroom mask, dancing convulsively in his chair, accompanied by a squelching, distorted soundtrack.[176] Quick-thinking WGN engineers pulled out all emergency stops to regain control of the network within 30 seconds. When sportscaster Dan Rohn returned to his report on the Chicago Bears' football game, he appeared dazed, and chuckled awkwardly: "Well if you're wondering

[176] It might have been a Devo video starring the masked and radiation-suited Boogie Boy, if you didn't know any better.

what that was… so am I."[177] Two hours later, at 11:15pm on WTTW-11, during a rerun of the Dr. Who episode, "The Horror at Fang Rock" viewers became outraged by a longer, ruder, interlude lasting about 90 seconds. The wholesome act of watching television had never felt so violated.

iii. "Be Still Now and Listen"

"The Horror at Fang Rock" originally aired on September 3, 1977, just two months before another infamous anomaly known as "The Southern Television Broadcast Interruption." On November 26, 1977, at approximately 5pm, the UHF television transmitter at Hannington in South East England was overruled for what probably felt like a lifetime of six minutes. A second rogue transmitter acting as a repeater had latched into the main station and bounced unauthorized sound far and wide over the countryside. It was in fact the first such known example of an illegal television signal intrusion made by an individual. A watery voice run through a flanger made the evening news wave, drip, and roll, as it spoke overtop of the anchorman and introduced itself as "Vrillon, a representative of the Ashtar Galactic Command."[178]

---

[177] "WLS Channel 7—'Pirate Report' (1987)." *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. <www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2468>. Accessed 29 March 2016.

[178] See Wojcik, Daniel. T*he End of the World As We Know It: Faith, Fatalism, and Apocalypse in America* (New York: New York University Press, 1997), 185-187: "…Ashtar, who is said to be a space being and commander of thousands of space ships that together are referred to as the Ashtar Command, which will descend prior to worldly catastrophe. […] Although catastrophe is imminent, believers are assured that benevolent beings are observing earth and if need be will rescue the chosen ones." (187)

In the days leading up to this event, the first nodes of ARPAnet were established, and France ravaged the French Polynesian atoll of Muruora by detonating a nuclear explosion. Ignited in an underground shaft drilled deep into the atoll's volcanic rock, this was neither the first—nor the last—of France's nuclear tests in the South Pacific. While the impacts of what would become the future Internet were yet to be understood or even known, protests surrounding the devastating potential of nuclear arms were top of mind among the public. As the voice of the Southern Television event, "Vrillon" played the part of a stern advisor within this uncertain landscape, spreading the message of peace and acting as a harbinger of global destruction: "Be still now and listen, for your chance may not come again. All of your weapons of evil must be removed. The time for conflict is now past and the race of which you are a part may proceed to the higher stages of its evolution if you show yourselves worthy to do this."

Looking back at the events of 1977, humanity seemed hungry to jump ship to better planets—or at the very least, actively reveled in the fantasy of alien invasion. Between the launch of the Soviet's Soyuz 24 and NASA's Voyagers 1 and 2, the screening of *Star Wars* and *Close Encounters of the Third Kind*, the SETI project's reception of the deep-space "Wow! Signal"[179] and reports of mysterious luminous objects in the sky over Russia, Finland, and Denmark known as the

[179] The "Wow!" Signal is an unexplained narrowband radio signal detected by SETI member and astronomer Jerry Ehman in August 1977, while working at "The Big Ear" telescope at the Perkins Observatory in Delaware, Ohio. For more information, see Ehman, Jerry. "Wow!"—A Tantalizing Candidate," in H.P Shuch, *Searching for Extraterrestrial Intelligence: Seti Past, Present, and Future* (Berlin: Springer, 2011), 59.

Petrozavodsk Phenomenon—people were suffering a new kind of celestial whiplash, from all that neck-craning upwards to the stars.

With the departure of Vrillon's voice and the righting of ITV's signal, the 1943 *Merrie Melodies* cartoon, "Falling Hare" emerged. Bugs Bunny on screen, lazing around a US Army Air Field, chawing on a carrot and directing viewers to a page in a book about those diabolical creatures called "gremlins" that sabotage airplanes. As Bugs erupts in his best maniac laugh, a tiny gremlin with a giant sledgehammer begins to whack the bomb that the rabbit is sitting on. Twenty years after Bugs ate gremlin humble pie, on an episode of *The Twilight Zone,* William Shatner would lose his mind at 20,000 feet trying to convince a stewardess that an identical creature was getting down to business in destroying the wing of the airplane. Vrillon, in his own way, was the gremlin that first peeled back the layers of transmission technology to expose the exact right weak point for jamming up the works. Vrillon's identity, much like the culprit behind the Max Headroom Incident, was never discovered.

iv. The Eerie in the Middle (Transcription)

In its interruption of the everyday "normal" of the Dr. Who episode, "Horror at Fang Rock," the Max Headroom signal jacking created an accidental media cut-up. In the transcription below, the bookends of dialogue are made more potent by the sandwich of make-do mischief in between, more portent-laden than the effect of a disaffected channel surfer, remote in hand. It is impossible to prove, but pure speculation would assume that not many viewers

could stop watching the degeneracy of the Headroom clip unfolding, once it began.

[Dr. Who, "The Horror at Fang Rock:"]

LEELA: That is stupid. You should talk often with the old ones of the tribe. That is the only way to learn.

VINCE: I'll get you a hot drink, miss.

LEELA: I could do with some dry clothes more than –

[Cut to Max Headroom Incident:]

That does it… He's a frickin' nerd! [Laughs]

Yeah, I think I'm better than Chuck Swirsky… frickin' Liberal. Oh, Jesus! [Unknown]

Yeah… "Catch the Wave!" [Screams and moans holding Pepsi can, throws it away]

"Your Love is Fading!" [Laughs, takes vibrator or dildo off finger and throws it away]

Doot-doot-doot-doot… [Singing Clutch Cargo theme]

I stole CBS! Doot-doot-doot-doot… [Returns to Clutch Cargo theme]

Ohh… my piles! [Moans while shaking head as through defecating]

Ohh… I just made a giant masterpiece for all of the greatest world newspaper nerds! [Moans. This is a reference to WGN-TV's call letters.]

My brother is wearing the other one… It's dirty. [Puts on work glove]

That's what you get for "recycled…" [Takes off and throws glove]

[Cuts to different view, "Max" is bent over, his naked rear end exposed]

They're coming to get me! Ohhh! [Moaning]

Come get me bitch! [Yells while woman dressed as Annie Oakley swats his rear with fly swatter]

Oh doooo it!

[Cuts back to Dr. Who]

DOCTOR: As far as I can tell, a massive electric shock. He died instantly.

VINCE: The generator? But he were always so careful.

LEELA: It was very dark.

v. New Wave Pirate

On the evening news throughout Chicago and the surrounding areas, appeals were made by newscasters, FCC agents and federal officials for information about the Headroom imposter. A segment on WFLD Channel 32 appeared with a graphic of a television displaying SMPTE color bars overlaid with the title text: "Air Pirate." Anchor Kris Long described the most disturbing aspects of the second interruption as the "display of a marital aid and a portion of his (or her) anatomy," continuing to comment that the offense was sophisticated enough that it "points towards someone with a broadcast background."[180] The segment ends with a stern implication that this type of "freelance exercise in public access" would not go unpunished. On WMAQ Channel 5, Carol Marin gave her report next to a screen graphic of the classic Jolly Roger skull and crossbones, pulling no punches: "the video program ended with the video pirate's bare bottom being spanked with a flyswatter, but his punishment will be far worse if he is caught."[181] Apparently this act would have required very powerful equipment to override the station's signal, and would have left behind a traceable "electronic signature." But, despite the fact that the FCC and FBI immediately

[180] "WFLD Channel 32 – 'Pirate Report' (1987)" *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. <www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2465> Accessed 30 March 2016.

[181] "WMAQ Channel 5 – 'Pirate Report' (1987)" *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. </www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2466> Accessed 30 March 2016.

dispatched agents to hunt down the source of the signal override, all attempts to track the pirate remain unsuccessful to date.

This copycat emissary of New Wave culture applied several layers of stealth to his shenanigans. His ass might have been exposed and beaten, but his face was safely obscured. The use of the Max Headroom mask by the pirate was far from being random—it was an essential part of the make-do set design that played out in the intrusion. The corrugated metal sheeting that rocks back and forth behind "Max" obscures his location, but also mimics the faux-computer graphic animations of the Max Headroom television show. In one portion, when the pirate holds up a can of Pepsi and says "Catch the Wave!" he is referring to the contentious 1980s marketing battle of New Coke vs. Pepsi. The official, licensed Headroom character appeared in television commercials as part of this campaign. When he throws a work glove off-screen and says "that's what you get for 'recycled,'" this is meant to be a pun on the relatively new embrace of curbside recycling in the United States. A pair of opaque lens sunglasses—trademark of both the government secret agent and a go-to device for masking criminal identity—are part of the molded latex continuity in the pirate's mask. Sunglasses may have been an iconic part of the Max Headroom "look," but in reality, they temporarily alleviated a health issue the actor Matt Frewer, who suffered from cornea damage due to the intense haptic contact lenses that were part of his character's makeup scheme.[182]

---

[182] Phipps, Tony. "Can Computers Act?" *Screen Actor* Vol. 22-28 (1980), (Los Angeles, Calif: Screen Actors' Guild), 142.

Oddly, reports on the Headroom Incident were thoroughly referred to as an act of "piracy," and never as one of "hacking." The word "hacker" itself was just becoming widespread in mainstream culture by the early 1980s, but was mostly reserved as a trope to describe elaborate college pranks at MIT—and then its computing subculture—and was not yet fully understood by the general public.[183] Today, the word "hacker" has been perverted into meaning something of a purely malicious and criminal nature, or dilutes it into something innocuous like a time-saving "life hack" such improving concentration—or peeling garlic efficiently. The Headroom Incident, in a fluid, language-based sense, stands as one of the most elusive (and thereby successful) hacking cases of the 1980s. The contemporary hacktivist group, Anonymous, choose to mask themselves under the guise of a Guy Fawkes mask, which has become an iconic emblem for the group. In their 2008 anti-Scientology campaign, an Anonymous actor wearing a Fawkes mask appears against the classic pulsating yellow and red on black line animation of the Headroom series.[184] The voice used in the Anonymous video was created by a computerized text-to-speech program, but also adopts the

---

[183] The first use of the word hacker (in a technological, communication way) is purportedly as follows, appearing in the cover article "Telephone hackers active," by Henry Lichstein in the MIT newsletter, *The Tech*, (November 20, 1963): "Many telephone services have been curtailed because of so-called hackers, according to Prof. Carlton Tucker, administrator of the Institute phone system. … The hackers have accomplished such things as tying up all the tie-lines between Harvard and MIT, or making long-distance calls by charging them to a local radar installation. One method involved connecting the PDP-1 computer to the phone system to search the lines until a dial tone, indicating an outside line, was found. … Because of the "hacking," the majority of the MIT phones are "trapped."

[184] Volsupa. "WE RUN THIS." Online video clip. *YouTube*, YouTube. Uploaded on 11 September 2008. <www.youtube.com/watch?v=j0ZFow_9vsg> Accessed 30 March 2016.

affectations of dropped frame jitters and stutters that were a hallmark effect of the original television show.

The exaggerated fracturing of Max Headroom's speech was the subject of a 1987 newspaper article, at the height of the show's popularity. Speech therapists were worried that the popularity of the character "may set a bad example for youngsters by encouraging them to stutter. Children are susceptible to authoritative figures," Theodore E. Emery told the annual conversion of the National Stuttering Project."[185] These homages to Headroom, from the Chicago signal hijacker to modern hacker collectives, both allude to a decades-long distrust of the corporate media that dominate our viewing culture. The "real Max" depicted on the television show was actually a hoax—an actor in prosthetics and a stiff suit against a blue-screen—yet was publicized as a computer-generated character. Regardless of this white lie, the actions of the legitimate digital bandits known as Anonymous were inspired to repurpose the aesthetic cues in order to visually bond their goals with the anti-establishment spirit that infused this short-lived television show. Headroom's exit diatribe, inspired by a Winston Churchill wartime speech, seems to have infiltrated the attitude of activists today: "we will nev-nev-nev-never surrender."

vi. Stacking the Signals

The first Headroom interruption on WGN was a freaky vision made even more horrifying by its distorted audio blast, but viewers lucky enough to catch the

[185] "Max sets bad speech habit." *Bryan Times* [Bryan, Ohio] 10 Aug 1987: 12.

second event on WTTW might have wished that segment was silent too. The voice of “Max” was heavily modulated and ran alongside a hollow sine drone; his words and off-key singing dripping into watery, spectral flange and needling moans, skirting the boundaries of accessible language. The fractured nature of his proselytizing was more agitated and disturbing than the stutter of the “real Headroom.” The pirate’s use of moans, screams, and off-key singing to fill any possibly space of silence caused the audio-processing effects to peak and crumble to the edges of unrecognition. It was likely only through seeing replays on the evening news that the viewers who had witnessed the first round of signal jamming could begin to fill in the gaps of understanding of what they had seen and heard. This case transcended the concept of the innocent prank--it made hacking “creepy.” The seeds of alarm began to germinate, forecasting a future where the predictable banality of television could be overridden by a malevolent broadcast possession.

The Max Headroom Incident was possible from a technical standpoint because its perpetrator could fluently speak the language of signals and broadcast architecture. Officials believe that given the expertise and expense of the equipment used, the chances of the hijacking being an “inside job” by a disgruntled employee are quite high. Many details remain sketchy, but what is known is that the pirate was physically present in the Windy City, and made use of a mobile rig either from the roof of nearby buildings, or from the ground. The heart of the mobile setup included a device capable of radiating powerful microwaves which could overrule the normal flow of a commercial broadcast. A

rig like this, according to speculators, could cost upwards of $25,000—a hefty expense to shell out in order to be beaten naked with a flyswatter on primetime television.

At WGN, on-site engineers recognized that something was amiss, and were able to quickly switch over to an alternate transmitter. WTTW's unmanned transmitter was doing its job, over 1400 feet in the air at the top of the Hancock and Sears Tower. Automation didn't win the game in this instance. The first act of the pirate might have slipped into an irrecoverable type of obscurity, but the length of time (and the disturbing message) that the second hijacking exploited is one reason why the event is occasionally dredged up by popular culture disciples.[186]

The cunning genius of the culprits becomes clearly visible when the language of colliding media formats is examined closely. A bare minimum of the knowledge of film techniques reveals new angles and jump cuts. Minute shifts in time indicate that the person in the mask was not filmed live, but had previously recorded the segment, with the intention of playing it on air at a later date. The disjointed narrative of the clip may seem spontaneous, but the plot to get it on air, undiscovered, was heroic. Distorted "scan lines" at the top of the screen are not glitch artifacts from a bad digital transfer to YouTube, but are also from the original broadcast, indicating that the Max Headroom Incident first existed as encoded information on a video-cassette tape. With the tape now likely lost

---

[186] Knittel, Chris. "The Mystery of the Creepiest Television Hack," *Motherboard,* Vice Media LLC. 25 November 2013. <motherboard.vice.com/read/headroom-hacker> Accessed 30 March 2016.

(unless the guilty party were to ever re-emerge), the event itself only exists in secondary and tertiary forms, on magnetized polyester or in digital code. Even if the original exists, the curse of the image-degrading condition known as "sticky shedding" is likely to have eaten away at what is left of the 30-plus year old image on the tape. Rick Klein of The Museum of Classic Chicago Television has worked hard to dredge up the best possible transfer of the Headroom event (and its subsequent news reportage) from private broadcast archives, resuscitating and sharing it with the public, so that they can partake in whatever is left of the magnetized heartbeat of this local event.[187] Lesser quality examples of the Headroom hijacking are also viewable via YouTube, which perhaps sparks of a false sense of security, circulation, and preservation. The fact that this footage is solely rooted to Internet channels—and not preserved in a museum of broadcast history—is a mixed blessing. To echo Lucas Hilderbrand, "YouTube introduces a new model of media access and amateur historiography that, whilst the images are imperfect and the links are impermanent, nonetheless realizes much of the Internet's potential to circulate rare, ephemeral, and elusive texts."[188]

vii. Phreaking Evasion

The Max Headroom Incident was impressive for pulling out of all the stops, in the realms of both sound and vision. The Southern Television Broadcast

---

[187] See Rick Klein's online museum, *The Museum of Classic Chicago Television*. <www.fuzzymemories.tv/> Accessed 30 March 2016.

[188] Hilderbrand, Lucas. *Inherent Vice: Bootleg Histories of Videotape and Copyright* (Durham: Duke University Press, 2009), 233.

Interruption of 1977 was a voice-only hijacking, while two infamous visual interventions from the mid-1980s were solely text-based. In April of 1986, "Captain Midnight" took over HBO's satellite uplink to protest the rise of the channel's subscription rates. The Captain's true identity was quickly discovered to be that of John R. MacDougall, who decided to harness the power of a character generator to speak out against an issue that he believed was contributing to the decline of his business as a satellite television dealer. As a direct outcome of the FBI's investigation, MacDougall's actions resulted in a new law which made satellite interference a felony.[189] And on Labor Day weekend of 1987, just a few months before the Headroom Incident, the signal for the Playboy Channel was subverted by Thomas Haynie, an employee of Pat Robertson's rival Christian Broadcasting Network. [190] This text-based jam called upon pornography viewers to repent for their sins and find Jesus. This incident is now known as "The Religious Takeover."[191] These two examples were tame by comparison to the events that were to come in Chicago. A color bar test pattern was overlaid with relatively bland text produced by a character generator: "Good Evening HBO from Captain Midnight. $12.95 a month? No Way! (Showtime / The Movie

---

[189] Zoglin, Richard. "Grounding Captain Midnight: high-tech, Holmesian detective work unmasks a satellite intruder" *TIME* 4 August 1986.

[190] Jennings, David. *Skinflicks: The Inside Story of the X-Rated Video Industry*. Bloomington, IN: Distributed by 1st Books Library, 2000.

[191] Two of the most recent signal intrusions flipped the pornography script. In 2007 children watching Disney's *Handy Manny* cartoon on Comcast's cable feed became witnesses to a takeover by a hardcore pornography film. In 2012, the same media corporation's broadcast of *Lilo and Stitch* became spliced with a new scene: a full six minutes of pornography.

Channel beware.)" Ultimately, this technology provided damning digital traces and led to the capture and trial of both MacDougall and Haynie. It is ironic that the text intrusion—an act that one would assume was as anonymous as scrawling lewd graffiti in a bathroom stall—would in fact exploit the characteristics of digital typography as a sort of forensic pathway back to its originating pranksters.

Archived conversation threads from the online bulletin board community, Reddit, indicate a potential lead and eventual dissolution of a theory concerning the identity of marauders behind the Max Headroom Incident.[192] A user called "bpoag" claimed to be an avid phreaker in 1987, and was acquainted with two older brothers from the Chicago suburb of LaGrange. "Bpoag" believed the brothers' electronics abilities and personal interests aligned with the dialogue of the hack, and made them the likely suspects. He claimed that the brothers told him to tune into WTTW on November 22, because "something big" was going to happen. The evidence seemed to be stacking up, but an epilogue thread cuts the logical conclusion off at the pass with "bpoag" elusively noting that "J and K have been formally excluded as suspects… My original theory was incorrect."[193] Their expungement by the online community was not based on tracking the brothers down and questioning them—that process seemed impossible—but rather on the

---

[192] Bpoag. "I believe I know who was behind the 'Max Headroom Incident' that occurred on Chicago TV in 1987." *Reddit,* Reddit, Inc. 01 December 2010. <www.reddit.com/r/IAmA/comments/eeb6e/i_believe_i_know_who_was_behind_the_max_headroom/> Accessed 30 March 2016.

[193] Bpoag. "New developments in the Max Headroom Incident mystery!" *Reddit,* Reddit, Inc. 11 October 2015. <www.reddit.com/r/IAmA/comments/eeb6e/i_believe_i_know_who_was_behind_the_max_headroom/> Accessed 30 March 2016.

expense of the equipment needed to pull off the heist that "simply did not exist in the wild in 1987." Pointing fingers always seem to return to the direction of a disgruntled broadcast industry employee testing the boundaries of exposure, dark humor, and the evasion of authorities.

viii. Double Ghost Waves

There is something ghostlike in the nature of broadcast signal intrusions. The perpetrators become spectral media through their own legendary absence. Their actions, if discovered, worry us, and yet the defined qualities of their physical markers remain enigmatic. A fracturing of identifying features occurs in the act of the signal hijacking--the reassembly of a wholistic persona only becomes *more* impossible with the passage of time: voices filtered, faces covered, locations scrambled. Recovery of a face beneath a mask is obviously hopeless, and while modern technology may de-modulate a voice, would it be recognizable to anyone, over 30 years later?

The ghosting of the self finds an analog in the ghosting of analog television signals, too. In *Haunted Media*, Jeffrey Sconce refers to a specific kind of "ghosting" via analog television when he speaks of "…the eerie double-images that appear on a TV set experiencing signal interference. […] This form of interference creates faint, wispy doubles of the 'real' figures on the screen, specters who mimic their living counterparts, not so much as shadows, but as

disembodied echoes seemingly from another plane or dimension."[194] With the transfer of North American satellite technology to all-digital signals beginning in 2009,[195] the analog echo ghost has been rendered extinct. The blocky rainbow glitch and awkward frozen face distilled down into the half-inch depth of a HD flat-screen television, is an efficient—if comparatively static—haunting. Sconce retrieved narratives that verge between folklore and DIY tactics used to banish the television spirit: "…the Travers family of Long Island, who had to turn their haunted set to the wall to avoid its scaring the children, the Mackeys of Indianapolis also received a cathode-ray visitor who refused to leave the screen. In this case, however, the apparition was not a famous entertainer, but the image of Mrs. Mackey's dead grandfather."[196]

Occasionally, we allow the wool to be pulled over our eyes and stuffed into our ears in order to fake ourselves out. Between the intersection of design and fiction, Richard Littler's fictional Northern England town of Scarfolk is described as being in perpetual lockstep with the years that preceded 1979, sharing the same general timestamp as Vrillon's Southern Television interruption. A YouTube video of an apparent broadcast signal interruption on "Scarfnada TV" (which is a parody of Granada TV) begins with a test pattern arrangement in the

---

[194] Sconce, Jeffrey. *Haunted Media: Electronic Presence from Telegraphy to Television*, (Durham, NC: Duke University Press, 2000), 124.

[195] "Digital Television," Federal Communications Commission. Updated 7 December 2015. <www.fcc.gov/general/digital-television> Accessed 30 March 2016.

[196] Sconce 124.

shape of a skull, and the typical 4.5MHz sound-check blast.[197] Footage loaded with the visual cues of the 1970s places a spinning camera below a circle of people, in the low-angle kinetic energy vein of the conception scene in *Rosemary's Baby*.[198] The people and their helium squeak voices cut away to an image of an eye with the text overlay: "WE WATCH YOU WHILE YOU SLEEP." This repeats a few times, and as the visible shock in the photographed eye increases its sense of urgency, the video ends with the missive: "For more information, please re-watch this broadcast." The footage, dress, logo, and text in this video are a meticulous regional construction of "what television looked like" in the 1970s, branded with the hallmark traits of Littler's mythical Scarfolk Council.

If the music critic Rob Dickinson is correct in saying that "technology has turned us all into ghosts," why is it that the 1970s and 1980s seem an especially potent era for all things hauntological? Is it a particular despondency born of an unstable political moment, intersecting with cultural production? Probably not, because politics have fueled commentary within the arts for centuries. Is the backwards-looking "retromania" idea described by Simon Reynolds a factor, wherein an ever-shortening gap of time must pass before something attains the

---

[197] Littler, Dr. R. "'We Watch You While You Sleep'" TV signal intrusion 1975," *Scarfolk Council*, SRichard Littler. 19 February 2014 <www.scarfolk.blogspot.com/2014_02_01_archive.html> Accessed 30 March 2016.

[198] *Rosemary's Baby*. Dir. Polanski, Roman. (Paramount Pictures, St. Louis, Missouri: Swank Motion Pictures, 1968). Film.

aura of the living-dead, in the present?[199] Tangentially, yes. But there are a few rare examples, where an event, a band, or an action appear to be persistently modern and timeless, yet immediately co-present with the past.

The subjects interviewed in Grant Gee's 2007 documentary, *Joy Division*,[200] point towards the long shadow of the band in this sense. Rob Dickinson's interview in this film captures one of the most apt explanations for this concept, competing with clarity against the voice of Derrida himself:

> It's about the persistence of the past in the present. And I think it's really interesting in relation to Joy Division, because, in a way, Joy Division sounded like ghosts and seemed spectral, at the time. And their music still does have that quality about it. Of something that's dead, but it's alive. Something that's there and it's not there. [...] And I think in a way that they were sort of aware of that at the time that they were making those records, that the recording medium and the visual recording medium as well as the audio recording mediums are turning you into a dateable object and they're killing you.[201]

Mark Fisher's k-punk blog is the site of consistent explorations and applications of hauntological philosophy to popular culture, is a bleeding edge here. Dickinson was inspired to investigate this concept after seeing a lecture delivered by Jon Wozencroft, who was in fact referencing Fisher—who himself was digging at the roots of Derrida's spectral writings, distilling them for a broader audience.[202] A bastardized quote from Fisher draws us back to thinking

---

[199] See Reynolds, Simon. *Retromania: Pop Culture's Addiction to Its Own Past* (London: Faber & Faber, 2011).

[200] *Joy Division*. Dir. Gee, Grant. (Madrid: Avalon, 2008). Film.

[201] "Ghosts," *Joy Division*. Dir. Gee, Grant. (Madrid: Avalon, 2008). Film.

[202] See Derrida, Jacques. *Specters of Marx: The State of the Debt, the Work of Mourning, and the New International*. (New York: Routledge, 1994).

about the effect of the Max Headroom Incident, and Vrillon's diatribe: "Hauntology [is] *the agency of the virtual*, with the spectre understood not as anything supernatural, but as that which acts without (physically) existing [...] how reverberant events in the psyche become revenants. [...] The second sense of hauntology refers to that which is *already* effective in the virtual (an attractor, an anticipation shaping current behavior)."[203] This sense of "agency of the virtual," and its ability to "act without existing" was immediately effectual upon audiences who witnessed the Headroom signal jacking, and it continues to cause a vague sense of unease whenever we watch archived digital footage today. When the mundanity of everyday broadcast procedures is disrupted, it resonates at a psychic level of uneasiness.

The granular specifics of broadcast technology—much like our contemporary cocoon of wireless signals—are largely unknown among the general population. Commandeering a "mediumless medium" by harnessing unseen wavelengths results in a tailspin that comes dangerously close to clipping the history of 19th-century Spiritualist communication. The voice of Vrillon emerges out of the ether, and a co-opted version of Max Headroom taunts us from a liminal space short on detail, a fiendish electronic presence accidentally called up through a NTSC static séance. Even the "official" Max Headroom character from the television program carries a backstory--the brain and image of dying investigative reporter Edison Carter was uploaded into a computer in order

---

[203] Fisher, Mark. *Ghosts of My Life: Writings on Depression, Hauntology and Lost Futures*. (Winchester, UK: Zero Books, 2014), 18-19.

to keep him alive. As “the world’s only computer VJ,” the “real” Headroom is a facsimile of the living--a futuristic, fictional broadcast ghost communicating in an extended, televised conjuration.

In their 2008 campaign against Scientology, the appropriation of Headroom aesthetics by Anonymous adds another layer of complexity into the mix: their harbinger-like presence acts as a collective of volatile digital spectres, ready to breathe consequence back into politically and morally contentious moments of society by destabilizing modern media. Air and technology pirates render themselves invisible, pure message, upsetting the medium.

Considering the paradoxical nature of these rogue repetitions, which seem to float just out of step with themselves, thoughts are drawn back to the beginning of this essay, to the night drive where Meniere’s disease de-coupled hearing and reason. When, in that one catalytic moment, a new invisible dizzy double shook itself loose through the passenger-side door. When, in that instant (and from that point onward) the mysterious combination of viral infection, inner ear malady, or overloading of the immune system—my body found a funny way of deceiving itself into feeling phantom-like, if just a moment, several times a day. The acousmatic symphony of shrill tones I hear is subjective and private, but the time-shifting sense of displacement that occurs in the distance between the onset of the deep-ear knee-buckling sea dive and the resurfacing of “normal” hearing is “dead time.” During this time, I stand stock-still to wait things out while the world spins and squeals. It seems as though a lifetime of potent interactions with television sign-offs and emergency sound checks were all (in some small way) an

early warning system, signaling a future need to learn to cope and think through the dualistic nature of episodic hearing disturbance.

Masking in the case of the broadcast pirate— be it in the most literal sense of a store-bought latex mask, or the metaphorical masking of the human voice with technology—creates something like a bad carbon copy. The use of the mask by the pirate was deployed for reasons of anonymity, but in effacing one's face or voice, the phantasmatic is invoked. The deeper meaning of the word 'visage' in the context of the Max Headroom Incident captures the oscillation we feel when confronted with something that is both true and false, knowing that a genuine version of a likeness is buried in the mix. Yet in this doubling, the concreteness of a persona disassembles into a new kind of supernatural threshold--it is a bad carbon copy. If the music critic Rob Dickinson is correct in saying that "technology has turned us all into ghosts," the willing submission of the Max Headroom pirate is an especially abject example, adopting the role of the grinning horror and the disturbed media spectre.

War, Wires, Magnets

In 1900, while demonstrating his Telegraphone invention at the World Exposition of Paris, Valdemar Poulsen recorded the equivalent of the modern-day "sound bite," capturing the voice of Austria's Emperor, Franz Joseph. You can still listen to this, the oldest surviving magnetic recording. Translated from German, Franz Joseph tells the listener: "I found this invention very interesting and I thank you for its demonstration."[204] The Telegraphone was invented in 1898; it was the first device capable of producing magnetic recordings.[205] Its spools held thin magnetized steel wire—this is what held the sound—and could be used more than once to play back, erase, and re-record. The wire contained on the reels had to be thin, because it took 24 inches per second to record audio.[206]

In 1903, Poulsen founded The American Telegraphone Company and began manufacturing these machines for the commercial market.[207] Telegraphones were advertised as scientific instruments, music recording devices, telephone answering machines, and office dictation systems. This particular machine depicted was used by the US Navy to record the code signals

---

[204] "Early Tape Recordings," *Audio Engineering Society*, Audio Engineering Society, 29 December 2002. <www.aes.org> Accessed 3 August 2016.

[205] "Magnetic Recording History Pictures," *Audio Engineering Society,* Audio Engineering Society, 6 July 2004. <www.aes.org> Accessed 3 August 2016.

[206] See US Patent #661619.

[207] Clark, Mark and Henry Nielsen. "Crossed Wires and Missing Connections: Valdemar Poulsen, The American Telegraphone Company, and the Failure to Commercialize Magnetic Recording," *The Business History Review*, The President and Fellows of Harvard College, Vol. 69, No. 1 (Spring 1995), 1-41.

of wireless transmissions—the sweeps and spaces that could lead to life-saving tactics at war. The Telegraphone was short lived, however, because it was in competition with dictation devices like the Ediphone and Dictaphone. Ultimately, the sound fidelity of wire recordings, which had a tendency to twist and warp sound upon playback, couldn't compete with the reliability and ease of use found in the Ediphone's wax cylinders.

In 1928, an engineer named Fritz Pfleumer expanded upon Poulsen's idea for wire recordings, continuing this root technology's legacy.[208] He replaced the wire on the spools with an experiment: thin paper tape coated with iron oxide powder. Two years later, the German companies AEG and BASF licensed and then refined Pfleumer's ideas, as part of a continual chain of improvements piggybacking upon one another. This time, rather than using fragile paper tape, they deployed a new material—thin cellulose acetate tape—which was coated with magnetized iron oxide pigment and loaded onto reels. This, the K1 Magnetophon, was the first practical tape recorder, and it kept its reels spinning on a steady diet of BASF-produced Fe_3O_4 tape. Adolf Hitler soon discovered the benefit of time-shifting, recording "live broadcasts" for one city while protected in another.

Jack Mullin, a soldier in the U.S. Signal Corp, was deployed to England to help solve radio interference issues, and while working late into the night he occupied himself by listening to BBC radio—at least, until they signed off at

[208] Blundell, Stephen. *Magnetism: A Very Short Introduction* (Oxford: Oxford University Press, 2012), 88.

midnight every night.[209] At this point in radio history, there was (at least to Mullin's knowledge), no recordable playback media capable of holding sway with the quality of a live symphony. There was no "beautiful night-music" emanating from radios in the West. The playback of phonograph discs on air was prohibited by broadcasting associations, and there were no violinists playing from melancholy studio chairs at 3am. In a time before the constant broadcast was a given, a sweep of the radio dial after midnight would tune Mullin's overworked ears into Germany. These stations seemed to have found radio orchestras with the stamina to play music 24/7. Mullin might have rightfully assumed it was all part of a propagandized ploy to keep Teutonic wartime spirits high.

But when Mullin was dispatched to Germany in 1945 to investigate the mysteries of the country's top-secret electronics, he discovered the truth at Radio Frankfurt: the Germans had been using machines called Magnetophones. Mullin asked an official for a demonstration of the Magnetophone: "When he put the tape on the machine, I really flipped. I couldn't tell whether it was live or playback. There simply was no background noise."[210] The obsession with the absence of static in Mullin's career had suddenly leapfrogged from a military problem-solving mission into a mission for clarity in the arena of listening for pleasure.

---

[209] For general information about the Jack Mullin story, see The Jack Mullin Collection, *Pavek Museum,* Pavek Museum of Broadcasting, 2016. <www.pavekmuseum.org> Accessed 3 August 2016.

[210] "John T. Jack Mullin," *Pavek Museum,* Pavek Museum of Broadcasting, 2016. <www.pavekmuseum.org/jmullin.html> Accessed 3 August 2016.

Mullin promptly sent two Magnetophones home to the Signal Corp for study, and then "liberated" a few from bombed out German radio stations for himself. He sensed a promising future in sound-recording in the post-war era. According to military rules, anything sent home as a war souvenir had to fit into a standard mailbag. So, Mullin broke the large machines down into a fragmentary 35 pieces, and reassembled their ability to speak once he was safe at home in San Francisco.

At a meeting for the Institute of Radio Engineers, Mullin demonstrated the Magnetophone for audio professionals from the Ampex Corporation in 1946.[211] The company was impressed, and Mullin was helpful in sharing his expertise in magnetic tape recording. Mullin's Frankensteined German recorders were becoming too finicky to be used practically, but their death rattles reached the ears of those who believed in their power. His twin deck Magnetophones played their part as the temporary "ear" of what would become the Ampex 200A. While the Ampex 200A was being shopped around to radio and television stations, it was still a prototype and worked best as a playback device. Most broadcast engineers remained dubious.

This reciprocal hiccup in the record-play relationship would soon be ironed out. Eventually, Ampex caught the ear of Bing Crosby at ABC; the company had been encouraged once again, by Mullin, to find an audience there. Crooning Crosby—who received the nickname "Der Bingle" from his German

---

[211] Hammer, Peter. "In Memoriam," *Journal of the Audio Engineering Society,* Audio Engineering Society, Volume 42, No. 6 (June 1994), 776-777.

listeners—was tired of having to create a carbon-copy repeat of his radio performances for Eastern and Pacific Time zone. When he placed an order for 20 Ampex machines at the cost of $4000 each, he effectively guaranteed the company's success by financing their first production run, and also launched the move towards widespread adoption of taped radio performance in America.[212] A very specific circadian shift in sonic headspace occurred in the late-1940s, as a direct outcome of the technical lineage that followed the path of war out of the trenches and onto wires and reels. New patterns in passive listening emerged with the adoption of the pre-recorded broadcast, which soon bled into the night. Insomniacs found brain fuel from the hush of tableside radios; in the 1950s, as recording methods improved, pop-music obsessed teenagers with transistor radios hidden in their pillows would have no memory of how things were before. While Mullin is not a household name, Bing Crosby is far from an unknown. These two men, by total chance, became entangled with pioneering changes to broadcast history—albeit changes that were convoluted by their ties to war, and wires—from Poulsen to "the old groaner" and back again.

---

[212] Leslie, John and Ross Snyder. "The Early Days of Ampex Corporation," *AES Historical Committee Newsletter* (17 December 2010). <www.aes.org/aeshc/docs/company.histories/ampex/leslie_snyder_early-days-of-ampex.pdf> Accessed 10 January 2017.

We Bridge the Dead / Breakthrough

>

It's been far too long since I've been haunted. A friend calls to tell me they keep seeing the shadow of their dead landlord in the hallway outside of their flat—and my reaction is jealousy. I want to feel those old familiar ghost nips at my heels. The hustle up the stairs, fleeing boxes violently toppled to the floor in the old dark basement where there was a secret room and a stained mattress propped against the wall. After I found that horrible space and backed my way out the first time, the hidden door would sometimes pop open to greet me while doing laundry. My cats would stare into the dark yawn of the door frame (but never enter). I spent a fortune on blown out light bulbs in that place. Back then, I was happy to leave it behind.

Here and now, in a grand Detroit library, I'm alone on the third floor, with only the company of a man sleeping, head cradled on arms, at the far end of the room. A pile of ghost books, the bone crunching damp of October gloom, and plenty of shadows. The smell of walnut shelves. One good ear full of bootlegged bass that arrived in an unmarked anti-static envelope yesterday. Sub frequent head space. I want to convene with all-dead frequencies through cut up: Raudive's *Breakthrough*, Tyrell's *Apparitions*, and decades of deep file archive cuts—phenomenologies of haunted looming just behind the eyes. Willing the buildup of woolen black clouds to pass over the threshold from the bubbling

plaster of the cathedral halls and echoplex stairwells behind me. I try and think alive ghost fingers trailing across my neck.

"I'd like to address my friends in the beyond."

Switched on and over the radio. Layered on the muck of bass. Signal scan, fine tune to the open channel. Media, yeah, and then— just static. A place between stations on a medium-wave radio band; an expanse of space to fill in the noise. Homogenous waveforms create a beam-in site for spiritual voices to manifest. The "Breakthrough" séance is "*the possibility of projection by the unconscious onto a background of noise from radio transmitters or elsewhere.*"

Or elsewhere, visions let loose and wander like frequencies, climbing up the roots of trees harnessed with wires to act as antennas. Too much foliage scrambles the message. Voices on tape filtered in from the straightest tree trunk in the forest. Subjective projection and sense-data gathered from the stock still cage of the poplar stand at the edge of my childhood farm field. Ouija experiments in the barn. Wire that racing planchette to the rafters for a quarter-sawn pine beam signal boost. The lightning rod above the painted hex symbol carrying it up to the sky.

>>

The residuals of Jurgenson's magnetic tape bird calls warble in and flash me back, but from the wrong place. They form outside the window by my study

table, a blue-black grackle playing in the trees. Camera clicks and chimes from the occasional ruin tourist in the room—they float in and out all day. Sometimes this place feels like it is more about architecture and style than words and revelation.

Another scan, "I'm trying to work with you now." And then a row of voices, a succession on the microphone. In German: "Wait!" "We are." And then back at me, directly: "Are you in salt?" There is no decay in crystalline time, just mirrored back backflash and black noise cycling through limitless loops. I prepare to listen deep, and listen on, to the interference.

We become our own crisis apparitions. Goethe once saw his own ghost dressed in gold lace and steel pike grey walking down a road, followed by a horse. In the 1820s, H.M. Wesserman, Chief Inspector of Roads in Dusseldorf, had the embarrassing habit of trying to make his spirit visible. When he became bored, he settled on wresting the apparitions of others away from themselves. Forcing them to appear as prisoner phantasm percipients. Sitting in a parlor, he once rudely forced the future of his lady-friend to appear as a widow in white. She watched her own fetch enter the room, and wave a black handkerchief towards the ceiling three times before walking backwards through the wall again, wailing. This was the future to come, for her, and for him.

"Wait a minute, we hear a voice again." "Radio Peter" threatens to gatecrash through the static as he walks through the library, cellphone speakerphone machismo broadcasting the voice of a wounded one-night stand

into the room. The voice trails him. Then, a garble directed my way: “There are matches.” “We seem.” And then: “Here is your Nana coming.”

My grandmother swearing about the saints in swells of Quebecois French. “Saint-Jean, maudit Criss.” And then, her voice is clear: “Why don’t you peer through the lace on the old table we used to make ‘rise up’ just a little bit harder?” I see but don’t see but am aware of how one of her eyes floats higher than the other, a family trait that I wasn’t aware I shared until recently. A washing over: the smell of crisp dryer sheets from the Laundromat where she worked in her later years, rivalling the frying chemical smell of circuit boards in the video arcade. She raised me there when she was younger. “Now you need these books as portals. I would have taught you all of this.” But beyond the talk of portent dreams—rotting lilies and loose yellow teeth as harbingers of death—we never had the chance to go deeper.

I’m being gently berated by the ghostly crosstalk of my grandmother. We’ve locked in like a laser beam. “I can see you there, when you wake up in the night.” It’s been a problem lately. I’m thoroughly liminal from 3 until 5am. “You wander. You don’t sleep.” “You’ve done that enough… just quiet those floating feet!” For Criss-sake. Her words snap back, trashed reverb—“without death here!” And then she is lost, but others are not.

“Can you hear us?” “You’re drifting.”

<u>>>></u>

If I could cause a haunting, I would make a cloud of snow grey hands, bleached of life, disembodied. They'd float from room to room, pointing their way from the tall white window on my left towards the iron gate spanning the yawning black threshold on my right. The feeling of their presence would precede their arrival in the next room. A chair scrapes beside me, accusing. In George N.M. Tyrell's theory of apparitions, the line between what we feel and think and sense—and what we perceive—is an indistinct boundary. When I *think* a haunting, I *make* a haunting. A cause and effect collaboration of hallucinatory and material sense-data. When I close my eyes, ghoul hands rush out of the room. Some say that consciousness does not rest behind the eyes.

A squelch and a hiss of spiritual kHz advance into a chopped up whisper:

> *"The smoke spoils." […] "You have no helpers." […] "The trick is in the flame." […]*

I recently encountered a light bulb that passed through the hands of Sir William Crookes: famed scientist and discoverer of plasma. Channeler of cathode ray via vacuum tubes—and victim of Spiritualist shenanigans. I'd hoped to feel something when I held the Crookes bulb, but it just felt like a lamp with loose wires. The ghost of "Katie King" and sometimes sat on Crookes's lap during séances—wispy eyelash kisses and sometimes so much more. How do you arrive at third base with a spirit? Their ruse had no option but to continue. Crookes was in love with a living ghost.

The eavesdroppers of thoughts respond:

“Linger here, love.” “I cannot sing for you.”

“Don’t tire yourself. My hair has been cut off.”

“Raudive, change the subject.” “I hear you.” “That’s right.”

“…don’t spy.”

<u>>>>></u>

The painting at the far end of this library room has been crooked since 2006, and the echoes here will always be decaying. “I have someone here.” “Are you ready?” On queue, the man who has been sleeping at the library table wakes up and in a blur of motion begins to re-organize the chairs at his table. Breaking up the alternating red and green chairs in favor of monochrome arrangements. Lines of red on one side, lines of green on the other. Working his way towards me by doing the same at other tables, he always retreats before he gets too close. It’s very complicated. He leaves, breaking my concentration.

“You’re floating again.”

“Do you believe me? This is THE SOURCE.”

“Why won’t you open the door?”

I once awoke in the highest state of tension, frozen, a whisper in my ear. “K, it’s important that you wake up.” But my eyes were already open, staring over the ends of my splayed feet. That whisper again: “There are spirits arriving, they

will stand at the end of your bed." I lean in without moving. The purity of focus driven by terror. Soundtrack accompaniment of the bad energy buzz from the electric heater in a mouldering house with a broken furnace. A hint of purple-black crackles into an indefinite shape, splits off and becomes a mirror of itself. My cat jumps on the bed, through the grain, disrupting it all. The portentous things snap towards the ceiling, forms hacked up by the ceiling fan, and then fade. It can't have been good for those things to become solid.

Filed under "Other Subjective Feelings," Tyrell explains "People who were asleep often say that they were suddenly awakened by something before they saw the apparition." I'm quoting case studies now.

The percipient of spooks is the one who assigns them form; my thoughts on the whole supernatural mess are constantly shifting, and my visual experiences follow suit. But the problem of audible haunting has always been clear. Ungodly loud crashes in the night and waking to cracked water glasses on the nightstand: still standing, still full. The water glass became a spirit-catcher. I've never felt an icy cold shiver, the way my mother has, stopping me dead in the grocery store and pinching my arm with the guttural growl of a trance medium: "I just felt someone walk over my grave." But my hair has bristled after I've felt the palpable breathiness of ghost lips poised millimeters from my ear. An animalistic hiss that vibrated the tympanum, whisked around the cochlea, carried from my ear and then into the ear of a friend standing next to me. We both jumped out of our skins that day—and into the grave a little sooner. I used to be a spook magnet.

>>>>>

Things sift through again: "*We wish!*" "*Speak [you].*"

Case 35 from 1900 details Mr.A—, a victim of glaucoma who had lost his right eye. The left was clouded by a mist. One day while walking, he encountered a vision of a granite wall. It saturated his field of vision—including the memory of the missing eye. Every joint, divot, and texture of the broken granite haunted him in the present tense. "He could distinctly see the hornblede, the feldspar, and the quartz and mica reflecting the sun's rays." When he closed his eyes, the wall was still there. He began to hallucinate figures, was obsessed with describing the design of the textiles wrapped around the bodies of dead women. The elusive ladies floated in front of him, sun on their faces, just always out of reach. A poverty of vision produces ghosts.

In part, Tyrell's criteria for the perfect spectre: "If the apparition happened to be wearing a rose in its buttonhole, we should probably smell the scent of it." The scent and sense of things. If sensing something feels indisputable, the perception of something is built upon this sense-data foundation. We take the material presence of things for granted. We jump at a sound, because we believe it is there. I'd love to throw the apparition of a brick through a real ghost.

"We wait, in the present."

"We are, we dead."

"The author goes away."

“We bridge the dead.”

“Raudive… enough. Turn it off.”

|<

Section Five: Playing the Spectre

Humming Through Salt: Audint's Spurious Frequencies

i. Weight, Calm

A slow dive into the world of AUDiNT is a little like that old folklore fallacy of salting the tail of a bird. Or even better, its variation: salting the backs of witches. The analogy is that through the impossible task of sprinkling salt on either bird or witch one gains power over it, slows it down, weighs down its insubstantial or contested body. Extending this analogy, to pour salt on the backs of AUDINT's researchers is to give weight to the metaphorical body of their archive of ghosted histories. To slow down the algorithm—a profuse generation of texts and tendrils and esoteric wanderings and viral intrusions—so that we might find the space needed to submit to the idea that truth is stranger than fiction, and that the AUDINT divide tends to err here on the side of truth. We could run our rattrap straight into their rabbit-hole and waste days doing online research into people that couldn't possibly have existed, into government programs that sound fake—but turn out to be real. The jarring effect of this quickly becomes disturbing. We could willingly submit to virulent websites and translate German in desperation, to seek out the biographies of sketchy historical figures. I won't lie: I did all of this. In the end, chucking an entire salt shaker in AUDINT's

direction might have a better chance of slowing the RPMs enough to make the connection, than my cautious castings of singular grains.

Formed in 1945, AUDINT was originally composed of Hypolite Morton,[213] Bill Arnett, Walter Slepian, and the ill-fated Eduard Schüller; since its 2008 incarnation, Toby Heys and Steve Goodman have been two mainstays, with others floating in and out. AUDINT's original members were ex-members of the Ghost Army, a mobile WWII deception unit populated by artists and theatre technicians. Famously using "battle DJs" who remixed reality with field recordings of the sonic imprints of war—and using inflatable tanks as props—the Ghost Army was a diversion tactic to confuse Nazis on the whereabouts of Allied troops.

An encyclopedia of acronyms and codenames are the brick and mortar of AUDINT's foundation—a "splinter research cell" with nestled connections to similar cells: OSS, Operation Paperclip, OAR, JIOA, Operation Wandering Soul, SAIN, and others—all accounted for in the files of their *Dead Record Office*. AUDINT itself is a contraction of "audio" and "intelligence." The arc of the whole outfit is a sub-liminal world, where the institutional language of organizations has been amplified into something unsane, unsound, with its rogue operatives left to avoid stepping on the mortar blast eggshells they have laid out for themselves.

---

[213] An interesting link to the name of a salt company—Morton Salt—and the name of a road in Windsor that serves as an entry to a salt mine.

My own Canadian uncle, Orvy Butler, was captured in Italy during WWII, in Operation Husky, in the invasion of Siciliy in 1943, working to break down the Gothic Line. His escape was partially thwarted by the weight of the field radio he carried; he lingered too long, and was sent to a German POW camp for three years. There, he was fed a diet of stewed mystery meat and kept in a half-flooded room where limbs were prone to become ghost limbs in the damp. Back home, the Canadian Red Cross declared him "presumed dead." His wife moved on, had another child, and when the American troops liberated the camp, he remerged at her door one day, as a former ghost of himself, trailing smoke and lost signals.

AUDINT was born out of a crisis, a reification or an embodiment of the damaged psychic landscape of the years following WWII and its veiled surface-level "schizo-lithium calm."[214] It was initially founded out of a place of cooperation with militaristic powers, but in succeeding in its assigned directives a little too well, its members defected and spirited away their research to the underground: "that space in which technological innovation meets speculative thinking…"[215]

ii. Salt

The specific presence of AUDINT's infiltration into the Windsor-Detroit area has a lot to be shared with the subterranean. With salt. And with a most

---

[214] AUDINT. *Dead Record Office*, (New York: AUDINT Records 2014), 6.

[215] AUDINT, 86.

aberrant effect of sound. The Detroit River splits the two cities apart on the surface, but beneath the surface, a massive 1500-acre salt mine joins two countries back together, 1200-feet below.[216] A hundred miles of subterranean road loops itself into knots, in the darkness. The mines exist as a network of rooms held up by salt pillars—solipsistic architecture that is a result of the blasting method. The interior walls are sheared off with explosive charges, the collapsed chamber hollowed out again, crushed, and conveyor-driven up. There, the shock of surface air hits deposits that haven't seen the light of day since the Devonian period, 400 million years ago.[217] The mine blasts decouple the slow capital production of the earth.[218] Graveyards for historic heavy machinery and the boney husks of horses are said to be down there too, labor not wasted on disassembly to haul them back up to the surface. Locals remember riding down into the mines for public tours, past the Saint Barbara shrine—the miner's saint of safety—and spilling out with schoolmates into the sparkling rooms. Licking at the air.

In the late 1700s, Ernst Chladni—a pioneer of acoustic research—visually exposed the hidden properties of sound, and provided a template for instrument builders to shape their guitars and violins in specific ways to maximize the

---

[216] "History of the Detroit Salt Mine," *Detroit Salt Co.* <www.detroitsalt.com/history/> Accessed 28 January 2016.

[217] Ibid.

[218] In 1906, a 1000-foot shaft was pierced into the heart of what would become the underground rock salt city, now that salt is used to de-ice Michigan roads. It eats away at crumbling concrete and melts the city and its cars season by season.

richness of resonance.[219] In the classic Chladni plate experiment, grains of salt are dusted onto metal plates. When the plate edge is run over with a violin bow, the vibration causes the grains to reorganize into corresponding patterns of resonance. The patterns are formed by the plate's nodal lines—areas where the surface stays still. Those blank spaces *between* sound are where the salt attracts, creating Chladni figures. Those metaphorical nodal lines—the spaces of negation and collision—are where AUDINT's sonic research interests lay.

Salt is contradictive. Tossed off over the shoulder it is a cleansing—or a superstitious tic. At a chemical compound level, the sodium pentothal that plays a part in AUDINT's animated film, *Delusions of the Living Dead*, gains sentience as an agent of truth. But those who fall under its power—narcosynthetes—their revelations pass into the territory of the legally inadmissible. Surrounding an unclean house, it is protective. And yet, its mining in the Windsor-Detroit area once generated legends about the inevitable collapse of the region down into its own bowels. A sinkhole *did* appear at the Windsor side of the mine in the 1950s, around the same time AUDINT was blasting away at the degenerating edges of their colleague Eduard Schüller's mind.

---

[219] Whether drummer superstition or reality, the act of submerging drum cymbals into salt water baths ostensibly opens the metallic pores and perverts the sonic quality, making them ring more complex and "dirty," with a more subtle attack. Aesthetically, oxidization tampers with manufacturer's finishes, removing the sheen of the commercial, and allowing the musician to partake in a sort of "haunted now," with a cymbal set that looks antiquated, inherited. But this is a false inheritance—it is one that is bought and superficially brought into the hauntological now.

iii. Cipher

From September 17-October 24, 2015, AUDINT's *Delphic Panaceas* exhibition was on view at Artcite in Windsor, Ontario. Their *Martial Hauntology* project is a cipher to the expanded works in the exhibition—a collation of four years of sonic research released in a limited edition of 256 copies. An LP contains two chapters: *Delusions of the Living Dead*, and *DRNE Cartography*. A selection of cards from the *Dead Record Archive* and a 112-page book, *The Dead Record Office,* record the history of AUDINT.

With the *Dead Record Office*, AUDINT have created a historical record of the acoustic and unsound universe. The archival information cards hint at the presence and infiltration of AUDINT's agents throughout the history of physical sound media; innocent devices are hijacked electronic witnesses to experimental agendas. The media formats that they feed upon record, reassemble, and broadcast the sonified fodder of PSYOPs—and for the *Ohrwurm*—which we have all experienced. Histories of technology are filled with hypothetical worlds running in tandem with unauthorized adaptations overtaking intended use. For every Edison phonograph, there are consequent mumblings about rumors for lost plans for "ghost telephones." Historical figures like Valdmir Poulsen are underlined as essential conduits in the growth of affective sonic experiences in the 20th and 21st centuries. And for every house cat we cohabitate with, there is the paranoia that we could be living with an "acoustic kitty," a vile and delusional program launched by the CIA to send "trained cats," equipped with surgically

implanted antennae and microphones, to spy on Russian embassies. Did anyone in the CIA ever really live with a cat?

The animated video installation, *Delusions of the Living Dead*, is "the story of sound recordist and designer Walter Slepian's 1949 plan to purloin and photograph French neurologist Jules Cotard's notebook: an arcane medical document that holds information pertaining to the process and methods required to 'seed walking corpse syndrome into a subject's bed of cognition.'"[220] The title of the show, *Delphic Panaceas*, is in fact a reference embedded in the same film: "A black humored reference to the idea that Cotard Syndrome could be an answer to AUDINT's problems of connecting with the undead."[221] The soundtrack integrates the sonically audible voice of "Ms. Haptic" against soundscapes composed by Goodman and Heys and the more insidious use of an integrated infrasonic band, hidden among the digital weeds.

iv. Hum

One day as I sat at the breakfast table, skimming through a pile of newspapers that should have been recycled months before, I felt the vague disturbance of familiarity. As the smoke cleared, I realized that the photograph on the front page of *The Detroit Free Press* was of my old apartment in Windsor, Ontario. Apparently the sickly yellow stucco walkup in Sandwich Town had

---

[220] "Sonic Disruptions," *Tate Modern*. <www.tate.org.uk/whats-on/tate-britain/talks-and-lectures/sonic-disruptions> Accessed 28 January 2016.

[221] Heys, Toby. "Re: Spurious Frequencies." Message to Kristen Gallerneaux. 01 October 2015. E-mail.

become newsworthy as a victim of "The Windsor Hum." Reports of Hum-like activity are global, reaching back into the 1830s and finds a push-pin presence spreading over maps throughout the 1970s. Wherever it appears, etymology melds with geolocation: the Taos Hum, the Bristol Hum, the Auckland Hum. In early 2011, Windsor developed its very own Hum, a mysterious infrasonic event spiking deep at 35Hz. When residents woke late one night to a low-frequency rumble, slashing open their curtains to yell at an idling car, booming bass--they found empty, dark streets.

In 2002, while standing insomniac-prone in that same Windsor walkup, I looked out the kitchen window to find the sky on fire. A total apocalyptic vision over Detroit. Gigantic orange plumes trailing up into a gradient of anemic ochre, wretched green, and hazy purple--a low-grade thrum prickling at the soles of my naked feet. Assuming some great industrial disaster was about to roll toxic fumes over the river, I pounded on my roommate's door and stuttered my worries about the cataclysm in the sky. This is when I first heard the (pillow-groaned) words: "Don't worry. It's just Zzzzzug Island." Zug Island will play itself out in a moment.

Describe the Windsor Hum. A deep time bass rattle; a quivering in the gut. The creak of double-glazed windows with an angry bee caught between two planes. Night terrors. Not everyone can "hear" the Hum, but the vibroacoustic effects of infrasound--sound that exists below the range of human hearing--can cause suffering, instigating fatigue, insomnia, depression, anxiety, and migraines. Most victims of the Hum describe it as something *felt* more than *heard*, as their bootlegged bodies suffer incessant monotone pressure, beating on their

eardrums. Rational finger-pointing towards local heavy industry was counterbalanced with viral conspiracies: trending UFO reports, ionospheric HAARP interventions (an ionospheric government research program), and flyovers by experimental military aircraft.

The Hum and infrasound alike can mimic the tropes of a traditional haunting. In the early-1980s, scientist Vic Tandy was likely surprised to find himself collaborating with psychical researchers, tracing the cause of a recent "haunting" outbreak in his laboratory to the installation of a ventilation fan. That recent cold-sweat feeling of dread and the shadowy apparitions stuck in the corner of Tandy's eye were linked to inaudible infrasound being produced by the fan, a steady 18.9Hz. Tandy's vibrating eyeballs were allayed by the removal of the fan.[222] The Hum is a more wholistic environmental phenomena, running counter to easy solutions. In its most-close reality, The Hum is a fake-out haunting--a physiological response to the invisible effects of the discord between environment and industry--an ominous protest of the Anthropocene in the form of infrasonic terror. Salt and steel dancing on air, down into the lungs.

Back to the earthbound resonant mysteries of The Windsor Hum, attempts to trace its location (nevermind its cause) have been an exercise in frustration. Like describing neural pain or ghost limbs, pinpointing where one flesh ends and the other ghost twin begins, the Hum's oppression seems to come from everywhere and nowhere. First, the semi-trucks idling on the crumbling

---

[222] See Tandy, Vic & Tony R. Lawrence. "The Ghost in the Machine," *Journal of the Society for Psychical Research* 62, no. 851 (April 1998): 360-364.

Ambassador Bridge that joins Windsor and Detroit were blamed. But this theory belly-flopped into the river below.

In 2013, hard-noised scientists finally captured the "temporal and spectral" signature of Windsor's Hum, describing the process as being "like chasing a ghost."[223] Accusing fingers pointing towards Zug Island transformed into tenuous high-fives: the electric arc blast furnace at the US Steel plant was hemorrhaging infrasound and VLF waves across the border. These waves have been identified as the "likely" cause of The Windsor Hum--and are the same waves believed to cause the elusive soundtrack of aurorae borealis. On Zug Island, the resistance of steel being magnetized back into its base elements reverberates like the wailing of entangled souls, while offsite it bleeds over the border damped down into a low-pressure menace. The Hum continues to beat the ears of the city in unpredictable fits of biomechanical violence; the *Ohrwurm* of industry is always there.

v. Clash

There are natural and celestial events that predate the explosive violence of either one of the two world wars. The Chelyabinsk meteor impact of 2013 emanated some of the largest global measurements of infrasound to date (with a

---

[223] Novak, Colin. "Summary of the Windsor Hum Study Results," *Global Affairs Canada*, Government of Canada, 23 May 2014. <www.international.gc.ca> Accessed 8 January 2017.

shockwave strong enough to shatter windows). If the measurement of such things had existed at the time, the 1908 Tunguska meteor would have been off the charts. When Leonid Kulik, curator of meterorites at the St. Petersburg Museum visited the Tunguska impact crater 19 years later, locals were still reluctant to talk about or visit the site. Homegrown folklore had been etched into place, to explain the explosion as a curse from Ogdy--the god of thunder and infra-bass--who smashed the forests and chased off the animals as a punishment.[224]

Avoiding the dilution of AUDINT's *Dead Record Office* is important, but at its core, there are a few essential moments: the development of the TwoRing table, and the entwined fate this device shared with that of Eduard Schüller, the fourth member of the first wave of AUDINT. Schüller was a German ex-pat audio engineer who was brought to the US after WWII. While working for AEG during the war, he observed "how the dashing SS officers interfered with [technical] development, and how Jews suddenly went missing."[225] Schuller (1906-1976) was a communications pioneer, working for the Hertz Institute (1932) and soon after, AEG. He was central to the development of the magnetic tape recorder, working with Fritz Pfleumer, inventor of paper tape recording. Schuller collaborated with BASF to create magnetized medium on plastic tape. His patent, "magnetizing head for longitudinal magnetization of magnetic recording media" was granted in

---

[224] Phillips, Tony. "The Tunguska Impact—100 Years Later," NASA Science: *Science News*, NASA, 2008. <www.science.nasa.gov/science-news/science-at-nasa/2008/30jun_tunguska/> Accessed 28 January 2016.

[225] Translated from the German, a biographical entry at the City Museum of Wedel.

1933.[226] The AEG Magnetophone (1935) was a heavy, yet portable precursor to the mobile reel-to-reel. American soldiers encountering these systems dismanteled and fragmented these systems, shipping them piecemeal back to America for plunder. Schüller was the frail link in the group, given the black mark of his Germanic ancestry, despite his lack of connection with Nazi tenets. When a test subject was needed for AUDINT's phono-experiments, Schüller submitted. His alienation was sealed after Arnett and Slepian met with Alan Turing, who planted in them the idea of the device they would name out of reverence: the TwoRing Table.

In the TwoRing table, the collision and the fragment are key: "It is the collision, in all its vibratory formats and excesses that interests AUDINT."[227] This mutated turntable spins a locked-groove record. When two individual arms of the TwoRing table are propelled backwards and forwards, towards one another, and meet, their function negates one another in resulting collision. The soundclash—and "the waveformed artificial intelligence" at its core—arrives, "meld[ing] matter with anti-matter, and fuses the covert back-masked message with the overt narrative refrain."[228] In this collision of three sound types, normative reality is displaced, some kind of threat rises to take its place.

AUDINT's investigative history, from this date onwards, proposes to find ways to "open the 3rd ear," based on the simultaneous deployment of audible

---

[226] German patent, DRP 660,377.

[227] AUDINT, 17.

[228] AUDINT, 18.

sound, and the channeling of ultra and infrasound—soundwaves that exist above and below human hearing. Ultrasound exists above the upper registers of human hearing of 20kHz, but is recognizable in the shriek of a (silent to us) dog whistle or the echolocation of bats. Infrasound dips beneath the 20Hz range where "typical" human hearing bottoms out. Infrasonic specialists read the presence of these tones in tracking earthquakes, volcanic eruptions, nuclear and aerial blasts, and the geological rearrangement of rock (not music) underground. Animals running away from a forest is an early warning system, a natural harbinger artifact of their sensitivity to lower frequencies. None of these things are good.

AUDINT add three turntables to the mix, and in playing the "GITH repeater" discs on the decks, a triangulation occurs, where the heterodyned intelligence discharges "sonic shrapnel known as hooks into Schüller's neural flesh."[229] His sanity begins to stretch and unravel; the hook creates an earworm, or *Ohrwurm*—which awakens Schüller's third ear. It gets complicated here, but in short, the *Ohrwurm* causes Schüller's consciousness to mutate, and with a decoupled 3rd ear, his corporal flesh begins to take on the physical appearance of the media that it absorbed, growing grooves. When AUDINT go fully AWOL, realizing what they've unlocked in Schüller, they do so with their colleague suspended in a "magnetic coma."[230] Wrapped in reels of magnetic tape, Schüller

[229] AUDINT, 19.

[230] AUDINT, 26.

is turned into a "monstrous payload," an "embodiment of excessive communication."[231]

The body is never silent as a medium. In the earliest versions of "the world's most silent room"—the 1940 anechoic chamber at Bell Laboratories—the sounds of one's own mortality are amplified and broadcast back unto themselves—internal sounds of the ears, electric hum of the nervous system. An unsettling experience, sanity dissolves quickly, and this desensitized mode topples out at a 45 minute record.[232] A memory of a sound bite from Delusions of the Living Dead: "All sensory information is spectral in essence."

vi. Crystallization

AUDINT leans towards materiality often, letting loose with talk of the "alchemical properties of shellac."[233] In popular knowledge 78rpm records were collected during WWII "record drives," their shellac extracted and repressed into new records or used as wire insulation in field radios and military vehicles. Music was seen as disposable, and access to new recordings of popular music could only come from the literal physical negation of the old. In their founding years,

---

[231] AUDINT, 26.

[232] Eveleth, Rose. "Earth's Quietest Place Will Drive You Crazy in 45 Minutes," *Smithsonian Magazine*, December 17, 2013. <www.smithsonianmag.com/smart-news/earths-quietest-place-will-drive-you-crazy-in-45-minutes-180948160/?no-ist> Accessed 23 January 2016.

[233] AUDINT, 17.

AUDINT discussed "the implications of melting down records and casting them into forms, which can be used for ritualistic practices."[234]

Sonic research is self-referential, pulled from the "vast sound library of the atmosphere."[235] In order to unlock the sound that exists on the material bases on and through which sound is captured (be it a disc, a tape, a hard drive, or a cloud), it must be commingled into a new network; one where signals move through the geologic (germanium), filtered electrical impulse, magnetic, circuits, speakers, what have you. While theories of residual hauntings linked to geophysical deposits of limestone are speculative guesswork, the communicative properties of quartz crystals are hard and fast. Quartz responds with an electrical backlash when placed under pressure: the skating of a phonograph stylus through a recorded groove puts stress on the quartz tip of the pickup—an electrical response acts as the signal that becomes the message to be heard. Quartz stabilized radio frequencies, and was the backbone of crystal radio sets, WWI-era sonography used to locate artillery. All of these devices worked on mineral frequency. The crude methods of growing crystals were not up to mass production snuff demanded by the mouth of WWII radio needs, and so Brazil was stripped of a portion of its natural quartz crystal.[236] The 1943 Reeves Sound Labs

---

[234] AUDINT, 17.

[235] "Delphic Panaceas: An Infrasound / Ultrasound and Video Installation," *Artcite*. <www.artcite.ca/history/2015.html> Accessed 28 January 2016.

[236] In the space to breathe that followed the war, Bell Labs refined a viable process, and by 1970, virtually all crystals embedded in electronics were grown in labs. But those older crystals, naturally derived, do they have the potential to tap in to deeper landscapes?

film, *Crystals Go to War*,[237] lends life to the synthetic rocks grown in labs, filtering the voices of soldiers bouncing back from aircraft above or entrenched with radios in hand below. In the presence of an excess of vibration, however, these same crystals that provided constancy in sound could also recoil and begin producing "spurious frequencies."

In 1917, Alexander Nicholson, working for Bell Laboratories, turned to Rochelle salt when building one of the first crystal-controlled oscillators.[238] All that Detroit rock salt (*sodium chloride*) being hauled up from the mines was inferior in its singularity. Rochelle salt (*potassium sodium tartrate*) is known as a "double salt," with piezoelectric properties. Double salt, like the TwoRing table or Magdelena Parker's ring modulated loops discussed below, is a tangential collision with AUDINT's 3rd ear. As a mixture of two simple salts, polluting one another's purity, a new crystalline structure is created, divergent from the two original structures. Most importantly, all those electronic devices that powered the early years of AUDINT's research—microphones, radios, headphones, recorders— were operating off of crystal power and salt-derivatives. In the end, all those solid Rochelle crystals were prone to melting back into air.

---

[237] *Crystals go to War*. Reeves Sound Lab, 1943. Prelinger Archives. <www.archive.org/details/prelinger> Accessed 28 January 2016.

[238] Brown, Patrick R.J. "The Influence of Amateur Radio on the Development of the Commercial Market for Quartz Piezoelectric Resonators in the United States," *Proceedings of the IEEE Frequency Control Symposium* (1996), 58 – 65.

vii. Oscillation

In the *Delphic Panaceas* installation, a set of headphones plays the aural archive of Magdelena Parker, a second wave member of AUDINT, recruited in 1959. She was a "Chilean performance artist and filmmaker whose experimental work revolves around the use of the voice, magnetic tape, and the production of sonic cutup collages for ritual incantation."[239] The headphones repeat the contents of a compact cassette tape containing 15 analog synthesizer and tape loop sequences. It is joined by Side C of the project, a 16th loop encased in resin, "to ensure that it is never heard,"**[240]** in a move that hints at a dualistic properties of banishment and protection. The loops were created by way of ring modulation—a type of electronic sound processing that, like the TwoRing table, relies on the multiplied collision of two separate signals. The subsequent sound that is heard is both the *sum* and the *difference* of each individual waveform. So, both signals are layered on top of one another—but also a *new* signal that expresses the *differences between* those sounds, is a mutant third layer.

You could say that this effect is another example of AUDINT's 3rd ear Other. If ring modulated frequencies are not in harmony with one another, the final sound is one of metallic bell chimes. The individual loops in Parker's aural archive are constructed of those woozy repetitive chiming frequencies. They could easily embark the listener into a trance state, if it weren't for the safety

---

[239] AUDINT, 33.

[240] "Magdelena Parker," AUDINT. <www.audint.bigcartel.com/product/magdalena-parker> Accessed 28 January 2016.

valve of fragmentation between sides dictated by the cassette tape format. Appropriate, given Parker's apparent ability to induce states of possession among her audiences, and AUDINT's own descent into the psychic history of the clang of the New York Stock Exchange Bell or the cross-dimensional communication potential of Vietnamese gongs.

viii. Queue

As AUDINT's members begin to bridge the analog-digital divide, new kinds of spectral economies arise. They tumble into the zone of reified technology, instigated by economic trade via IREX (irrational exuberance)—and the waking of a sentient supernaturalized virus called IREX2. Lying dormant in the hollows between those Chlandi plate nodes, IREX2 is pragmatic and self-replicating, awaiting the growth of the networked tangle of the World Wide Web to become thick enough so that it could run rampant without detection. IREX2 "breached and convened the rules of the spectral masses by converging the human, the algorithm, and the unearthly into a singular audio intelligence."[241] It was apparently IREX2 who led to AUDINT's current ranks being filled by Toby Heys and Steve Goodman, who were recruited/coerced into becoming members by "a spam email and Trojan horse" in 2008, due to their prior histories as sonic researchers and artists, as well as their "sketchy purchases" made on Silk Road.[242]

---

[241] AUDINT, 84.

[242] Heys, Toby. "Re: Spurious Frequencies." Message to Kristen Gallerneaux. 01 October 2015. E-mail.

There is a certain kind of danger implied in this kind of artistic research; a non-specific kind of paranoia that becomes the keynote of the witness who falls too willingly and fully into AUDINT's reality. Much like the work of Trevor Paglen,[243] who hunts, photographs, and confirms the existence of "programs that don't exist" along with government and militaristic presences and apparatus using hyper long-range camera lenses, the "innocence" of artistic research suffers under the nefarious threat of becoming invaded by wild and conspiratorial forces. This is something that one imagines resulting in a threat, or a disappearance, more so than a cease and desist order or NEA-era public shaming tactic.

I write about these elusive ideas of salt, of sound, of the materiality of media formats and landscapes, of the minutiae of the geological, of local history, in order to position AUDINT into the regional background in which their exhibition appears. In AUDINT's narrative, realizing what power they'd created, the collective realized the need to destroy the soundclash-producing GITH discs that operated via the TwoRing table. The systematic fragmentation of these discs, shattered and split, were pollinated into plain sight and mainstream listening culture. Soundbites were dispersed onto sound effects, stereo fidelity, and test tone recordings—which isn't to imply that the reassembly of the whole will ever occur—more that nothing ever really disappears. The resulting Dead Record Network hints at subliminal rituals buried among the populist, attained through

---

[243] See Paglen, Trevor, and Rebecca Solnit. *Invisible: Covert Operations and Classified Landscapes*. New York, N.Y: Aperture, 2010. Print.

fateful encounters in salvaged markets; of the shards of the GITH discs becoming encoded hauntings, crate dug and sampled out into another layer of music history by DJs and electronic musicians in later years. To couch their history as a comfortable lock-groove within this specific time and place—a reciprocal feedback loop that has always been queued up, waiting for AUDINT's arrival. Sound is a social beast, hungry for circulation.

Prison Radio / Shotgun

A small, slightly crushed cardboard box appeared on my office desk at the museum one afternoon. Slicing through the packing tape to uncover the puzzle of its contents, a stench cloud of cigarette smoke plumed upwards and smacked me, headlong, in all of the senses. The almost hilarious intensity of the smell had my eyes watering and a mental image of the person who had packed it sticking a straw into a corner of the box to exhale a whole cigarette inside before sealing it up and handing it off to the mail carrier. The odor filled my office in seconds, and when another curator walked by, he quizzically sniffed the air before following his nose towards my office door. Poking his head in with a concerned look, as though I'd suddenly reached some critical stress level and just hauled off and lit up a cigarette, I guiltily verified: "I'm not smoking in here, I swear!"

Pushing aside the top layer of Styrofoam peanuts, a transparent Walkman sat camouflaged in a nest of crunched up balls of newspaper. Emanating the energy of something like a scared bird folded in upon itself, it seemed eager to make itself invisible by way of absorbing the characteristics of the sale circulars for ATVs, cheap clothing, and freezer stock-up deals that surrounded it. I gingerly picked it up, and a blast of sound struck out like a raptor—Motown defense mechanism of Jr. Walker & the All Stars "Shotgun" spitting out of the headphones at full volume. I must have hit the power switch.

The Sony SRF-39FP is one of the most popular portable AM/FM audio players used in prisons across the United States. Sony marketed its first SRF-

39FP (the “FP” stands for “Federal Prison”) over 15 years ago, and have kept it in production ever since. The radio’s defining feature is its transparent plastic body and clear headphones, designed to prevent the storage of contraband by inmates. Interior transistors, resistors, and circuit paths laid bare. These radios are only available through approved prison suppliers, who provide many other kinds of clear-cased personal effects, designed for sale in prison commissaries. The convenience of this radio is two-fold. Not only does it provide inmates with private and personal agency—it also makes routine cellblock checks by correctional officers much more efficient.

The apparition of this specific type of transparent industrial design first found its way into consumer electronics with the refinement of materials like Lucite and acrylic. Telephones were one of the most common devices to undergo this treatment, transformed into crystalline windows that encased an interior architecture made up of discreet components. Tracing backwards to the utter genesis of the first clear telephone, however, has proven difficult. They begin to appear irregularly in the 1960s (often as true prototypes rather than saleable products), and then began to flood the market in the late-1980s through the mid-1990s. Many of these phones found their way into the bedrooms of teenagers, this author included. Bell South, Conair, Radio Shack, Swatch, Unisonic, and others marketed upon the trend, installing further whizz-bang features like flashing lights to indicate incoming calls, visible bells, and glowing blue neon tubing.

Other devices and personal accessories received the same treatment: boomboxes, televisions, backpacks and raincoats. In an era where to own a home

computer meant to live with sickly beige plastic things, Apple, Inc. made several products to give people the option to break out of their mold of bland ubiquity. The original translucent white and Bondi blue iMac G3 was released in 1998, and while it was more guarded in its clearness than a Unisonic telephone, it refreshed sad computer dens on a massive scale. Extended palettes of tangerine orange, lime green, raspberry, grape, and blueberry.

These mechanized and miniaturized worlds of the transistor and silicon age were visually amplified and coded with the synthetic fruit flavored palette of the late 20th-century. The crystal clearness of the telephone amplified how little we know about basic communication channels, and the backlit glow of the iMac hinted at worlds of possibility that were *almost* visible. In both cases, these design cues were not meant to educate, however, but to further expose the mystical properties of complex technology. It is almost as though clarity confirms our ignorance.

The Sony SRF-39FP radio is simple, but powerful, evidenced by the clarity of the WJR signal that ran out through the earbuds. A quick sweep over the dial even found some of the more obscure college radio stations with ease. Its copper and ferrite antenna has the power to reach far, and its tuning responsiveness is robust. Powered by a single AA battery, used wisely, it can lend over 40 hours of aural escape. Battery efficiency becomes important in prison, where inmates are only allowed to spend about $300 a month on commissary items. Less money spent on batteries means more money for toiletries and snacks. Radios like the SRF-39FP continue to reign over digital players and MP3 players with good

reason: the cost of an iPod is at least three times as much as an AM/FM radio, an iPod requires a further investment in purchasing music, and the MP3 playlists available to inmates are highly censored, stripped of explicit lyrics and music that could potentially incite violent behavior.

Radio has historically acted as an outreach conduit, to listen to cultural and political developments from the comfort of home. The Sony SRF-39FP is at odds with itself, invisible among the general public, yet widely adopted within the internal community of the Federal Prison System. Owning a radio in prison allows inmates to reestablish a sense of privacy, comfort, and selfhood via an escape into the comforts of music, entertainment, news, and weather updates. And this radio—simultaneously a translucent conduit and a tool for making unseen/unheard people more substantial—enables inmates to tap into wider communication networks, to reinsert themselves into a dialogue with the outside world. It has other uses too. Televisions in prison common areas operate similarly to drive-in movie theatres: a low powered transmitter provides a radio frequency to tune into, using an external device. In this way, prisoners can tune their radio in to receive the sound of the television, encasing themselves in the comfort of a sound carrier bubble, delivered as a mainline through headphones.

Despite the fact that it is illegal for inmates to transfer personal property amongst themselves, it is a tradition for outbound people to gift their radio to an inmate left behind upon their release. Many former inmates believe that keeping the radio after their release is bad luck, a physical manifestation of bad times and bad memories, or a breach in the informal “convict code,” which dictates its own

complex systems of exchange. Owing to this, the cycle of circulation makes it somewhat difficult to attain these radios. With the establishment of collecting communities powered through digital marketplaces like eBay, however, these radios occasionally come up for sale. Evidence that the radio sitting on my desk once belonged to an inmate is concrete: etched into the plastic at the top of the radio is the former prisoner's ID. Despite attempts to contact the seller about further information, none was offered.

Performance Rituals: The Moog Prototype

When the experimental composer Herbert Deutsch first met Bob Moog, he told him that he wanted an instrument that didn't exist. He wanted something that could "make these sounds that go wooo-wooo-ah-woo-woo."[244] At this same music educator's conference,[245] Deutsch first diverted Moog's attention away from the theremin kits he was selling by asking "Do you know anything about electronic music?"[246] Six months later, in the summer of 1964, Deutsch arrived in Trumansburg, NY with grant money in hand from Hofstra University, where he taught. He and his family set up camp at a nearby state park; this was to be a working vacation. Moog greeted him at his front door with the declaration: "We're gonna work in my studio… which is in the cellar."[247]

A few months prior, Moog's musical worldview was expanded at a Greenwich Village studio, where he watched his new friend perform an experimental concert on the artist Jason Seley's car bumper sculptures, turning them into impromptu instruments with his percussive mallets. And Deutsch was an early entrant into the world of tape manipulation too, forming sounds

---

[244] Pinch, Trevor J, and Frank Trocco. *Analog Days: The Invention and Impact of the Moog Synthesizer* (Cambridge, Mass. [u.a.: Harvard Univ. Press, 2004), 23.

[245] The conference was the New York State School Music Association.

[246] Deutsch, Herbert. "On Innovation Interview with Herbert Deutsch," transcript of an oral history conducted 2014 by Kristen Gallerneaux, The Henry Ford, Dearborn, 14.

[247] Deutsch 2014, 23.

replayed from recorders into spliced symphonies created from patched adhesive and miles of polyester spindled onto reels.

For two weeks of that summer in Trumansburg, the pair shot ideas back and forth. Moog's electrical engineering skills and openness to collaboration played well alongside Deutsch's experimental musical talents. At first, they didn't even call the thing they were developing a synthesizer, but rather, "a portable electronic music studio."[248] Exchanges over whether to give their instrument a keyboard (or not), qualities of attack and decay—and one spectacular epiphany about a doorbell—all coalesced to give form to the instrument being birthed, Frankenstein-style, in Moog's underground workshop. The short version of the story is that Deutsch soon began to hear the first signs of his electronic "wooo"'s and "ah"'s emerge from the cellar. It is rare that the origins of sonic specificity can be traced to an exact moment, but the birth of the structure of "the Moog sound" (and by extension, a new way of making electronic music) is well documented.

A key moment demands a digression. One day, Moog sent Deutsch to retrieve a doorbell button from the local hardware store:

> … within a half an hour or an hour at the most, he had set up the idea that if I press a key down on this little keyboard, and it would allow the sound from an oscillator to play. He said, "When you [press a key], press the doorbell button at the same time." And what he had designed at that time was a basic oscillator that produces a waveform. But we didn't think of the instrument we were developing right away. The biggest decision that I think that I made had to do with… not interpretation—but dynamics, attack, decay, the articulation of music. He had wired the doorbell button up, so that it gave an attack to the note, he put a potentiometer on that, so

[248] Pinch, 22-23.

> that you could control the attack, and did the same thing with the decay. And so that was the beginning of probably the most important singular part of the original analog synthesizer.[249]

Music to the engineering world's ears aligns the Moog synthesizer's best qualities as coming from its feats of interior technology: electronically generated sounds, driven by voltage-controlled transistor technology, organized into standardized modules, oscillators, filters, and a keyboard. In a series of circuit diagrams drawn by the hand of Bob Moog, the interconnections and switching points of modules that make up the core of the "Moog sound" have been flattened into silent schematic relationships on paper. Rendered in two-dimensions, the circuit diagrams for the modules of pitch control, an envelope generator, a noise generator and trigger extractor carry the visual weight of an abridged dérive. The complexity of the voltage-controlled oscillator module, on the other hand, spreads out over several sheets of paper, meandering up and away from itself, seeming more like the template for the haphazard city where these psychogeographical walks might happen.

Once Deutsch returned home, Moog used reel-to-reel tapes as a correspondence method, noodling on the development and the sounds that squelched forward from this new thing he called "the old Abominatron." He warned Deutsch: "it doesn't sound like much when I play it, but maybe somehow, someone with a bit more musicianship and imagination can get some good things

---

[249] Deutsch 2014, 21.

out of it."[250] By October, Deutsch had the synthesizer in hand, and began composing electronic music on what would later be elevated from "Abominatron" to "the first complete Moog prototype." The initial composition created on a Moog synthesizer was *Jazz Images: A Worksong in Blues*. It is a decidedly apparitional composition, grafting 1960s free jazz onto the bones of traditional blues structures. Deutsch notes:

> I wanted to write a piece that was traditional in a sense but new jazz in another sense and new music in another sense, very often not tonal, very often sound-oriented, and definitely using the sounds of this new prototype instrument.[251]

From the first composition generated on its keys and modules, the Moog synthesizer was immediately infiltrated by the portmanteaus of the past. If we are inescapably haunted by culture, and every*thing* is liminal and oscillating, the Moog makes an interesting case study. Even Deutsch, as early as 1981, had already called out the fallacy of the "newness" of synthesized sound, in spite of the genuinely original instrument under hand:

> Apparently nothing stays new for long; or perhaps nothing is ever altogether new. Roger Bacon imagined the sounds of the Moog in 1654. In a remarkable forecast of Trumansburg and Buffalo developments and the implications they have for twentieth century music, he wrote in The New Atlantis about "…sound houses, where we practice and demonstrate all sounds…harmonies which you have not heard…quartertones and less slides…diverse tremblings and warblings of sounds…We have strange and artificial echoes…and means to convey sound through trunks and pipes.[252]

---

[250] Deutsch, Herbert A. "The Abominatron," *From Moog to Mac* (North Hampton, NH: Ravello Records, 2012). Sound recording.

[251] Deutsch 2014, 28.

[252] Deutsch, Herbert A. "The Moog's First Decade 1965-1975," *NAHO,* (Albany, N.Y: New York State Museum and Science Service: Fall 1981), 7.

And this notion of "differánce"—the disquieting nature of only being able to speak of hauntings *indirectly* through other things—has especially infiltrated the afterlife of the Moog. The electronic composer-arranger Mort Garson was one of the first to record a commercial album using the Moog modular synthesizer, working with the musician Paul Beaver to produce *The Zodiac: Cosmic Sounds* in 1967. The instructions on the back of this record read: "Must be played in the dark." His later efforts, *Black Mass Lucifer* (1971) and *Ataraxia: The Unexplained* (1975) attempted to capture the dimmest corners of occult history, meshing this once-taboo subject with the voltage-controlled sounds of the Moog. Even with song titles like "Voices of the Dead" or "The Evil Eye," the effect of Garson's music today is now less ominous, now more cheesy with its layers of proto-prog-rock noodling. Garson seemed to have his finger on the pulse of all things New Age, composing music for plants, music for the signs of the zodiac, and music for "sensuous lovers." His arrangements accompanied the most cosmic of all happenings in the 1960s—the background score for the CBS television transmissions of the Apollo 11 launch. Garson reasoned with his score: "The only sounds that go along with space travel are electronic ones … [The music] has to echo the sound of the blastoff and even the static you hear on the astronauts' report from space. People are used to hearing things from outer space, not just seeing them."[253]

---

[253] McLellan, Dennis. "Composer was a synthesizer pioneer," *latimes.com*. Los Angeles Times, 11 Jan 2008 <www.articles.latimes.com/2008/jan/11/local/me-garson11> Accessed 6 April 2016.

In the 1969 Kenneth Anger short film, *Invocation of my Demon Brother*, a performed occult ritual—that is in part, a satanic funeral for Anger's pet cat—appears as a psycho-sensorial wash of cryptic imagery. The harsh, repetitive soundtrack was provided by Mick Jagger, consisting of a grating patch that was produced on one of the first modular Moog synthesizers. Electronic sound became a fallback within 1970s and 1980s horror films; a way to convey a sense of dread, seemingly inexpressible by any other musical means. Two decayed notes repeat like a death march in *Night of the Living Dead's* nocturnal zombie feasting scene; the prog-rock band Goblin set the witchy tone for Dario Argento's giallo films *Deep Red* and *Suspiria* with a modular Moog; John Carpenter composed his own soundtrack for *Halloween* and *The Fog* with a Moog IIIP Modular system and a Minimoog.

Traces of horror aside, contemporary musicians—especially those who call the Ghost Box recording imprint home—have continued to exploit the evocations possible through the use of modular analog synthesis. The artists working with Ghost Box share a common drive to find the "keynote" of sound that can seem to at once conjure up post-industrial British landscapes, forgotten séance rooms, and parallel worlds. Opting to use a variety of analog synthesizers as a primary invocation tool, they retreat from compressed sound and the closed system of purely automated and digital music making. Using patch cords, wires, and keys to shape sound as a musician is at once frenetic, random, and meditative. There is a sort of ritualistic power in commanding the signal, pivoting one tweak or another into becoming a presence, and then determining how it lives and expands or

decays into noise. The Mount Vernon Arts Lab LP, *Séance at Hobbs Lane*, describes itself as "a lost classic of British electronics … a psychogeographic investigation into a world of abandoned Underground stations, Quatermass, eighteenth century secret societies and the footsore reveries of a modern Flaneur."[254] And The Advisory Circle's *From Out Here* narrates the story of a computer becoming sentient, "where bucolic English scenery is being manipulated and maybe even artificially generated by bizarre multi-dimensional computer technology."[255]

In an oral history conducted with Deutsch, stories of his foundational memories emerged of a life in music. A particularly powerful memory, of a resounding shock of his own psychogeographical "sounding the landscape," occurred in a strange form of aural synesthesia:

> I came from a very poor family. They ran a chicken farm on Long Island. There was a piano in the house, and it was a wreck. I can remember that. But I liked the just touch and play on it. I was three years old and I was out in the garage of the house. There was an empty unattached garage, not like modern houses. And I was standing there in the garage with a stick in my hand. And I remember distinctly that if I hit the stick on the ground, I heard a tone. And if I took that stick, and I moved it like that, up and down, I could hear (SINGING) "Dum, Dum, Dum, Dum, Dum." And I could start playing tunes on that stick. And then, all of a sudden, my brain came in, and it said, "That's not making any sound. It's just going, 'Thud, Thud, Thud.'" And it actually scared the devil out of me. I remember running into my mother, in panic, thinking, "How did I do that? What am I hearing? I can't hear anything."[256]

---

[254] "Mount Vernon Arts Lab – The Séance at Hobs Lane – Description." *GhostBox*. GhostBox, 2001 <www.ghostbox.greedbag.com/buy/sance-at-hobs-lane-0/> Accessed 6 April 2016.

[255] "The Advisory Circle – From Out Here – Description." *GhostBox*. GhostBox, 2015 <www.ghostbox.greedbag.com/buy/from-out-here/> Accessed 6 April 2016.

[256] Deutsch 2014, 3.

My own connection with the Moog synthesizer (and its historical actors) is personal. The arc of this object would find its transfer from the home studio of Deutsch, to Hofstra University's electronic instrument studio, where he taught. While there, however, the instrument was underutilized: "…my students would occasionally use this, but most of the time, they wouldn't. And when I talked to them about it […] they said, 'No. It's too important.'"[257] In *Keyboard News*, September 1982, Deutsch remarked on an auction where the Moog prototype went unsold, and his surprise at finding no interest at the Smithsonian Institute: "People should realize that someday it will be regarded somewhat like a Stradavarius."[258] Luckily, when Deutsch reached out to Robert Eliason, former curator of musical instruments at The Henry Ford Museum, he understood the historical importance of the synthesizer and acquired it in 1983. Today, object number 1982.68.1 is under my purview as curator of sound technology. And against all recommendations of playing favorites among children or museum object collections—it undeniably falls within that territory.

When Herbert Deutsch transferred ownership of the prototype Moog synthesizer to the museum, he gave a concert performance on the stage of the historic Anderson Theatre, effectively becoming the last person to play the instrument. In 2014, he returned, almost 35 years later, to give a follow up performance, and to become the subject of an oral history. When Deutsch showed

---

[257] Deutsch 2014, 52.

[258] "Moog Prototype Unsold at Auction," *Keyboard* (San Francisco, CA: Miller Freeman Publications, September 1982), 64.

up, he handed me a DVD transfer of the original 1983 concert, videotaped, forgotten, and unseen by most. Purple letters produced by a character generator float over top of the opening scene: "From Whence the Moog?"[259] Herb is hunched over in the blurry video footage, playing the prototype Moog on the very stage where we would collapse the past into the present with our 2014 interview.

> Asked how he felt about his reunion with the object, Deutsch said:
> When I walked into the theater today and saw the Moog prototype sitting on the stage, the first reaction I had was akin to seeing something somehow from your life. Now, I won't say it was like seeing a child, but it was the same kind of reaction—that it was a child. It was like a child in my memory, you know--in my musical memory.[260]
>
> …
>
> (BREAK IN TAPE).

[259] *"From Whence the Moog?"* Dir. Unknown. Perfs. Herbert Deutsch. 15 January 1983. Unreleased video footage transferred to DVD, The Henry Ford Museum, 2014.

[260] Deutsch 2014, 44.

Dirt Synth: Excavating the Sounds of the Poltergeist

The poltergeist, or "noisy spirit," is volatile, erratic, and interacts with purposeful malevolence. This is in opposition to the classic haunting, which is benign, repetitive, and often manifests due to a historical crises or familial connection. Hauntings leave no trace, but the "apportations" of the poltergeist are often elemental in nature, causing damage to dwellings: showers of stones or mud, indoor rain, and spontaneous fire. In poltergeist cases, we see an unfailing narrative focus on the manipulation and *destruction* of material culture. Poltergeist activity has been hypothesized as being linked to humans, but in the end, it is through the manipulation of material culture—and the latent power of objects within a given space—that all narratives evolve.

Above all, the poltergeist is perhaps best known for disembodied knocking on walls and furniture—the production of sound that witnesses habitually describe as coming from within the bones of dwellings and objects. In July of 1958, an Illinois family was "…awakened by whistling noises from the refrigerator, crunching sounds from the wall and the shaking of their bed. Their 14-year-old daughter "…was hit on the arm with a cabbage, and struck in the back of the head by a quarter-pound of butter."[261]

Whether legitimate or hoax, poltergeist events consistently record interactions between the unseen, hyperlocal landscapes, mistreated objects, oppressive sonic effects, and the affected victims as a type of multilingual

[261] Loomis, C.G. "Illinois Poltergeist." *Western Folklore*. 17.1 (1958), 62.

haunting. The overtly physical nature of the poltergeist usually prompts an investigation into the geophysical qualities of the site in order to rule out natural causes for the phenomenon. Seismic data, rogue electrical waves, and the presence of infrasound are checked against the uncertain energies of the poltergeist.

In 2006, I began to gather soil samples from the sites of purported poltergeist activity. Notable samples include dirt from the location of the Baldoon Mystery in Ontario, Canada—an infamous and very early case centered around a fire-raising spirit that ultimately led to the destruction of John MacDonald's family home in the 1830s. A connecting sample was brought to me from Kircudbrightshire, Scotland. A fire-obsessed poltergeist that was suspiciously like the one at Baldoon was reported here, and in fact— was the same town where the Scottish emigrants who would later settle in Baldoon, Canada originated. In the United States, I gathered samples from the Little Haiti district of Miami, where in the 1960s, a poltergeist attached to a young Cuban immigrant took up smashing Florida-branded souvenirs in the Tropication Arts warehouse where he worked. Soil and pulverized Golden Medallion seed pods were gathered from the front yard of the innocuous-looking Craftsman house where the "San Pedro Poltergeist" terrorized Jackie Hernandez in 1989.

A decade after beginning to build this archive of samples, I began to experiment with methods of amplifying the sonic qualities of the individual soil samples. Initial experiments with microphones failed to produce much—pushing the electric ear around in tiny piles of dirt only produced homogenous crinkling

clicks and pops. I found more success in the realm of analog synthesis. The individual modules that make up an analog synthesizer—which is more about twisting knobs and patching cords than pressing keys—are infinitely customizable, and allow one to strip back sound to its most basic qualities: waveforms, controlled voltage, resonance, attack and decay, and tone.

Using a combination of off-the-shelf and custom-built modules, I have built up a synthesizer that is honed towards the amplification and processing of external sounds—and the smearing of those microsounds across longer time-signatures—which is known as granular synthesis. At its simplest operation, patch cords lead out from the main instrument directly into the poltergeist dirt samples to create self-generating drones. Since the synthesizer partially generates sound based on electromagnetic interactions with the content of the soil, there is a marked difference in the sonic qualities of different types of dirt which are influenced by the presence of iron deposits, limestone, sand, and moisture levels. When the open ribbon-circuit module is touched with the fingertips, the person playing the instrument literally becomes part of the circuitous electrical path for the sounding off of the spirit soil. And finally, activating the time-warping of the granulator allows one to build the sounds into lush ambient landscapes, which echo back into themselves and create new feedback loops.

The intent here is to enter into a speculative collaboration between human and non-human elements, where the result is as unpredictable as the nature of the poltergeist—perhaps carried along in the generative microbial qualities of the dirt. If landscape can be charged or imprinted by the supposed supernatural

events that once occurred at these sites, the dirt and the synthesizer are intended to act as an (admittedly absurd) agent for sonic excavation and exorcism in the present day.

Section Six: Anchors

Prospector Stake from a Mythical Lake

A wooden prospector's stake made of cedar, cataloged as a "pointed object"—it is 23.5 inches long—but denies a consistent diameter measurement, with one side undulating in spiked peaks and valleys. The exposed craggy top was blasted away—years peeled back—by sand-laden winds in Wyoming, blowing in hard from the West. Its natural waveform is dramatic. Over the course of thirty years, its eroded wavelengths emerged, busting outwards—visual tension moving away from its equally dramatic vertical cracks. The bottom third of the stake remains cylindrical, stained a darker shade of brown by the earth. Small pieces crumble off every time it is moved; if it were to be re-planted in the ground, a strong hammer blow to the top would probably cause an explosion of wooden shards. Imagine the smell of its locked-up cedar core reactivating in the violence of the swing. There must be a vampire reference somewhere, here.

This stake was once planted into the ground at a fictional lake—its wood an eroded witness to the total solar eclipse of 1878. It exists in a web of inaccuracies and half-truths, yet the story of the marring of its surface is the one thing that is undeniably concrete. When the stake was donated to The Henry Ford museum in 1931, it arrived with a story scrawled on a paper tag in cursive ink: "Fifty-two years ago Mr. Edison, in company with U.S. Army officers and Union Pacific officials, camped at the Lake, now known as Lake Edison. While in camp there, Mr. Edison conceived the idea of the incandescent lamp. The Gold

Rush occurred just ten years after Mr. Edison's visit and the stake I am sending you by Parcel Post was used at that time."[262]

Battle Lake is nestled into the crook of the mother of mountain ranges, the Sierra Madres, in Carbon County, south-central Wyoming. Nearby locations give a hint to the heartbeat of the locale: Purgatory Gulch, Indian Bathtubs, Hell Creek, and Bachelor Creek. The story of Edison's conception for the incandescent bulb at Battle Lake is apocryphal, yet the stroke of genius that lit up Edison's brain has become runaway mythology is consistently reported as truth. In the dead of summer, July 29, 1878, Edison *was* truthfully part of the "Draper Expedition" that gathered to witness a total solar eclipse in this area.[263] Battle Lake, being located two miles west of the Continental Divide, promised to be predictably dry and clear, with optimal viewing for all 191-seconds of eclipse power. Edison's purpose among the Draper party was to test the function of his tasimeter—a device that measured subtle temperature shifts and could potentially reveal information about the mysteries of sun coronas, amplified by the eclipse. Edison's tasimeter malfunctioned; Draper's photographs of the coronas were a success.[264]

A letter written by Robert M. Galbraith dated November 10, 1929—over fifty years after the expedition—listed out his fellow members for the "Eclipse

---

[262] Letter from L.P. Pasewalk to Henry Ford. BFRC.REG.R229.File 31.884, Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

[263] "Biographical Notice of George F. Barker," The Popular Science Monthly, (New York: D. Appleton, September 1879), 695.

[264] Todd, Mabel Loomis. Total Eclipses of the Sun (Boston: Roberts Bros., 1894), 63.

Expedition." Galbraith, a mechanic for the Union Pacific Railroad, joined Dr. and Mrs. Henry Draper, who headed up the party, along with the English astronomer Norman Lockyer (co-discoverer of helium and founding editor of *Nature*), George Barker (Dean of the University of Pennsylvania), Henry Morton (President of the Stevens Institute of Technology), a Professor Meyers of Iowa, several employees of Clark Brothers Telescope Manufacturers, astronomy professor Craig Watson (and Mrs. Watson) of the University of Michigan, and one unknown man.[265]

In this letter, it is revealed that Marshall Fox, a reporter at the New York Herald, was also present to witness celestial overlays. Galbraith perpetuates the myth of the "Incandescent Conception," claiming that Edison "…described it at the Breakfast Table. Marshall Fox, on arriving at Rawlins [Wyoming], sent a 2000 word message to his paper on the subject. I heard later that he and the Associate Editor came near losing their jobs for publishing such rot."[266] The Wyoming board of tourism continues to hold fast to Edison's long-ago presence, building a monument and claiming: "While vacationing here in 1878, Edison threw a broken bamboo fishing pole in the fire and was intrigued by the way the frayed pieces glowed. These observations supposedly gave Edison the idea on

[265] Correspondence from Robert M. Galbraith to George E. Howard, November 10, 1929. Edison Papers. Unprocessed. Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

[266] Correspondence from Robert M. Galbraith to George E. Howard, November 10, 1929. Edison Papers. Unprocessed. Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

how to develop his own design for the light bulb's filament."[267] The filament design, in reality, was not plucked out of those campfire embers as a readymade idea—it took thousands of hours of labor, money, and a deluge of materials experimentation at Menlo Park before bamboo was tested as a practical option.

Weeks of preparation and minutes-worth of an eclipse lightshow later, Edison and George Barker decided to stay on in the West for a hunting and fishing trip. The mosquitos and blackflies must have been thick enough to make their own high-frequency din in those woods. The men continued to camp out at Battle Lake, Edison more likely dreaming of trapping his next meal than capturing light in a zero-gravity glass bulb. Thanks to the uncertainties and fluidities of time and truth, the lake became a site that both glorifies and denies the reality of the "lone genius inventor." Case in point, searching for a "Lake Edison" in Wyoming brings back zero results, despite Galbraith's claim that: "I suggested that the name of the lake be changed to Edison Lake. They had me write Mr. Edison telling him of the proposition and just a few days ago received his reply that he would appreciate the honor."[268]

The name, "Lake Edison," that is part of the tale scripted onto the tag connected to the prospector's stake, was never officially adopted. The honorific has been worn away by time much like the cedar pole that was planted there just a few years after the eclipse. With cedar as an indigenous species, it is likely that

---

[267] "Battle Pass Scenic Highway," *Travel Wyoming*. Wyoming Office of Tourism, 2016. <travelwyoming.com>. Accessed 3 August 2016.

[268] Correspondence from Robert M. Galbraith to George E. Howard, November 10, 1929. Edison Papers. Unprocessed. Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

the stake was severed and harvested from a nearby tree stand. Living materials shifting taxonomies, into something cannibalistic—an amputation now meant to signal not only legal boundaries—but the intent to harvest that site's own capital of the natural. When the stake was driven into the ground at the edge of the lake, it was done so based on claim speculation, tied up in the discovery of copper deposits in the area. Temporary settlements were raised around the rush to reap metals. The Rudefeha Mine was only one of nearly 200 other working mines within travelling distance of Battle Lake, which settled into a brief heyday of industry.[269] The nearby, drolly-named town of Encampment quickly peaked as a center for smelting copper and piddling amounts of silver and gold until everything went bust in the first years of the turn of the century.

Local folklore from the height of Battle Lake's mining rush often recounts the story of a phantom miner who lost his life at Slaughterhouse Gulch.[270] This story is told nearly as often as the Edison legends. The miner was the victim of hastily placed dynamite charge, and for a time, he stalked travelers and spooked horses into upright heel-kicks on the trail that runs between Battle and Encampment. The maxim "there wasn't much left to bury" was believed to be the cause for the Slaughterhouse apparition, whose remains were dispersed throughout the Gulch. A story from the early 20th century might seem innocuous, but apparently carried enough weight within its circle of witnesses to have

---

[269] Larson, T A. *History of Wyoming* (Lincoln: University of Nebraska Press, 1966), 334.

[270] "Haunted Places in Wyoming," *The Shadowlands,* 1998. <www.theshadowlands.net>. Accessed 3 August 2016.

survived. In the late 1910s, forestry workers enjoying dinner at a campfire saw a stone tape loop of the Slaughterhouse miner walking past. The forestry party was certain that the miner could be *nothing other* than a spectre, based on his failure to greet them at the edge of fire, choosing to pass on by with silent footsteps.

Something as simple as a wooden stake, like half-true legends and ghosts born out of the violence of settlement, has the potential to haunt us too. From its first encounter, this silent cedar stick has had an affecting presence upon the author with an intensity that others find difficult to share. It has become the symbol of a "thinking through thing," an entropic harbinger of a "thing not static," transubstantiated into a vessel for dialogue about nature, and the fallacy of claims we sometimes lay over the natural environment. If objects contain "stored codes," their inherent "signals" could become scrambled.[271] So what if we were to begin this process of de-scrambling the true sense of place, time, and storytelling in a literal sense? By making the physical digital. By slicing and freezing (in an auditory sense) the most granular of samples generated by the visual call and response of cedar peaks abraded bare by deep cellular time? What do those sound-wave like undulations exposed on the stake have to say, on playback? Sound is the saving path to recover and re-inscript the traces.

---

[271] A tangential thought and model for an approach to artistic practice, inspired by Allan Kaprow's idea that: "…the *idea* of art cannot easily be gotten rid of (even if one wisely never utters the word). But it is possible to slyly shift the whole un-artistic operation away from where the arts customarily congregate, to become, for instance, an account executive, an ecologist, a stunt rider, a politician, a beach bum. In these different capacities, the several kinds of art discussed would operate indirectly as a stored code that, instead of programming a specific course of behavior, would facilitate an attitude of deliberate playfulness toward all professionalizing activities well beyond art. Signal scrambling, perhaps." See Kaprow, Allan. *Essays on the Blurring of Art and Life* (Berkeley: University of California Press, 1993), 104.

The Domes: Aural Fieldwork at the End of the Line

In 1879, when the tracks to the Southern Pacific Railroad ran out, five overheated workers from Yuma dug their heels in the sand—and the community of Terminus, Arizona, was born. The three buildings they raised in the aridity of the high Sonoran desert were truly the "end of the line." When the summer heat wave ended, the tracks from Terminus resumed to Tucson, and the micro-village grew into a small town. In a nod to local prehistory for the nearby Hohokam ruins—or perhaps to avoid christening the place as a future ghost town—railroad executives redubbed Terminus as "Casa Grande."

The town boomed as a railhead to mining prospects, but fires levelled the town center to cinders twice within a decade. When mining slowed in the 1890s, agriculture took over, and Casa Grande settled into itself, with a current population of about 48,000. True to its railway roots, Casa Grande is alternately referred to as the "crossroads" and "heart" of Arizona: smack at the intersection of the I-10 and I-8 interstates, and almost dead center between Phoenix and Tucson.

This prior history is typical. But at the southern edge of town, from an off-ramp on the I-8 near a Wal-Mart Distribution center, strange structures waver in the distance. And driving closer doesn't help them come into any greater focus. Stuck in the scrabbly sand, on a small plot hugged by a larger landscape that is as sparse as Terminus must have seemed in 1800-hundred-whatever, a small UFO fleet and a space centipede appear to have crash landed on earth. All of this alien

strangeness is not an event that flew under the radar of the NSA—"The Domes" are architectural ghosts—physical remainders of 1980s computing manufacturing gone wrong.

InnerConn Technology was incorporated in 1968 in Mountain View, California. The company was active at a feverish time in computing history, with hot competition on the mini and personal computing market. Innercon, for their part, was one of many companies that produced circuit boards to fuel Silicon Valley's dreams. In 1982, the owner, Patricia Zebb, decided to transfer headquarters to Arizona and build a new factory—this is the true origin of The Domes.

Innerconn commissioned four structures to be built using Thermoshell construction techniques over the course of six short weeks. Huge balloon-like bladders created the forms of the buildings, supported internally by steel trusses. Several inches of polyurethane foam were poured over the top, followed by several more of concrete. When the foam and concrete had hardened, the balloon and truss systems were removed, leaving behind an open space free of support columns—perfect for manufacturing assembly lines. The concrete and foam were passive insulation against the Arizona sun. There are signs of foundations laid for buildings that were never built because Innerconn's techno-optimism was squashed when they went bankrupt in 1983. The company built an organic cathedral to computing assembly in the desert, but sadly, the company went bust before anyone had the chance to move in.

The Domes were doomed to never be repurposed. Exposed to the elements, orange polyurethane foam now pokes through the crumbling concrete. They are tempting (but illegal without permission) to explore. I've heard that the acoustics created by their shape is a perfect match for their exterior otherworldliness. The site amplifies and feeds back upon itself—a kicked pebble sounds like a gunshot across a canyon, the reverb at the center of the largest UFO dome makes it sound like you are underwater.

Rumors of their use collide into a freeway pileup: as rave caves, human trafficking drop-offs, supernatural hotspots… and lairs for satanic rituals. The graffitied interiors and beer cans make it more likely that "bored teenage hangout" is the typical day-to-day use for The Domes. But who knows what that eerie tapping and humming was that I heard coming through my friend's car air vents while we were parked roadside at The Domes. Might have been a ghost. Or the sound of a computer factory at the edge of the end of the world thrumming into action.

Black Bridge

K.'s memories concerning the day they visited the Black Bridge lack clarity, in parts, but it seems reasonable to allow such old recollections to oscillate between reality and fiction. A group trekked out there late one afternoon, near the end of summer. This part of the story K. knows to be true, because the memory is conjoined with a very precise feeling of loathing particular to the last weekend of the summer, before returning to school. She feels it, even now, years removed from the cycles of an academic calendar. That day, K. and her friends were seeking out one last gasp of adventure, before the cycle began again—forced into winter basements filled with smoke and boredom and the full spectrum of teenage tensions. Reach out, whisk them away with a backhand swipe through the air. In retrospect, it is uncertain if you could call the group "friends." The gang of five or so was more like a collection of one- and two-off alliances. They weren't even from the same high school, but were thrown together by the chance circumstances of that late August day.

K. was always the lone female of the group, so saying that "some of them dated" would mean, more accurately, "K. dated one of them," and later, "K. got bored, and dated another one of them." Her anxious fervor to escape small town life left a small pile of heartbroken rubble in its wake. K's head (described separately from her body, always) was a muddled and medicated mess back then. Clinical depression treated by a subpar cocktail of 1990s prescriptions. Her still-forming synapses were unable to process these medications, somehow prescribed

by a gruff Scottish family doctor without her parent's permission at the first mention of "feeling sad," at the age of fourteen. Borderline poverty exasperated by rural stasis led to a few atom bomb detonations of emotion. Submitting herself to the headlock of memory, a forced recall of that time, causes a tidal wave of cringe-inducing fragments. K's coming of age was awkward and messy. Aren't they all? Best to leave some things to rest.

But one day, after an inadvertent encounter with a photograph of the Black Bridge, a visceral reaction occurred: an intense compulsion to dredge up old pasts, to give them legs, and to let them run rampant in the present. Back then, walking across sun-burnt grass, crisp under black one-star Chuck Taylors and the sweep of a trench coat worn as an affectation in sticky humidity. Walkman in the pocket, play button set to cycle infinitely.

Side A: Eric's Trip ("It's not 'cause what I did behind the garage / It's not just that, the reason I can't talk") colliding with the first bit of Dubnobasswithmyheadman, until it got cut off, somewhere around "River of Bass."

Side B: Tom Waits' full gravel yell, first heard in a basement, now singing about murders in a red barn, and how the earth died screaming. And back around to that sad garage.

The group trailed along a patchy dirt berm topped with steel towers, transmission lines plunging towards a fenced-in electrical substation. K. lingered behind, fingers trespassing through the wire fence, ozone up the nose, imagining the crackle of mutating voltage. The group lumbered on, broad backs to her, passing through the trampled gateway of stinging nettles leading deep down into the brush. Even then, she didn't like to be doted on—did not like for her gender to be thought of as a handicap, an excuse for not being able to "hang with the guys." K. had dropped all of her tenuous female acquaintanceships when she began high school, removed herself from the decade's worth of catty hazing from elementary school girls who couldn't relate to her (retrospectively funny) misanthropic descent into plaid shirts and a resistance to makeup.

That moment of fingers entwined in the fence, blasting telepathic S-O-S signals over the crackle of frayed lines, is stamped into place by the smell of sweet grass. A spontaneous carriage return of mellow relief pushed by on a gust of hot, dusty wind. Momentary respite from thoughts of escape, of the anxious need to gain control over her own life. The scent memory, combined with the events of that day, transformed burning sweet grass into a perpetual beacon, its smell forcing her to return to that moment of crystalline time. Shaking her attention away from the hope of psychic travel via electricity, K. looked up to see the gang descending deeper into the screen of leaves beyond the trailhead. She jogged over to catch up, duck-footed, before anyone noticed her absence.

******

The brush gave way to a dirt trail, leading into the peppered gradient of grey railway gravel, gradually filling itself in to solid rocky coverage. Greasy wood beams stained with oil from passing trains. The trail transformed into the Black Bridge. The group made their way towards the figure standing at its end. Like the keeper of Dante's own particular Hell, there is always someone standing on the graffiti-ruined trestles of the Black Bridge. Even now, someone is probably there, a residual or real haunting, waiting to give a lecherous side-glance to any and all females, warning of the Criminally Minded Corporation gang who hold parties in the woods, of the bloodstained murder spot where "that kid" was killed (pointing to the wrong place, never saying the victim's name out loud), or offering to sell you a dime bag (that might turn out to be dried jimson weed picked from the side of the tracks). Only now it might be meth. You had to then—and still have to today—pay the ferryman to enter the forest.

******

When K. was 15, a boy from her high school lured a younger, seven-year-old boy named Danny Millet into an abandoned building just beyond the Black Bridge. How that kid came to be alone in the middle of nowhere is a mystery. Whether he was wandering for adventure as children in small towns do—as they all did—or whether he was chased into the forest, it didn't end well. When Millet's body was discovered a day after his parent's reported him missing, the incipient

sinister nature of the county was finally set loose. All that was vaguely gentle about its façade finished crumbling. In a place where murder on the whole was rare, this death ripped through the community. Its circumstances shocking and violent enough to call for lobbying reform in Parliament to amend the juvenile criminal code. Lovecraft's adage that the quaintness of isolated towns is just a scrim screen to hide lurking horrors holds true; Kent County's shadow had become just as long as Lovecraft's fictional Innsmouth.

This talk of the spectre of Millet, whose final architectural embrace laid somewhere beyond the train tracks, was driving everyone deeper into the bush that day. One year after the events, they were legend tripping towards idiocy. It was as if by seeing the crime scene, they would reconcile with their town. That its unsettling energy would somehow account with their own lack of understanding as to how something so vile could be undertaken by one of their peers. Someone who went to their high school, someone who shared the same routes through the halls, shuffled towards the same classes.

K. broke free from the one-point perspective of the train tracks and off to the left, teetering at the edge of what was obviously private property. It might have been a station house and storage yard for the Canadian National Railway workers. But there was no security, just an empty chain where a dog should be and a house with rotting lace curtains. There was a hush among the group—if anyone was actually in that house, they would go no further. Calls would be made to parents. And the openness of the property made it impossible to shield themselves from view of the windows. Abandon and a flurry of silent hand signals

soon had them moving down the dirt driveway and merging with the tree line, safe again, their talk muffled by the growing density of what had, by that point, transformed into true Carolinian forest.

This narrative, writing it now, sounds embarrassingly like a certain Stephen King novella--train tracks and lost innocence (that perhaps was never there to begin with. Liminality, *communitas,* and all of that Turnerian folklore-speak about rites of passage are not mere literary tricks, but occur in moments of transformation, rooted entirely in reality. Bodily rituals. Moving in and through a space made taboo by the touch of horror and power. Obstacles to overcome fear—courage, community, and submitting to loss—and *being* lost, are archetypes that crept off the pages of ritual studies texts that day.

******

A few of the guys lingered at some distance, from the main group, already spooked by the emerging view of a crumbling cinderblock building with a swayback roof. Reluctant to go near it, they voiced that there was no real reason to see it again. K. circled around to the front, past rusting oil barrels with tumorous leakage turned solid, past rank Queen Anne's lace, and ground brown glass from chubby beer bottles. Several windows, no glass, with rotting wood frames. A section of blocks, about the height of an average adult, was knocked out of the wall like teeth smashed out of a mouth. A jagged maw through which to pass. Although the wall was basically transparent, no one crossed the threshold.

The contents of the building were non-existent, except for one greasy vinyl office chair, dead and center, a beam of sunlight shining down beside it through a hole in the roof.

A length of faded yellow tape stuck on a window frame was blowing inwards, propelled by the wind, towards the center of the room, activating the space in an uncomfortable way. She preferred to believe that her imagination was preoccupied with the worst possible scenario—K. refused to acknowledge that it was most likely a leftover from the crime scene. The plastic streamer was troubling nonetheless, no longer innocuous, it was a waymarker for distress. Rising and twisting with each burst of wind, it manifested the imagined movement of a shifty spirit fleeing towards the corner, locked on repeat. Whatever the building remembered—whatever had been retained of the horrible acts inside it—they would continue to play themselves out until the tape rotted away. Bursting outside of herself, ignoring the horror of her own imaginings and superstitions, K. reached inside the window frame and loosened the tape from its catch. The synthetic anchor drifted down to the dark floor, deflated and defeated, her miniscule act of mercy and mourning witnessed by no one.

While beams of light and crime scene tape are exactly the right kind of questionable—that stock still metal office chair was most definitely there. And it was bone-chilling. The chair had already established a strong sense runaway legendry. Townie teenagers proclaimed it to be the site where the murder had happened. Danny Millet had been tied to a chair in the last moments of his fresh life. There was no other detritus to indicate anything had ever happened there.

The place was full of ghosts, but all the same, there were none to be seen. The perpetrator of the crime had a head full of demons known only to him, which he chose to exorcise in the most vile way. Apparently, James Manny, the 17-year-old murderer, had a steel plate in his head, an effect of a vicious pummeling he had received from his father. It obviously wasn't the first. Uttered like a mantra, after the fact: "He wasn't… right." With "wrongness" rather than intervention established, rumors that Manny had acted out scenes from the horror film *Child's Play* during the murder seemed logical. K. stifled something in her throat, then and even now—the collapse of rumor, history, violence, and place. She swallowed it, and moved deeper into the bush, away from the pull of the building's vortex.

******

There were concrete pillars painted with the usual "Smoke / Toke," "420," and metalhead allegiances to "Anthrax," "Maiden," et al., peppered throughout by the less penetrable cryptography of gang graffiti. The clear aesthetic differences between rebellious teen graffiti and the hurried territorial scrawl of gang writing indicated that we were deep into the playground of the CMC gang. This was the gang that everyone seemed to talk about, but no one ever saw. Stories in the local newspaper warned residents to be wary of teenagers wearing combat boots, to glance with caution at their color-coded laces. So, K's preference for high Doc Martens, bottle-black hair, and pathological silence resulted in her being given a wide berth by other students as she walked, head down, through the halls,

making it unnecessary for her to interact with anyone—a goal achieved. That summer was a watershed: not all of the group owned computers, and some hadn't even been regulars on the Internet. No one really had an email address; no one had a cell phone. Yet they were all digitally-aware. For her part, K. had grown up with an older brother who introduced her to the semisecret world of bulletin board systems. This, in fact, is where she had met her then-boyfriend, and, by extension, linked up with his extended group of his friends, the crew she was now walking with. They were all cyberpunk music geeks, socially anxious weirdos who, upon finding one another, abandoned their computer screens in favor of IRL interactions—at least for that summer. Cloud busting an afternoon away, backs to the ground, laying on the top of the hill in Paxton Park. That place was once a trash heap, sowed over with grass. A midden that might have easily been misinterpreted as a native burial mound.

The mysteries of the forest kept unfolding that afternoon, each layer uniquely sinister, but never as corrupted as that murderous outermost passage. A brick smokestack tapered down into a lopsided brick building, one wall lined with ornate cast iron ovens for making more bricks. The trill of killdeer in the trees, cicadas buzzing their late summer death appeal. Abandoned tunnels they vowed to revisit with flashlights. It's probably good that they never followed through with that adventure.

They emerged into a cleared patch that was the graveyard for a rusted out truck and some kind of heavy operating machinery, the specifics now lost to time. On the back of a flatbed trailer, level with the tops of goldenrod, there were once-

orderly piles of disintegrating paper rectangles, now buckled and tumbling away from themselves. Not understanding what they were looking at, the oldest in the group explained that they were computer punch cards. None had ever used them, but they were recent enough to bring a semi-tangible flood of recognition. Their markings "do not fold, spindle or mutilate" seemed somehow cruel, given their location. The idea that thoughts were processed in and through those holes by people their parent's age, the same generation that would have raised and failed to protect the innocence of Millet. And Manny, too. Season by season, the iconoclastic Black Bridge brush was turning concrete intangibles back into sawdust. Those heaps of computer cards in the forest were reverting back into feed, flecks of black mold in stacked layers, earwigs were just waiting to explode outwards with the disrupting poke of a finger.

******

And then there was "The Barge," rising out of the Thames Riverbank. It towered above the group at an unnatural diagonal, so high they didn't dare try to climb aboard. It was a rusted out hulk run aground in the early 20th century, left to rot. After it was abandoned, it became the site of another supposed tragedy—a teenage suicide who used to gather with friends to play Dungeons & Dragons on the ship's deck. No one knew who he was, it had happened in the mid-1980s, but some knew a similar story from the next town over: a boy their age, the son of K.'s optometrist, was also obsessed with heavy metal and D&D. He was messing with

his father's gun and shot himself. Some claimed the accident was purposeful, a way to rebel against the strictures of his father's ex-military discipline. In later years, a friend who made experimental short films on a heavy portable VHS recorder showed K. footage of that same boy giving a tour of his father's gun collection. Static lines rolled up the screen to reveal him aping for the camera, gun to his head, wild look in his eyes, bottle of beer in hand. What did they think we were doing out there? Why exorcise these memories onto paper?

After paying homage to the barge, they wandered deep into the forest, sitting on a fallen maple branch to rest and smoke stolen cigarettes. Conversations took them through the day, which transformed into explosions of orange and then the cold blues of dusk. And as dusk turned into full blown night, someone suddenly wondered whether they'd be able to find the way back home. A vivid memory K. knows to be true: stumbling through the forest at night, lighting sheets of a newspaper on fire to pierce the densities of the forest with fleeting light-bursts. Flame spells to banish the bad energy that hitched itself to their backs that day. Waltzing in panicked circles. Feeling the prickle of spirit fingers on their shoulders. Haunted by the place, and themselves. Purple night, black canopy, wire vines, silver branches. Feeling totally fucked, like they were being absorbed into the woods and would never escape. Their voices muffled by the encroaching darkness, becoming lost to one another. And then, a sudden breakthrough, where it felt like they had tried to get through before and failed, out into a clearing, somehow past the bridge, without ever having crossed it. A silent walk back to that berm, the power station, sitting to rest their quivering

knees at the cemetery. They wandered for so long, in those days.

And Now We See That We Are Stars: Sound, Vision, and Dreams on Paolo Soleri in American Deserta

i. Dream Pools (Los Angeles, CA)

The general theory is that it is boring to hear the dreams of others, but I'm going to tell you about one of mine anyway. My friend Steve and I are in his car, driving. We are suddenly very far from San Diego. He says he has a hunch, and we seem to be heading towards it. A jump cut later, we've left the car; we're in the desert, walking. It's like a Jodorowsky movie out here, only with more talking and less nudity. I look down at my feet, to see the beginnings of marshy scrub slop, which terminates at the edges of pristine aquamarine tide pools. Towards the bottom, things get fractal—there are angles and shapes down there that are man-made and resolute in their primitiveness. Boxy tapered rectangles and crinkled edge curves. I stoop down closer. He's gloating. I squint. I've been told this is the best way to see life clearly. But nothing.

Tide pools hold a strange repulsion for me—the thought of contaminating them with any of my body parts is an aversion— but this is what I am forced to do. I dip my hand into the water, starfish wave and something else scuttles, sending a woody muffled mess of chiming tones and shimmering bursts of iridescent notes up to the surface. At this moment, I realize that my hand is heading towards a mass of Paolo Soleri's wind-bells. I try to pull my catch up to the surface, but the lines are tangled, and when they break the surface of the water, what I am holding is a mess of ten bells, a readymade "complex

assembly."

ii. Sound Foundations (San Diego, CA)

"My name," Paolo Soleri tells us, literally means "You are the sun." "In Italy," he continues, "we are all the sun. We are all the sons of the sun,"[272] and in Arizona, the sun is sometimes all there is. Born in Turin, Italy in 1919, the visionary architect spent the majority of his life living and working in Arizona and New Mexico, and continued to do so up until his death in April of 2013. Soleri's most popularly known projects, the planned Arizona environments of Cosanti (1955-1974) and Arcosanti (1970-present) follow his mission: as "nuclei [that] will eventually develop into villages which will function as centers for the arts and other cultural endeavors. The foundation will seek the help and sponsorship of institutes of learning—and of anyone else concerned with man and the earth on which he lives."[273] Soleri's alternative claim to fame was his position as a failed apprentice at Frank Lloyd Wrights' Taliesin West, a place he was asked to leave for two reasons: a heated spat with Wright over ownership of a bridge design and second, his scanty mode of dress. He wore "bikinis—and only bikinis and, when [he] was outside, sandals." Even in the heat of the desert, this mode of undress

---

[272] Soleri, Paolo. *The Urban Ideal*, (Berkeley, Calif: Berkeley Hills, 2001), 19.

[273] Soleri, Paolo. *The Development by Paolo Soleri of the Design for the Cosanti Foundation, Arizona, USA*. (Raleigh: School of Design, North Carolina State of the University of North Carolina at Raleigh, 1964), 5.

wasn't received very well. Mrs. Wright, by Soleri's own admission, "was very conservative in that sense."[274]

After leaving Taliesin in 1949, Soleri traveled to Italy with his new wife, Colly. In Vietri sul Mare, he began to cultivate his pottery skills. Returning to the US in 1952, the couple settled in Santa Fe, where they produced clay pots: "[it] was a place where tradition was, where native and Mexican traditions were coming together … Then came the fatal event that led me to making bells."[275] Soleri heard that a local producer of Korean wind bells had died; he took on the challenge to continue the craftsman's tradition, even though: "the last thing that came to mind was to make wind bells. I didn't even know they existed, in a sense…I started doodling with this notion of bells, and I accepted."[276]

But the nights were cold in Santa Fe—the climate wasn't right ideal in his mind for an outdoor ceramic operation—and so he moved to a five-acre plot in Scottsdale, Arizona. He describes the beginnings of a creative life on this plot of land in Scottsdale: "The soil was so appealing in terms of texture, and homogeneity, and so on, that I started punching holes in the soil and casting little objects, including little bells."[277] This technique of slip, or silt casting, produced the bells by proxy of the earth. Wet clay poured into holes and allowed to dry in the desert heat; hours later, bells were pulled out, positive casts of negative

---

[274] Soleri 2001, 26.

[275] Ibid, 30.

[276] Ibid, 30.

[277] Ibid, 30.

earthspace. Soleri's wind bells—zephyrbells, claviluminas, aurimobiles—those chambers that resound with the "sounds of the earth," became popular in the Southwest, providing the main source of revenue for building architectural structures at Cosanti and eventually, Arcosanti.

The Scottsdale plot was soon dubbed "Cosanti" as Soleri's architectural vision finally had a site on which to take root: the Earth House was built first, in 1956. Large mounds of dirt were piled, hieroglyphic patterns scrapped into the soil—an armature of metal followed, concrete poured on top, and when it had cured, the earth was excavated from below. More concrete buildings and more ceramic bells followed. Today at Cosanti, the dark pigment on ceramic bells is catalyzed by "chucking a piece of garden hose in the kiln," and in a pit near a barrel-vaulted office, looking down, you can see the green stain where acid is dumped as a byproduct of coloring of the bronze windbells.[278] The earth too, has taken on the same patina as the bells.

When Soleri made the shift to casting bells in bronze, a trial period of amateur casting efforts followed, until a Hungarian foundry-man was found to help Soleri professionalize his metal casting skills. Improvement was achieved, but the unnamed Hungarian and his son left, setting up a foundry of their own. This was fine, except that the pair continued to use Soleri's molds to produce competing bells. In an interview, Soleri speaks of the man's fate: "They ended up finding this guy dead in a mine shaft … I don't know where. But that was many

[278] Aldana, Steve. "Re: Soleri Warning" (Email message to the author, 01 May 2012), np.

years ago. And I didn't do it (laughing)."[279] Soleri's wind bells—zephyrbells, claviluminas, aurimobiles—those chambers that resound with the "sounds of the earth," became popular in the Southwest, providing the main source of revenue for building architectural structures at Cosanti and Arcosanti. An advertisement reads: "Creative and colorful, Arcosanti bells are ideal for adding warmth and music to indoor or outdoor settings . . . There is a line of special assemblies. In these, various pieces fit together allowing for movement along with the musical sound of the bell itself."[280]

iii. Getting There (San Diego, CA →)

The language of *getting there* and *arriving* falls short in comparison to the wonder articulated by the transitory road of travel. Much like the boredom of hearing someone else's dream, recounting the scenography of the road—remembering the details, conveying the strangeness—usually fails. Peter Cook of the speculative architecture collective Archigram speaks of this language of *getting there* as "meanderings toward a final situation that may be meaningful but not conclusive; the delight—in literature, drama, and aesthetics—for the fascinating aside, byway, counterplot, or glimpse; the tendency of the weather and the light to provide rapid changes of brightness and nuance…"[281] He

---

[279] Soleri 2001, 34.

[280] Wilson, Marie, Paolo Soleri, and Michel F. Sarda. *Arcosanti Archetype: The Rebirth of Cities by Renaissance Thinker Paolo Soleri* (Fountain Hills, Ariz: Freedom Editions, 1999), 28.

[281] Cook, Peter. *The City, Seen As a Garden of Ideas* (New York, N.Y: Monacelli Press, 2003), 51.

continues: “The English subscribe to such notions as ‘to go is better than to arrive,’ or the instinctive feeling that if a destination is directly in front of one and the route to it is obvious, the story is over and the arrival almost certain to be a disappointment.”[282] So the final destination is ultimately a place of endings, the tipping point that doubles as a turning back point, the place from which we depart—in order to return to our mundane commonplaces.

In March 2013, under the auspices of my research collective, *That Evil Mes*s, with my friend Steve Aldana absorbed as a temporary member—the Soleri enthusiast—we went on a road trip to Arizona. The purpose was specific: to track the less-treaded physical and psychic traces of Paolo Soleri’s legacy. The intention was to conduct fieldwork, to gather soundscapes, geological samples, and allow for the drift of psychogeographical research at the Cosanti Foundation in Scottsdale and at the ark in the desert known as Arcosanti. Unanticipated and unforeseen networks revealed details among the random and the minute, among the monumental and the ancient. A return trip to participate in a silt casting workshop at Arcosanti a few months later provided practical contexts, to appreciate the subjects of my study through physical understanding of the subtleties of process and habitat. Michael Levy refers to his interpretation of a historical archive collated into *Wisconsin Death Trip* as “an exercise in historical actuality […] as much to do with history as the heat and spectrum of the light that makes it visible […] It is as much an exercise of history as it is an experiment of

[282] Ibid, 51.

alchemy."[283] This is all to say that the tensions of a landscape are not always rooted to formal environments, but to the fragmented fields of production and process, or to the effect of establishing productive boundaries by using specific languages of disciplines in a situation. Stefan Helmreich outlines multiple meanings of immersion: "a descent into liquid, an absorption into activity, and the all-encompassing entry of an anthropologist into a cultural medium."[284] Fieldwork requires "body intelligence" whether its nature is covert, intrusive, or inhospitable. And for Christopher Tilley, "The body is the medium through which we know place. Places constitute bodies and vice versa, and bodies and places constitute landscapes. Places gather together persons, memories, structures, histories, myths and symbols."[285] We drove slow, feeling every bump and pothole.

In writing about this experience with the distributed culture of Soleri, Michael Taussig was never far from my mind, with his embrace of a lack of "scholarly distance." Over the course of three years, I found myself systematically haunted by the immaterial and material byproducts of Soleri: as a contagion whose bells were found via Frazerian principles of "contact magic" at antique swap meets, intense metaphysical dreams about the sonorous space of bells, and a certain type of irrational headspace that accompanied visits to Arcosanti in the

---

[283] Levy, Michael, Schaick C. Van, and Warren Susman. *Wisconsin Death Trip*, "Preface," (New York: Pantheon Books, 1973), np.

[284] Helmreich, Stefan. "An Anthropologist Underwater: Immersive Soundscapes, Submarine Cyborgs, and Transductive Ethnography," in Jonathan Sterne, *The Sound Studies Reader* (New York: Routledge, 2012), 621.

[285] Tilley, Christopher Y, and Wayne Bennett. *The Materiality of Stone: Vol. 1* (Oxford: Berg, 2004), 25.

dead of summer. Some of this is captured in this essay—which tries to reconstruct the shuttling back and forth between heated desert dream logic and "levelheaded" writing from my Midwestern kitchen table.

When we use physical media to research, sketch, and write, we are also creating landscapes. Taussig, in his writings on the process of fieldwork, describes notebooks as both places of safety and places where the everyday is made strange.[286] The materiality of the notebook is elevated, as it "stands in for thought, experience, history, and writing."[287] It is also a physical platform for communication of a place, containing binaries in the way text is stylized within: truth vs. fiction, notebook vs. diary, and essay vs. description. In an interview shortly before his death, Soleri noted the power of the ritual, describing the traumatizing effect of seeing a non-Western initiation rite on television: "I began to understand that rituals could be very, very scary. Rituals became something I really feared. I like their pageantry, but I'm very skeptical about the content."[288]

iv. Take Two, Through the Pass (Spring Mountain Pass, AZ → Buckeye, AZ)

The first point of passage towards Soleri's landscape (me, a passenger in Steve's Honda Element, departing from San Diego at an obscenely early hour after a redeye from Detroit) is a process of seeing the sides of the road fade from

---

[286] Taussig, Michael T. *My Cocaine Museum* (Chicago: University of Chicago Press, 2004), 5.

[287] Ibid, 9.

[288] Soleri 2001, 41.

green to brown as we climbed towards the top of Spring Mountain Pass. And then, a white more white than imaginable, filtered through the morning fog, blasting the windshield. For a moment, the sun becomes the moon. We question its accuracy, wondering if there is an eclipse, and if we are inadvertently blinding ourselves by staring at it. And then, with a final push up and out of the haze, it becomes the sun once more. The dew here has all burned away. We scramble hands into pockets to make the switch from seeing-glasses to sun-glasses.

Gas stations interrupted by regional strangeness. Date shakes and ghost billboards. Sandy dunes that once acted as the backdrop for object photography in the heyday of *California Design* exhibits, to border check points with non-functioning restrooms. Things flatten out for a while, into an impressive variety of tumbleweeds. Who knew there was so much variety in dead-like plant life? Solar fields beckon us onwards; we pivot towards the random.

The architecture and cultural critic Reyner Banham, quoting Frank Lloyd Wright (who was quoting Victor Hugo) relayed the often-telegraphed mantra: "The Desert is where God is and Man is not."[289] In Buckeye, Arizona, the Lewis Prison sits ominous and silent in the desert sun, the site of mass riots and hostage schemes gone awry. It becomes hard to tell the concrete block businesses and barren developments left for dead from these prison compound houses. Tumbleweeds frame them in, barbed wire provided by nature. We keep driving.

---

[289] Banham, Reyner. *Scenes in America Deserta* (Salt Lake City: Gibbs M. Smith, Inc, 1982), 16.

Banham (who will also haunt this essay as the backseat driver), again, said it best: "The gods of the desert do not usually favor idiots…"[290]

v. Apprenticeship & Authority (Scottsdale, AZ)

In his study of the insidious influence of the beehive as a social and architectural motif, Juan Ramirez compares the nature of life at early Taliesin as being comparable to "…the beehive as a social utopia, with its special collective distribution of daily work and creative tasks,"[291] and identifies the power relationships of such a system as "metaphysical associations between social insects and the community of master and apprentices … so well hidden that it is difficult to recognize it as such."[292] Organic architecture embraces the patterns of the hive, by way of natural assemblies of repetition: nests, webs, seed pods, plant biology and the most very literal beehive.

Splinter cells of architecture students, like rogue bees, pollinate their adapted ideals in new places. Just as Paolo absorbed and molded Wrightian principles to fit within his building practice, in turn, close to fifty-year's worth of Arcosanti Silt Pile workshoppers have incorporated their own pragmatic takings and leavings into their professional degrees. Those enamored with the desert and Soleri's intent defect from their academic programs altogether, and choose to stay

---

[290] Banham, 157.

[291] Rami´rez, Juan A. *The Beehive Metaphor: From Gaudı´ to Le Corbusier* (London: Reaktion, 2000), 115.

[292] Ibid, 115.

on at Arcosanti. In this sense, Soleri can be interpreted as an "irritant" working within formal systems. A Workshopper notes: "My five weeks with Paolo Soleri proved to be an attack—unintended and in a sense non-offensive upon my formal training. Perhaps the two opposing tendencies will be reconciled and mature into a valid personal philosophy. [...] I myself prefer, at least at the moment, the kind of atmosphere induced in the Soleri studios."[293]

The Silt Pile Workshops were initiated in 1962 at Cosanti, resulting in the addition of six new structures between 1964-1974, alongside the pre-existing Ceramics Studio, North Studio, and Earth House.[294] The structure of the workshop requires students to pay tuition in exchange for room and board and the opportunity to lend a hand with the construction of Soleri's plans. Through a careful choreography of this free labor pool, additions are made to the complex, not unlike the setup of a rural intentional community. Arcosanti's overlapping six-week workshops began in 1971, resulting in more than a hundred people living on the site. By 1973, the workshop cost $320, and attracted a total of 375 participants, leading to a sizeable building budget. Depending upon your viewpoint, the workshop experience either provides practical skills not received in mainstream university curriculum, or is exploitative of its paying students who

---

[293] Wells, Joseph Nicholas. "Siltpile at Scottsdale," *Journal of Architectural Education (1947-1974)*. Vol. 18, No. 3 (Dec. 1963), 41.

[294] "Cosanti Architecture," *Arcosanti.* <www.arcosanti.org/node/10252> Accessed 23 January 2016.

toil under the Soleri's "god-like status." Conceivably, it is a little of both. Dolores Hayden spoke to the latter issue in 1975:

> Perhaps the most authoritarian process of all is taking place at Arcosanti, in Arizona, where architecture students pay tuition to the designer, Paolo Soleri, for the experience of helping to build the ideal city of the future. This is not exactly a commune, although some of the builders do stay on to be part of a community. Reportedly, only Soleri exercises much power in making design decisions.[295]

While he is not a deity, and never claimed to be spiritual, the architect has often presented himself (in part through elevation by his enthusiasts) as belonging among the canon of god-like architects Le Corbusier, Wright, and van der Rohe. What architecture student wouldn't want to work for a person who has been called "The Prophet of the Desert?" But Soleri and his interviewers have other views. Questioned about the frugal practices of payment and labor surrounding the building of the Arcosanti and Cosanti campuses, Soleri replied: "There's no suffering connected with that. It was all enjoyment."[296]

vi. Run Aground in Nature (Cordes Junction, AZ)

Soleri held a contentious relationship with the "back to the land" movement of the 1970s. He referred to hippies as "butterfly brains," but nonetheless understood that his position as a land-holder, host, and promoter of ecological sensitivity coexisted with the attitudes in action of the countercultural

---

[295] Hayden, Dolores. *Seven American Utopias: The Architecture of Communitarian Socialism, 1790-1975* (Cambridge, Mass: MIT Press, 1976), 329.

[296] Sarda, Michel F. *The Mind Garden: Conversations with Paolo Soleri II* (Phoenix, Ariz: Bridgewood Press, 2007), 87.

youth. Visions of experimental living may require architects to take on landscapes that are derelict, infertile, contaminated, dangerous, and inhospitable. Both of Soleri's projects, while sequestered, exist in spaces that are in tension with urban and rural geographies, positioned with relatively reasonable driving access to city-centers in Scottsdale, Phoenix, and Flagstaff. They are insulated, but not worlds apart.

At Cosanti, earth cast buildings have taken root into the landscape. Christopher Tilley, in his phenomenological study of the landscape and the "raw" materiality of stone tells us: "There is an essential ambiguity [...] to what a place or landscape is, where one building begins and where it ends."[297] Sound carries the keynote, knitting the senses together at Cosanti via the sound of chiming bells disturbed by the breeze or trailing hands of visitors. Scrubby olive trees call and respond and traverse with curved paths among and through a maze of concrete forms. Soleri's cats roll around in the dirt, stalking insects.

The whole place is sunken, with shaded courtyards that stay cool year round. Keeping with Soleri's philosophies, there is no attempt to disguise technology here. Swamp fans, air conditioning units, and wires for cable television jut out of the buildings at random. Here guests are as likely to encounter revelations in the "analog" production of bells and mixed powder pigments as they are to find themselves trailing their hand along a silt-cast wall at Cosanti, only to have it turn a corner and run into a refrigerator permanently-

[297] Tilley 25.

embedded into a custom alcove, radiant halo around it. There is no shame in the use of synthetic materials: red plexiglass is used in the main apse where bells hang, and spongy yellow spray foam is used to fix leaks in buildings.

Arcosanti is "everything that Cosanti is not,"[298] and while there are some moments of assimilation into its landscape, its presence announces itself less subtly. The main apse panders to the grip of an inhospitable environment by using naturally adaptive concrete. This apse is the visual calling card for Arcosanti, a massive earth-formed arch carried over from knowledge gained by pushing smaller piles of dirt around at Cosanti. Its decorative pigmented ceiling is run over with stylized botanical leaves, evidence of the adage that vernacular architectural historian Henry Glassie pointed out that "…when people seek separation from nature, which all of them do in bad weather, their actions often glide out of the pragmatic and into the aesthetic."[299]

Arcosanti has its moments of shabbiness, but it is by no means the abandoned ruin artists and writers repeatedly refer to it as. A stalled building site below the communal pool is in a state of disarray, but it is a far cry from a specifically Gothic variety of desert landscape Banham encountered, those "landscape[s] of moral anorexia, collapsed Chevrolets, and mountains of beer cans, a landscape tolerable only through a haze of barbiturate fumes."[300] Like any working farm, there is a stalled vehicle or two here, sun faded yard furniture,

---

[298] Banham, 82.

[299] Glassie, Henry. *Vernacular Architecture* (Philadelphia: Material Culture, 2000), 29.

[300] Banham, 167.

barrels of refuse, half-used greenhouses, things that belong hidden in barns there. There have clearly been a few hiccups and forgotten projects, but a little junkiness should be forgiven.

Soleri's schemes for grandness have caused many critics to interpret Arcosanti as an outright failure; behind every experiment that flirts with the possibility of a utopia on earth, lays the nagging thought of failure—the dystopia—a very attainable model in our highly cynical present.[301] The place is neither; these are misnomers that have become so habitually applied to the site that it has become part of its legend. In an article written for the *Architectural Record* three short years after ground was broken at Arcosanti, Robert Jensen had already responded to this issue: "While the forms of Arcosanti are visionary, *life* there today is in the present; it is temporary, confusing, boring, permeated with curiosity and hope—but not Utopian."[302] While Soleri was contrary and contradicting, he worked like any creative human struggling through an idea in real time**.** His environments operate as "boundary sites"—constant prototype, perpetually becoming—never achieving reaggregation. These boundary sites are beneficial as environs of study in that they can take on different meanings, and float between worlds more freely.

---

[301] There are a lot of statistics here: that the complex operates at a less than ideal amount off the grid, houses only 60 of the planned 5000 residents, that the project is only 3% complete, that at the rate of progress, work will be complete by 2827, and so on (see Gywn Headley's *Architectural Follies in America*, p. 125).

[302] Auther, Elissa, and Adam Lerner. *West of Center: Art and the Counterculture Experiment in America, 1965-1977* (Denver, Colo.: Museum of Contemporary Art Denver, 2012), 121.

To date, Arcosanti is the only example of arcology[303] that has moved out of the paper planning stages and into the real world. The definition of what Arcosanti *is* floats somewhere in the muddled mess of what it is *not*, and in describing it, it resists definition. If a laboratory is defined as a facility that acts a controlled environment for sometimes creative, and sometimes ecologically invested experiments, this is a model that Arcosanti successfully *is*. Perhaps it would be best in the long-run to refer to it— question mark and all—as Soleri intended: "a laboratory?" And, anyways, as Soleri himself said, "I never pretended I had the truth."[304]

vii. Infrastructure (Arcosanti, AZ)

When I ask the woman selling bells in the Arcosanti gallery what she thinks of all "the utopian business," she scoffs: "It's not a utopia, it's a company town. You have the little boys and the big boy's network. When you throw a bunch of 19-year-olds together, you get the same problems as in any city. In my opinion, it's just too dense." Density here means a population of 50 at its peak season. The woman refers to herself as an "Arconaut"—one of the original

---

[303] The Cosanti Foundation defines "[a]*rcology,* architecture and ecology as one integral process [...] In nature, as an organism evolves it increases in complexity and it also becomes a more compact or miniaturized system. Similarly a city should function as a living system. Arcology, architecture and ecology as one integral process, is capable of demonstrating positive response to the many problems of urban civilization, population, pollution, energy and natural resource depletion, food scarcity and quality of life. Arcology recognizes the necessity of the radical reorganization of the sprawling urban landscape into dense, integrated, three-dimensional cities in order to support the complex activities that sustain human culture. The city is the necessary instrument for the evolution of humankind." See "Introduction to Arcology," *Arcosanti.* <www.arcosanti.org/theory/arcology/main.html> Accessed 23 January 2016..

[304] Sarda, 17.

"Arcologists," involved with the project since the 1970s. I buy a clay windbell, along with the off-cast metal leavings from the bronze bell casting process. The woman softens a bit, and tells me the leavings are special, that they are created from the sparks of bells. Molten stardust forced to become solid in bronze. One piece looks like a Franz Kline painting, the other looks like a Siamese-twin deer. She wraps my bell in an anarchist newspaper from the 1990s.

From my pocket, a text message alarm chimes. It's Steve, who is out wandering around out in the complex somewhere: *I think I just brainwashed myself. Soleri is god. I want to live in this artichoke city. We'll all be interior designers in space.* I reply*: And then we will see that we are all stardust.*

Later, I misread Ballard: "Deserts possess a particular magic, since they have exhausted their own ~~fortunes~~ futures, and are thus free of time. Anything erected there—a city, a pyramid, a motel—stands outside time."[305]

viii. Private Territory (Arcosanti, AZ)

I was surprised that the Arcosanti compound was quite visible from the highway. I had second-guessed myself: "Is that…? No… There's no way…" Confirmed by Steve: "No… that's it." Turning off the paved highway onto the dirt road is an illusory matter. Suddenly the place seem farther away, pushing further out on the horizon. Most paper-based utopian architectures and realized intentional communities mark themselves off by distinctive borders and precise

[305] Ballard, J G. *The Atrocity Exhibition* (San Francisco, CA: RE/Search Publications, 1990).

approaches, psychological devices embodied in the landscape that help to solidify the separation of a group from typical society. The road to Arcosanti doesn't seem to lead anywhere else, and so part of the psychologically ominous nature of the place can be linked to the motif of "the long road," a transitional device normally reserved for novels and films whose narrative surround a need to *escape* a place. Banham whispering from the backseat of the car: the desert is a place of "paranoid embodiments."

The sun sets quickly after our arrival to Arcosanti. I slip out of the door of the Sky Suite apartment to be alone and to stargaze on the roof of the apse, to take in the acoustic ecology of the place. I can hear bonfire laughter and coyotes. I try to take sound recordings of nothing—but nothing was nowhere to be found. The hum of the freeway bounces off the sand and the snap-back echoplex of the concrete apse. The desert loner is a fallacy, and the sounds of the silence of nature are no different.

At night, a cloud of wireless signals descend over Arcosanti. Streaming films are a welcome modern convenience for escaping sweltering afternoon heat and bored evenings. Soleri's idea of getting "back to nature" was one that was buttressed by a respect for technology: "The reason that I ultimately believe that anything that becomes known and any technology that we develop is for the sake of the spirit, because technology is going to give us the means to manipulate and

transform reality."[306] Technology, in Soleri's view, is something that will help us reach the "nothing space" of the Omega Point.[307] And then it gets weird. Soleri believes that as man compartmentalizes himself into dense underground communities, his body will evolve, "…he will shape himself into a sort of rounded cube, a bullion, party fleshy and partly an electro-magnetic field and post-transistors […] he will be buried deep in soil or rock in the manner toads are found in excavations. Then man shall have inherited the earth."[308]

In the morning, we walk. As Arcosanti's residents wake up, swells of the sounds of production follow, echoing back, off the buildings, and all the way across the canyon. A radios blares blue-collar rock hits plundered from a time bubble much like my own home town's airwaves. The sounds of heavy casting machinery, chains rising along pulleys. As we walk down a trail, I attempt to divine the traces of color beneath the topsoil. Rummaging with the toe of my boot in the bottom of the dry wash, to reveal pigment veins embedded between the rocks. I fill my pockets with lumps and shards of things that might be transformed into hues of ochre, viridian. Back at the complex, I stoop down and look into a circle vent window to find a hornet's nest. It's dead. I take a picture,

---

[306] Soleri, Paolo. *The Bridge between Matter & Spirit Is Matter Becoming Spirit: The Arcology of Paolo Soleri* (Garden City, N.Y: Anchor Books, 1973), 123.

[307] The eschatological ideas of Pierre Teillhard de Chardin were influential for Soleri, who embraced the idea of humanity's evolutionary transcendence of self, to converge and cease to exist in its current form when it reached the "Omega Point."

[308] Soleri 1973, 137.

but resist taking the nest. Miniaturized beehive slots attached to a larger hive-house.

ix. Deserta (Dateland, AZ → Arcosanti, AZ)

Sunglasses are necessary here, but they only filter the intense light from one type of unseeing to another. The sun makes vision erupt into static, perception follows suit. The desert gives lessons in "how to see clearly, even when it hurts."[309] LCD camera screens are bleached black by the flare—we shoot blind, we shoot differently than the days of viewfinder-to-eye relationship. I shoot towards the sun, it expands to a ball of flame, an accurate feeling visualized. Minimal exertion of the mind and careful movement in the aggression of the act of trying to squint, and see, and walk.

The focus of the gaze necessary in the harshness of the desert light is not without effort at Arcosanti. Sunlight falls between the cracks, and the falling washes of light turn orange as they descend along the curved vaults, dotted by definitive spotlights upon the floor. In the desert, we see pure form, pure color. Hieroglyphs, abstractions, organic symbolism derived from the white noise of the desert. Vision is passionate, committed—color provides a respite. John van Dyke's *The Desert* wraps us in description:

> The desert air is practically colored air. Several times from high mountains I have seen it lying below me like an enormous tinted cloud or veil. A similar veining of pink, lilac, or pale yellow is to be seen in the gorges of the Grand Canyon; it stretches across the Providence Mountains at noonday and is to be seen about the peaks and packed in the valleys at

[309] Banham, 168.

> sunset; it is dense down in the Coahuila Basin; it is denser from range to range across the hollow of Death Valley; and it tinges the whole face of the Painted Desert in Arizona.[310]

In the architect's own mystifying words, he speaks of how "In the desert, the battle is to keep in its own strictly measures and cunningly guarded fluids, an innovation whose occurrence was nothing less than the interiorization of the sea, achieved by every single organism, the actual fantastic invention of a wet, personalized universe for the advent of each individual organism."[311] The desert is no place for domestic Modernity. But, "The American desert," says Alessendra Ponte "seems to be the place where past and future collapse into the present; it is also the place where the primitive and the futurist inhabit monumentally."[312] Arcosanti is a monumental complication, a structure that is dying to become a ruin, buttressed by the many armed and floating-headed philosophies of Paolo Soleri. The silt cast concrete forms rising out of sand and scrubby grass manage to reconcile themselves as an appropriate complexity, as a necessity.

The heat in June is serious business. For Michael Taussig, the desert of the film world acts as a trivial prop: "instead of sinking us deeper in sloth and discomfort, instead of allowing heat to *melt even language itself*, such heat becomes a trick and nothing more than a device to propel a plot," unable to convey the critical physical discomfort. He continues: "heat is a force—like

---

[310] Banham, 154.

[311] Soleri 1973, 161.

[312] Ponte, Alessandra, and Marisa Trubiano. "The House of Light and Entropy: Inhabiting the American Desert." *Assemblage* (1996), 15.

color—that sets aside understanding in place of something less conscious and more overflowing, radiance instead of line, immanence instead of that famous bird's eye view."[313] Reyner Banham spoke of the force of heat upon vision desert, of "optical immensity," of "long thoughtful draughts of sights," and how it is "difficult to focus on anything less than 10 miles away."[314]

Anyone having spent time in a torrid region understands the seriousness of the "bodily consciousness," as one's sense of humanity and the potential to become more quickly "reattached . . . to the cosmos" floats closer to the surface than in more forgiving climates.[315] How could anyone love a region that suggests death so easily? The conundrum of desert beauty is the "penitent's masochistic pleasure at the scratching of his hair shirt," in Banham's mind.[316] Becoming a "desert freak … was a very improbable thing for me to become, and that I had uncovered an aspect of myself that I did not know."[317] The desert, for me, too is a recent obsession—a love of visual pleasure, of the flirtation with the line of danger that is danced along between the confrontation with sublimity and vast emptiness. Taking note of this while flying over the Sonoran Desert en route to back to Detroit, safely delivered from my desert adventure (save one traumatic incident when a scorpion crawled up from the bathroom drain while I was

---

[313] Taussig, 31.

[314] Banham 52.

[315] Ibid, 31.

[316] Banham, 17.

[317] Banham, 18.

brushing my teeth), I already felt the nostalgic pull backwards to the impossibility of the desert.

x. Place Memory (San Diego, CA)

Viewing photographs of Arcosanti and Cosanti reveal that the analogy of "local color" in the work of Soleri is *literally* local. As a pupil of Frank Lloyd Wright, the occasional punctuations of color in the buildings are derived from pigments naturally present in the land. Any decoration here abides by a co-present and embodied regionalist impulse. This championing of natural color undoubtedly an effect of Soleri's time at Taliesin West, where "[Wright] utilized only natural materials. He rejected the use of paint, resorting to a sand-finish coating where necessary. His one favorite color … was a terracotta red, and he at times used it as a stain for exposed wood or steel."[318] Later, while drawing up plans for Cosanti, Soleri described the proposed building as "a man-made micro-environment sharply contrasting the surrounding nature. Polychromy will enhance the spatial complexity and further distinguish its man-made character from the quasi-monochromatic landscape (green and blue after the rains, pale yellow and blues most of the year)."[319]

---

[318] Birren, Faber. *Light, Color, and Environment: A Thorough Presentation of Facts on the Biological and Psychological Effects of Color. Plus Historical Data and Detailed Recommendations for the Resultful Use of Color in Modern Human Environments*. (New York: Van Nostrand Reinhold Co, 1969), 52.

[319] Soleri 1964, 48.

The architect is enamored with the land that he has purchased: "Topographically the land is isolated on the south and west side by deep canyons . . . The elevation of about 4100' puts the land within the Arizona prairie belt. The spare grass is green after the winter and summer rains. The rest of the year, it is evenly of the most beautiful pale gold."[320] In these descriptions, and in others, Soleri embraces tones and the qualities of light within the landscape more so than any direct reference to color inserted within the buildings. The mass shells of the exteriors are, much like the architecture of the white High Modernism, neutral spaces that are chameleon-like in their absorption of the baths of the sinking reach of the sun. *Falling light*, like Falling Water. Soleri describes the moment he received his inspiration for the arcologies model:

> I was lying in the sun and a fundamental aspect of what reality is came to me. There is a total connection between the domain of miniaturization and the domain of complexity and the two of them are really how the technology is developing that will bring a revolution.[321]
>
> *If Soleri's eyes were closed while lying in the sun here, what shade of red did he perceive?*

Indigenous gatherers of mineral and organic compounds learned to read the land in order to divine the source of potential dyestuffs—potentialities that were embraced in acts of polychromatic reverence. Red ochre is the blood of the gods in native lore. Blood of the earth. Present day Arcosanti sits in the Tucson

---

[320] Ibid, 47.

[321] Wilson, Marie, Paolo Soleri, and Michel F. Sarda. Arcosanti Archetype: The Rebirth of Cities by Renaissance Thinker Paolo Soleri (Fountain Hills, Ariz: Freedom Editions, 1999), 13.

Basin, at the tip of the ancient habitation range of the Hohokam tribe, home to red-on-buff pottery, home of an identical palette, derived at through desert mineral foundations. The Hohokam were experts at finding knots of hematite in the mountains. They ground it, and mixed it with local clay to make red ochre, which was recycled back into paint to paint pots made from local soil. They ground the ochre again, they mixed it with animal grease, and carried it "in an inside-out deer pericardium, the membranous sac that holds the heart that contains and pumps the blood."[322] The apse of Arcosanti is as cave-like as it is like a ribcage. At a time when plastics, technology, and mass production of industrial design were well established in domestic goods, Soleri's own aesthetics were a return to something more ancient. Historian Paul Campbell: "Pigment transforms what it touches. It imbues a familiar object with the mystique of exotic color. Capitalists paint products. Hunter-gatherers paint the human body. Some paint for material gain. Others for spiritual power."[323]

xi. Bells Ring in Color (Los Angeles, CA)

Synaesthesia is a form of consciousness that allows for visionary *voyants* to simultaneously feel and see the unseeable. In the case of Arcosanti, desert dwelling demands the development of new faculties for the senses. The wind-bells are a vessel of synesthetic interaction on several levels. They envelop the

---

[322] Campbell, Paul D. *Earth Pigments and Paint of the California Indians: Meaning and Technology* (Los Angeles, Calif: P.D. Campbell, 2007), 28.

[323] Ibid, 27.

mental and auditory space of Arcosanti, especially on windy days, of which there are many. Their clamor bleeds over and outwards, affecting the sensorial and perceptual experience of visitors. Travelers absorbed by its sonorous qualities bring bells home, single assemblies that can now clamor from Detroit porches in the dead of winter. Soleri himself denies any spiritual purpose of the bells, but the supersensible perceptions enabled through his material manifestations are an experiential site over which he can claim no authority.

"Jules Millet's 1892 work on *audition colorée* had noted that of late synaesthesia had been given a 'cosmic conception': given that both sound and light were vibrations, and that light (color) was of a higher vibration, perhaps the resonating bodies that produced sound also produced light, which could be seen only by those with more refined nervous systems."[324] And there is Franz Hartmann, in 1892: "If the movement of the ether goes from thousands of vibrations per second to many billions, you will have light instead of sound."[325] Vibrations of sound produce vibrations of light and so the vibrations of the bells in the desert winds in turn reintroduce blasts of color, into the washed-out whiteness of the concentrated sun. The bronze rings duller than you would imagine, as brown as the patina on the darkest bells. The bronze bells with green patina chime brighter, no doubt the presence of copper. The clay bells are chameleons. They ring like dark wood in the rain, yellow marimbas in the sun.

---

[324] Dann, Kevin T. *Bright Colors Falsely Seen: Synaesthesia and the Search for Transcendental Knowledge* (New Haven: Yale University Press, 1998), 53.

[325] Millet, Jules. *Audition Colore´e* (Paris: Doin, 1892), 65.

xii. Dream Pools, Back in There (Detroit, MI)

But, let me get back to that dream about the bells in tide pools. The pools, Steve explains in dreamtime, were once the slag piles for the unacceptably imperfect bells among the already controllably flawed. In the late 70s, Soleri ordered one of his apprentices to drive to this site and dump the bells in the pools. And then they began to replicate. The marine life in the pools, in acts of mimetic behavior, began to chip away at the rocks and to form and pack the sands into copies of the bells. The pools had become a self-recycling ecology, a nature-made storehouse of inauthentic Soleri bells.

I take the handful of assembly chains in my hand and raise them up to my shoulder. Barnacles and sea moss cling to them. A stubborn blue crab hangs on with its claw to the lowest bell chain, and the weight causes one piece of the mess to fall back into the sand. The crab runs off into the desert, dragging bell and all, towards a smooth rock mesa, no doubt the site of more of these strange pools, where it will become the overlord of its own bell colony. I don't feel guilty taking the bells, because the pools are quite full, and there are many of them. These bells will serve me well. As we walk back towards the path, the sun dries off the bells, and gusts of wind picking up around us make them ring in color.

Bibliography

Aldana, Steve. “Re: Soleri Warning,” Message to Kristen Gallerneaux, 01 May 2012. Email.

Apgar, Charles E. “How I Cornered Sayville.” *The Wireless World 3, no. 32,* November 1915.

AUDINT. *Dead Record Office,* New York: AUDINT Records 2014.

Auther, Elissa, and Adam Lerner. *West of Center: Art and the Counterculture Experiment in America, 1965-1977*, Denver, Colo.: Museum of Contemporary Art Denver, 2012.

Ballard, J G. *The Atrocity Exhibition,* San Francisco, CA: RE/Search Publications, 1990.

Banham, Reyner. *Scenes in America Deserta,* Salt Lake City: Gibbs M. Smith, Inc, 1982.

Barrett, William F. *Psychical Research*, Williams & Norgate: London, 1911.

“Battle Pass Scenic Highway,” *Travel Wyoming*. Wyoming Office of Tourism, 2016. <travelwyoming.com>. Accessed 3 August 2016.

Beauchamp, Ken. *History of Telegraphy*, London: The Institution of Electrical Engineers, 2001.

“Biographical Notice of George F. Barker,” *The Popular Science Monthly*, New York: D. Appleton, September 1879.

Birren, Faber. *Light, Color, and Environment: A Thorough Presentation of Facts on the Biological and Psychological Effects of Color, Plus Historical Data and*

Detailed Recommendations for the Resultful Use of Color in Modern Human Environments, New York: Van Nostrand Reinhold Co, 1969.

Bkorkman, Edwin. "The Music of Francis Grierson," *Harper's Weekly*, LVIII, February 14, 1914.

Blundell, Stephen. *Magnetism: A Very Short Introduction*, Oxford: Oxford University Press, 2012.

Bpoag. "I believe I know who was behind the 'Max Headroom Incident' that occurred on Chicago TV in 1987." *Reddit,* Reddit, Inc. 01 December 2010. <www.reddit.com/r/IAmA/comments/eeb6e/i_believe_i_know_who_was_behind_the_max_headroom/> Accessed 30 March 2016.

Bpoag. "New developments in the Max Headroom Incident mystery!" *Reddit,* Reddit, Inc. 11 October 2015. <www.reddit.com/r/IAmA/comments/eeb6e/i_believe_i_know_who_was_behind_the_max_headroom/> Accessed 30 March 2016.

Braga, Newton C. *Electronic Projects from the Next Dimension: Paranormal Experiments for Hobbyists*, Boston: Newnes, 2001.

Britten, Emma H. *Nineteenth Century Miracles; or Spirits and Their Work in Every Country of the Earth: A Complete Historical Compendium of the Great Movement Known As "Modern Spiritualism,"* Manchester: W. Britten, 1883.

Britten, Emma H., and Margaret Wilkinson. *Autobiography of Emma Hardinge Britten,* Manchester: John Heywood, 1900.

Bromberg, Joan L. *The Laser in America, 1950-1970,* Cambridge, Mass: MIT Press, 1991.

Brooks, John A. *Britain's Haunted Heritage*, Norwich: Jarrold, 1990.

Brown, Patrick R.J. “The Influence of Amateur Radio on the Development of the Commercial Market for Quartz Piezoelectric Resonators in the United States,” *Proceedings of the IEEE Frequency Control Symposium,* 1996).

Brown, Rosemary. “Rosemary Brown in Conversation, 1973,” *Okkulte Stimmen - Mediale Musik: Recordings of Unseen Intelligences 1905-2007*, Berlin: Supposé, 2007.

Campbell, Paul D. *Earth Pigments and Paint of the California Indians: Meaning and Technology*, Los Angeles, Calif: P.D. Campbell, 2007.

Clark, Mark and Henry Nielsen. “Crossed Wires and Missing Connections: Valdemar Poulsen, The American Telegraphone Company, and the Failure to Commercialize Magnetic Recording,” *The Business History Review*, The President and Fellows of Harvard College, Vol. 69, No. 1, Spring 1995.

Colvin, Barrie. “The Acoustic Properties of Unexplained Rapping Sounds.” *Journal of the Society for Psychical Research*, 73.2 no.899, 2010.

Connor, Steven. *Dumbstruck: A Cultural History of Ventriloquism,* Oxford: Oxford University Press, 2000.

Connor, Steven. *Paraphernalia: The Curious Lives of Magical Things,* London: Profile Books, 2011.

Connor, Steven. “Ears have Walls: on Hearing Art,” *Sound*, ed. Caleb Kelly, London: Whitechapel Gallery, 2011.

Cook, Peter. *The City, Seen As a Garden of Ideas,* New York, N.Y: Monacelli Press, 2003.

“Cosanti Architecture,” *Arcosanti,* n.d. <www.arcosanti.org/node/10252>Accessed 23 January 2016.

Crane, Clare. “Jesse Shepard and the Villa Montezuma,” *The Journal of San Diego History* 16.3, 1970.

<www.sandiegohistory.org/journal/70summer/shepard.htm> Accessed 30 January 2016.

Crane, Clare. "The Villa Montezuma as a Product of its Time," *The Journal of San Diego History*
33.2-3, 1987. <www.sandiegohistory.org/journal/87spring/villa.htm> Accessed 30 January 2016.

Crouch, Tom D. *The Eagle Aloft: Two Centuries of the Balloon in America*, Washington, D.C: Smithsonian Institution Press, 1983.

Crowley, David, and Jane Pavitt. *Cold War Modern: Design 1945-1970*, London: V & A, 2008.

Crystals go to War. Reeves Sound Lab, 1943. Prelinger Archives. <www.archive.org/details/prelinger>. Accessed 28 January 2016.

Cubitt, Sean. *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels,* Cambridge, Mass: MIT Press, 2014.

Dann, Kevin T. *Bright Colors Falsely Seen: Synaesthesia and the Search for Transcendental Knowledge,* New Haven: Yale University Press, 1998.

Daukantas, Patricia. "A Short History of Laser Shows," *OPN Optics & Photonics News*, The Optical Society, May 2010.

Davis, Erik and Michael Rauner. *The Visionary State: A Journey Through California's Spiritual Landscape,* San Francisco: Chronicle Books, 2006.

Davis, Erik. *Techgnosis: Myth, Magic + Mysticism in the Age of Information,* New York: Three River Press, 1998.

"Delphic Panaceas: An Infrasound / Ultrasound and Video Installation," *Artcite*. <www.artcite.ca/history/2015.html> Accessed 28 January 2016.

Derrida, Jacques. *Specters of Marx: The State of the Debt, the Work of Mourning, and the New International*, New York: Routledge, 1994.

Deutsch, Herbert A. "The Moog's First Decade 1965-1975," *NAHO,* Albany, N.Y: New York State Museum and Science Service: Fall 1981.

Deutsch, Herbert A. "The Abominatron," *From Moog to Mac*, North Hampton, NH: Ravello Records, 2012.

Deutsch, Herbert. "On Innovation Interview with Herbert Deutsch," transcript of an oral history conducted 2014 by Kristen Gallerneaux, The Henry Ford, Dearborn, Michigan.

"Digital Television," Federal Communications Commission. Updated 7 December 2015. <www.fcc.gov/general/digital-television> Accessed 30 March 2016.

Dyson, Frances. *Sounding New Media: Immersion and Embodiment in the Arts and Culture*, Berkeley: University of California Press, 2009.

"Early Tape Recordings," *Audio Engineering Society*, Audio Engineering Society, 29 December 2002. <www.aes.org> Accessed 3 August 2016.

"Echoes & News: The Musical Medium, Aubert," *The Annals of Psychical Science*, London: Office of the Annals, 1905.

Edgerton, Gary R. *The Columbia History of American Television,* New York: Columbia University Press, 2007.

Edison, Thomas A. and Dagobert D. Runes. *The Diary and Sundry Observations of Thomas Alva Edison,* New York: Philosophical Library, 1948.

Ehman, Jerry. "Wow!"—A Tantalizing Candidate," in H.P Shuch, *Searching for Extraterrestrial Intelligence: Seti Past, Present, and Future*, Berlin: Springer, 2011.

Elliman, Paul. “Detroit as Refrain.” *The Serving Library,* Bulletins of The Serving Library, no. 8, 2014. <www.servinglibrary.org/journal/8/detroit-as-refrain> Accessed 5 March 2016.

Eveleth, Rose. “Earth’s Quietest Place Will Drive You Crazy in 45 Minutes,” *Smithsonian Magazine*, December 17, 2013. <www.smithsonianmag.com/smart-news/earths-quietest-place-will-drive-you-crazy-in-45-minutes-180948160/?no-ist> Accessed 23 January 2016.

Feaster, Patrick. *Pictures of Sound: One Thousand Years of Educed Audio: 980-1980,* Dust to Digital, 2012.

Finucane, Ronald C. *Appearances of the Dead: A Cultural History of Ghosts,* Buffalo, N.Y: Prometheus Books, 1984.

“First Motion Pictures Transmitted by Radio Are Shown in Capital,” *Washington Post*, Washington, DC: June 14, 1925.

Fischer, Andreas. *Okkulte Stimmen - Mediale Musik: Recordings of Unseen Intelligences 1905-2007*, Berlin: Supposé, 2007. CD.

Fisher, Mark. *Ghosts of My Life: Writings on Depression, Hauntology and Lost Futures*, Winchester, UK: Zero Books, 2014.

“FM Signals Sent as ‘Radio Pill’ Passes through Body,” *Electrical Engineering,* 76.6, New York: American Institute of Electrical Engineers, 1957.

“From Whence the Moog?” Dir. Unknown. Perfs. Herbert Deutsch. 15 January 1983. Unreleased video footage transferred to DVD, The Henry Ford Museum, 2014.

Galbraith, Robert M. to George E. Howard, November 10, 1929. Edison Papers. Unprocessed. Benson Ford Research Center, The Henry Ford, Dearborn, Michigan. Personal Correspondence.

Garrett, CBG. "The Optical Maser," *Electrical Engineering,* 80.4, 1961.

Gertner, Jon. *The Idea Factory: Bell Labs and the Great Age of American Innovation*, New York: Penguin Press, 2012.

"Ghosts," *Joy Division,* Dir. Gee, Grant. Madrid: Avalon, 2008. Film.

Glassie, Henry. *Vernacular Architecture,* Philadelphia: Material Culture, 2000.

Glinsky, Albert. *Theremin: Ether Music and Espionage,* Urbana: University of Illinois Press, 2000.

Grierson, Francis. *Psycho-phone Messages,* Los Angeles, Calif: Austin Publishing company, 1921.

Guins, Raiford. *Game After: A Cultural Study of Video Game Afterlife,* MIT Press, 2014.

Jenkins, C.F., *The Boyhood of an Inventor,* Washington, D.C: Printed by National Capital Press, Inc., 1931.

Hammer, Peter. "In Memoriam," *Journal of the Audio Engineering Society,* Audio Engineering Society, Volume 42, No. 6, June 1994.

"Haunted Places in Wyoming," *The Shadowlands,* 1998, <www.theshadowlands.net> Accessed 3 August 2016.

Hayden, Dolores. *Seven American Utopias: The Architecture of Communitarian Socialism, 1790-1975,* Cambridge, Mass: MIT Press, 1976.

Helmreich, Stefan. "An Anthropologist Underwater: Immersive Soundscapes, Submarine Cyborgs, and Transductive Ethnography," in Jonathan Sterne, *The Sound Studies Reader,* New York: Routledge, 2012.

Heys, Toby. "Re: Spurious Frequencies," Message to Kristen Gallerneaux, 01 October 2015. E-mail.

Hilderbrand, Lucas. *Inherent Vice: Bootleg Histories of Videotape and Copyright,* Durham: Duke University Press, 2009.

"History of the Detroit Salt Mine," *Detroit Salt Co.,* <detroitsalt.com/history/> Accessed 28 January 2016.

Hultén, Karl Gunnar Pontus. *The Machine as seen at the End of the Mechanical Age,* New York: The Museum of Modern Art, 1968.

"Introduction to Arcology," Arcosanti, <www.arcosanti.org/theory/arcology/main.html>, Accessed 23 January 2016.

Jennings, David. *Skinflicks: The Inside Story of the X-Rated Video Industry*. Bloomington, IN: Distributed by 1st Books Library, 2000.

John Robinson Pierce: Music from Mathematics, Volume Two, Finders Keepers Records / Cacophonic: CACK4504, 2013.

Jones, David E.H. *The Inventions of Daedalus: A Compendium of Plausible Schemes*, W.H. Freeman & Company, 1982.

Joy Division. Dir. Gee, Grant. Madrid: Avalon, 2008. Film.

Kaprow, Allan. *Essays on the Blurring of Art and Life*, Berkeley: University of California Press, 1993.

Kittler, Friedrich. *Gramophone, Film, Typewriter*, Stanford, Calif: Stanford University Press, 1999.

Knittel, Chris. "The Mystery of the Creepiest Television Hack," *Motherboard,* Vice Media LLC, 25 November 2013 <motherboard.vice.com/read/headroom-hacker> Accessed 30 March 2016.

Lanza, Joseph. *Elevator Music: A Surreal History of Muzak, Easy-Listening, and Other Moodsong,* New York: St. Martin's Press, 1994.

Larson, T A. *History of Wyoming*, Lincoln: University of Nebraska Press, 1966.

Laser Light; a New Visual Art: Organized by the Cincinnati Art Museum and the Laser Laboratory of the University of Cincinnati Medical Center, Cincinnati Art Museum, November 12 Through December 14, 1969, Cincinnati Art Museum, 1969.

"Laser Pointer Irks Kiss," *Beaver County Times,* Beaver County: PA: McClatchy-Tribune Information Services, November 24, 1998.

Law, John. *After Method: Mess in Social Science Research,* London: Routledge, 2004.

Lear, John. "Now, the Broadcasting Pill," *New Scientist,* London: New Science Publications, 18 April 1957.

Lethbridge, Thomas C. *Ghost and Ghoul,* London: Routledge & Kegan Paul, 1961.

Levy, Michael, Schaick C. Van, and Warren Susman. *Wisconsin Death Trip*, New York: Pantheon Books, 1973.

Littler, Dr. R. "'We Watch You While You Sleep'" TV signal intrusion 1975," *Scarfolk Council*, Richard Littler. 19 February 2014 <www.scarfolk.blogspot.com/2014_02_01_archive.html> Accessed 30 March 2016.

Loomis, C.G. "Illinois Poltergeist." *Western Folklore.* 17.1, 1958.

Lubachez, Ben J. *The American Cinematographer*, "The Beginnings of the Cinema: Birth of the Final Form of the Motion Pictures—The Work of C. Francis Jenkins," Hollywood, Calif: ASC Holding Corp, May 1, 1922.

"Magdelena Parker," AUDINT. <www.audint.bigcartel.com/product/magdalena-parker> Accessed 28 January 2016.

"Magnetic Recording History Pictures," *Audio Engineering Society,* Audio Engineering Society, 6 July 2004. <www.aes.org>. Accessed 3 August 2016.

"Making the Perfect Searchlight," *New Scientist*, London: New Science Publications, May 12, 1960.

"Mars' Latest Visit Leaves Riddle of Life Unsolved: Red Planet Probed by Watchers in Search for Clues That Life Exists on Its Surface," *Popular Mechanics Magazine,* New York: Hearst Corp., January 1927.

"Max Sets Bad Speech Habit," *Bryan Times,* Bryan, Ohio, 10 Aug 1987.

McLellan, Dennis. "Composer was a synthesizer pioneer," Los Angeles Times, 11 Jan 2008 <www.articles.latimes.com/2008/jan/11/local/me-garson11> Accessed 6 April 2016.

McLuhan, Marshall. *Understanding Media: The Extensions of Man,* New York: McGraw-Hill, 1964.

Millet, Jules. *Audition Colore´e,* Paris: Doin, 1892.

Moberly, C A. E, Eleanor F. Jourdain, Edith Olivier, and J W. Dunne. *An Adventure*, London: Faber and Faber, 1931.

"Montezuma Mansion," *Weird California,* <www.weirdca.com/location.php?location=64> Accessed 30 January 2016.

"Moog Prototype Unsold at Auction," *Keyboard*, San Francisco, CA: Miller Freeman Publications, September 1982.

"Moving Pictures Sent by Radio," *Popular Mechanics,* Chicago, Ill: Popular Mechanics Co, September 1925.

"Mount Vernon Arts Lab – The Séance at Hobs Lane – Description," *GhostBox,* GhostBox, 2001 <ghostbox.greedbag.com/buy/sance-at-hobs-lane-0/> Accessed 6 April 2016.

"Music and the Paranormal," Melvyn Willin <www.hulford.co.uk/musicpa2.html> Accessed 30 January 2016.

National Capital Park and Planning Commission, *Maryland Historic Sites Survey (M:31-10)*, "Jenkins Broadcasting Station," Maryland Historical Trust, August 21, 1975.

Novak, Colin. "Summary of the Windsor Hum Study Results," *Global Affairs Canada*, Government of Canada, 23 May 2014 <www.international.gc.ca> Accessed 26 January 2016.

"Organ Music." *San Diego Paranormal Research*. n.d. <www.sdparanormal.com/Villa_Montezuma.html> Accessed 30 January 2016.

Paglen, Trevor, and Rebecca Solnit. *Invisible: Covert Operations and Classified Landscapes*. New York, N.Y: Aperture, 2010.

Parikka, Jussi. *What Is Media Archaeology?* Cambridge, UK: Polity Press, 2012.

Pasewalk, L.P. to Henry Ford. BFRC.REG.R229.File 31.884, Benson Ford Research Center, The Henry Ford, Dearborn, Michigan. Personal Correspondence.

Phillips, Tony. "The Tunguska Impact—100 Years Later," NASA Science: *Science News*, NASA, 2008 <science.nasa.gov/science-news/science-at-nasa/2008/30jun_tunguska/> Accessed 28 January 2016.

Phipps, Tony. "Can Computers Act?" *Screen Actor* Vol. 22-28, 1980, Los Angeles, Calif: Screen Actors' Guild.

Pinch, Trevor J, and Frank Trocco. *Analog Days: The Invention and Impact of the Moog Synthesizer,* Cambridge, Mass: Harvard Univ. Press, 2004.

Ponte, Alessandra, and Marisa Trubiano. "The House of Light and Entropy: Inhabiting the American Desert," *Assemblage*, 1996.

Pourade, Richard F., *The Glory Years*, San Diego: Union-Tribune Pub. Co., 1964.

Radio Pill. British Pathe, 1961 <www.britishpathe.com//pages/in-the-news/> Accessed 6 March 2016.

"Radio Vision Shown First Time in History by Capital Inventor," *Sunday Star,* Washington, DC: June 14, 1925.

Rami´rez, Juan A. *The Beehive Metaphor: From Gaudı´ to Le Corbusier*, London: Reaktion, 2000.

Reminiscence, "Written Reminiscence of the Piccard Stratosphere Balloon Flight of October 23, 1934," ARCH.13, Box 18, Folder: "Piccard Stratosphere Balloon Flight, n.d., Benson Ford Research Center, The Henry Ford, Dearborn, Michigan.

Reynolds, Simon. *Retromania: Pop Culture's Addiction to Its Own Past*, London: Faber & Faber, 2011.

Riordan, Michael. "How Bell Labs Missed the Microchip," *IEEE Spectrum,* New York: Institute of Electrical and Electronics Engineers, 1 December 2006 <www.spectrum.ieee.org/computing/hardware/how-bell-labs-missed-the-microchip>. Accessed 23 January 2016.

Rogo, D. Scott. *Nad: A Study of Some Unusual "other-World" Experiences,* New York: University Books, 1970.

Rosemary's Baby. Dir. Polanski, Roman. Paramount Pictures, St. Louis, Missouri: Swank Motion Pictures, 1968.

Sarda, Michel F. *The Mind Garden: Conversations with Paolo Soleri II,* Phoenix, Ariz: Bridgewood Press, 2007.

Sconce, Jeffrey. *Haunted Media: Electronic Presence from Telegraphy to Television*, Durham, NC: Duke University Press, 2000.

Seafield, Lily and Rosalind Patrick. *Ghostly Scotland: The Supernatural and Unexplained,* New York: Barnes & Noble, 2006.

Scandura, Jani. *Down in the Dumps: Place, Modernity, American Depression,* Durham: Duke University Press, 2008.

Schulman, J. Neil. Appendix: "Violet: House of the Laser," in *The Rainbow Cadenza: A Novel in Logosata Form,* New York: Simon and Schuster, 1983.

Schwartz, R.N. and C.H. Townes, "Interstellar and Interplanetary Communication by Optical Masers," Institute for Defense Analyses, *Nature: Journal of Science*, London: Macmillan Journals Ltd, April 15, 1961.

Soleri, Paolo. *The Development by Paolo Soleri of the Design for the Cosanti Foundation, Arizona, USA*, Raleigh: School of Design, North Carolina State of the University of North Carolina at Raleigh, 1964.

Soleri, Paolo. *The Bridge between Matter & Spirit Is Matter Becoming Spirit: The Arcology of Paolo Soleri,* Garden City, N.Y: Anchor Books, 1973.

Soleri, Paolo. *The Urban Ideal*, Berkeley, Calif: Berkeley Hills, 2001.

"Sonic Disruptions," *Tate Modern,* <www.tate.org.uk/whats-on/tate-britain/talks-and-lectures/sonic-disruptions> Accessed 28 January 2016.

Sorenson, Paul. "Looking Back…" *Aerospace Engineering and Mechanics Update,* Minneapolis: University of Minnesota Institute of Technology, 1998-99.

Spence, Lewis, Leslie Shepard, and Nandor Fodor. *An Encyclopedia of Occultism: A Compendium of Information on the the Occult Sciences, Occult Personslities, Psychic Science, Magic, Demonology, Spiritism, Mysticism and Metaphysics*, New York: University Books, 1960.

"Strange Instrument Built to Solve Mystery of Cosmic Rays," *Popular Science*, New York: Popular Science Pub. Co., April 1932.

Tandy, Vic & Tony R. Lawrence. "The Ghost in the Machine," *Journal of the Society for Psychical Research* 62, no. 851, April 1998.
Taussig, Michael T. *My Cocaine Museum*, Chicago: University of Chicago Press, 2004.

Telegram from the Secretary of the Navy to All Naval Stations Regarding Mars, August 22, 1924, Record Group 181, Records of Naval Districts and Shore Establishments, 1784-2000, ARC Identifier 596070, National Archives and Records Administration.

"The Advisory Circle – From Out Here – Description." *GhostBox*. GhostBox, 2015 <ghostbox.greedbag.com/buy/from-out-here/> Accessed 6 April 2016.

The Henry Ford Museum, Accession File #63.173.1.

"The Historic 12 December Event: The Year 1960," *The History of the Laser,* 2012 <www.alijavan.mit.edu/Original/Historic/12December1960event.htm> Accessed 23 January 2016.

The Jack Mullin Collection, *Pavek Museum,* Pavek Museum of Broadcasting, 2016 <www.pavekmuseum.org> Accessed 3 August 2016.

The Museum of Classic Chicago Television <ww.fuzzymemories.tv/> Accessed 30 March 2016.

"The New Edison: The Phonograph with a Soul," The Paris Morning News, Paris, Texas, 13 February 1921.

"The Psycho Phone," The New Yorker, New York: New Yorker Magazine, inc., etc., 1933: Vol. 9.

"The Quenching of Sayville: The Close of a Sordid Story," *The Wireless World 3, no. 32,* November 1915.

The San Diego Union, San Diego, Calif: Union-Tribune Pub. Co., July 20, 1913.

"The Villa Montezuma: History of a House." *Friends of the Villa Montezuma*. n.d. <www.villamontezumamuseum.org/Villa_Site/About_us-Main_pg.html> Accessed 30 January 2016.

Thompson, Emily A. *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933,* Cambridge, Mass: MIT Press, 2002.

Tilley, Christopher and Wayne Bennett. *The Materiality of Stone: Vol. 1,* Oxford: Berg, 2004.

Tompkins, Dave. *How to Wreck a Nice Beach: The Vocoder from World War Ii to Hip-Hop: the Machine Speaks,* Brooklyn, NY: Melville House, 2010.
Todd, Mabel Loomis. *Total Eclipses of the Sun*, Boston: Roberts Bros., 1894.

Vent, Bonnie. "Jesse Shepard Channel: 12/07/2002," *San Diego Paranormal Research*. n.d. <www.sdparanormal.com/articles/article/274216/1670.htm> Accessed 30 January 2016.

Volsupa. "WE RUN THIS." Online video clip. *YouTube*, YouTube. Uploaded on 11 September 2008. <www.youtube.com/watch?v=j0ZFow_9vsg> Accessed 30 March 2016.

"Weird 'Radio Signal' Film Deepens Mystery of Mars: Pictorially Recorded Messages Here Mere Tangles Mass of Dots and Dashes--Growing Wonderment May Bring Tenable Interpretation Theory," *Washington Post,* August 27, 1924.

Wells, Joseph Nicholas. "Siltpile at Scottsdale," *Journal of Architectural Education, 1947-1974,* Vol. 18, No. 3 (Dec. 1963).

"WFLD Channel 32 – 'Pirate Report' (1987)" *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. <www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2465> Accessed 30 March 2016.

When the Wind Blows. Dir. Murakami, Jimmy T. Writer. Raymond Briggs. *When the Wind Blows*, New York, N.Y: IVE, 1986. Film.

Wilson, Marie, Paolo Soleri, and Michel F. Sarda. *Arcosanti Archetype: The Rebirth of Cities by Renaissance Thinker Paolo Soleri*, Fountain Hills, Ariz: Freedom Editions, 1999.

"WLS Channel 7—'Pirate Report' (1987)." *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. <www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2468>. Accessed 29 March 2016.

"WMAQ Channel 5 – 'Pirate Report' (1987)" *The Museum of Classic Chicago Television*. The Museum of Classic Chicago Television. Original air date, November 23, 1987. <www.fuzzymemories.tv/index.php?c=59&m=max%20headroom%20pirate#videoclip-2466> Accessed 30 March 2016.

Wojcik, Daniel. T*he End of the World As We Know It: Faith, Fatalism, and Apocalypse in America*, New York: New York University Press, 1997.

Zoglin, Richard. "Grounding Captain Midnight: High-tech, Holmesian Detective Work Unmasks a Satellite Intruder" *TIME*, 4 August 1986.