

**In the Shape of a Home: Balancing Harry Partch's Corporeality and Abstraction in
Just Intonation Music**

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Addressing the theoretical and practical schism between Spectralism and American just intonation compositional practices, this paper examines how the compositional parameters of the author's own vocal sextet, *In the Shape of a Home*, negotiate Harry Partch's foundational dichotomy of Corporeality and Abstraction. Despite their overlapping interest in harmonically derived musical structures, the practices have traditionally remained distinct; Partch's Corporeality insists upon grounding musical architecture in the physical world, prioritizing the human voice and dramatic context, while warning against Abstract, disembodied musical practices. The compositional methodology employed utilizes a core Spectralist technique—analyzing physical spaces via spectrograms and deriving scales from the acoustic resonances of those specific environments—to establish an additional basis for Corporeality. This process, which treats empirical acoustic analysis as a tool for creating grounded musical materials, integrates Partch's corporeal imperative with the extended just intonation systems developed by Ben Johnston. Analysis of *In the Shape of a Home* demonstrates how the formal structure navigates the Corporeal/Abstract spectrum, mirroring the narrative progression from material to spiritual. The composition's formal sections employ scales closely aligned with the acoustic data retrieved from the rooms, serving as an explicit physical analogue to Partch's Corporeality. Conversely, sections such as the Porch and the interstitial Mysteries transition toward Abstract concepts through the introduction of non-spectrally derived pitches, tonal relationships, and a shift toward melismatic textures, moving away from Corporeality's emphasis on dramatic speech rhythm. Concluding that the opposing forces of Corporeality and Abstraction can function in unison, rather than in contradiction, within a flexible theoretical framework. By successfully integrating spectral acoustic derivation with the systematic structure of extended just intonation, the composition offers a model for reconciling the materialist aesthetics of just intonation—linked historically to the human voice and speech—with contemporary, technology-aided compositional techniques.

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1.0 Introduction

I believe that, despite overlapping interests in the harmonic series and a shared focus on grounding their works in mathematical phenomena as a basis for musical structures, Spectralism and just intonation have remained distinct¹ as compositional practices. I aim to bridge these differing approaches through my work, the vocal sextet *In the Shape of a Home*, by utilizing various aspects of each method and distinguishing them through texture and structural choices. Specifically, a Spectralist technique² that utilizes spectrograms to derive musical scales from physical spaces is employed, and the form is organized through these discoveries.³ This method runs alongside Ben Johnston's (1926-2019) just intonation approach. Despite being influenced by Partch during his time living and working with him, Johnston's style focuses on the mathematical relationships of just intervals in tonal and rhythmic schemes and often less so on the voice and dramatic presentation. Furthermore, I make a concerted effort—if not to fully reconcile internal differences within Partch and Johnston's just intonation practices—to at least present a piece that contends with the initial dramatic goals of Partch and the subsequent developments in just intonation music by his mentee, Ben Johnston, and his extended just intonation system.⁴ For

¹ In both artificial and practical ways, as Spectralism is often associated with European composers, while just intonation is associated with Americans.

² Tristan Murail, "Target Practice," *Contemporary music review* 24, no. 2-3 (2005), <https://doi.org/10.1080/07494460500154814>. 152

³ "To take a spectral approach, I contend, is to consider a collection of possibilities – to think of really interesting things in the nature of sound and to make use of them creatively in one's composition. The fact that the process of translation from sound analysis – or from an abstract contemplation of the structure of sound – to music composition is subject to so much poetic variation is a point in its favour." Donnacha Dennehy, "OWNING OVERTONES: GRÁ AGUS BÁS AND SPECTRAL TRADITIONS," *Tempo (London)* 69, no. 271 (2015), <https://doi.org/10.1017/S0040298214000904>, <https://www.cambridge.org/core/journals/tempo/article/abs/owning-overtones-gra-agus-bas-and-spectral-traditions/0234F2CADA898B1C4CC9C5789820273E>. 34

⁴ Johnston's own tuning system extends far beyond Partch's 11-limit tuning, with some of his works containing above 500 discrete pitches, in comparison to Partch's 43.

additional context, within Harry Partch's "Genesis of a Music," he sets out to entirely separate himself from European practice, which was the standard in American education at the time. He warns against expert specialization within a single discipline and disembodied musical practices, advocating instead for prioritizing the human voice and theatrics, and he presents various examples from the classical period to contemporary composers.

The practice of just intonation composition in the United States is linked to the human voice and speech⁵ through its establishment by Harry Partch (1901-1974) in the 1930s. Despite being known for his collection of handcrafted instruments, in the first chapter of his book "Genesis of a Music", he outlines his compositional philosophy, the "Monophonic Concept and One Voice", which focuses entirely on theatrical vocal music, embodiment, and issues of intelligibility in opera. He does not go into detail about the nature of his hand-crafted microtonal instruments until page 98 of the text. In a different ideological space and time in Europe, Spectralism emerged in the last three decades of the 20th century, resulting from significant advancements in music technology and research at IRCAM.⁶ Unlike Partch's just intonation practice, the compositions of the Spectralists often focused on instruments' capability to replicate harmonic spectra rather than supporting the voice in vocal music.⁷

Microtonal composer and musicologist Kyle Gann describes Partch's influences as the "...Moses who led us from the wilderness farther into the promised land than it seemed like one man should have been able to go."⁸ Despite Partch's role as the founder of American just intonation

⁵ Harry Partch, *Genesis of a music; an account of a creative work, its roots and its fulfillments*, 2d , enl. ed. (New York: Da Capo Press, 1974).

⁶ Institute for Research and Coordination in Acoustics/Music, France. Founded by Pierre Boulez and supported by the French Government.

⁷ The composers most associated with Spectralism wrote for the most part for instruments, though Kaija Saariaho produced a great deal of operatic works, which were all composed after 1991.

⁸ Kyle Gann, *The arithmetic of listening : tuning theory and history for the impractical musician*, 1st ed. (Urbana :: University of Illinois Press, 2019). 143

composition, currently, I believe there is a preference for non-theatrical music in microtonal works. This shift could be partly due to the inherent increase in difficulty associated with staged productions and a departure from Partch's original ideas, initiated by Johnston's self-admitted goal to preserve European aesthetics within just intonation. Unlike Partch, who significantly influenced popular musicians such as Tom Waits⁹ and Paul Simon,¹⁰ Ben Johnston was an active professor for much of his life, and as such was involved and primarily familiar to academic musicians.¹¹ Unlike the Spectralists, Johnston and Partch avoided technological approaches, partly due to the decades in which they were active and also because of personal preference.¹²

In "Genesis of a Music", a dichotomy is built between what Partch calls Abstraction and Corporeality. He warns against expert specialization¹³ and disembodied musical practices (Abstraction), and advocates prioritizing the human voice and theatrical drama (Corporeality). Just as Spectralism can be viewed as a response to post-serial European aesthetics, Partch was responding to his personal alienating experience of European music and its role in the United

⁹ Waits, Tom. "Tom Waits: 'I Look Like Hell but I'm Going to See Where It Gets Me'." interview by Tim Adams. October 22 2011, 2011. Website. The Guardian, accessed September 30 2025. <https://www.theguardian.com/music/2011/oct/23/tom-waits-interview-bad-as-me>.

¹⁰ Kelley, Peter. "Harry Partch Instruments, Now at Uw, Featured on New Paul Simon Album ", June 8, 2016, 20162025. <https://www.washington.edu/news/2016/06/08/harry-partch-instruments-now-at-uw-featured-on-new-paul-simon-album/>.

¹¹ Von Gunden, Heidi. *The Music of Ben Johnston*. Metuchen, N.J: Scarecrow Press, 1986.

¹² "I applied for and got a Guggenheim Fellowship to investigate making untempered pitch compositions electronically. I went to the studio at Columbia-Princeton during 1959–60 and tried to get into the solution of the problem of extended just intonation through tape music. The effort was a failure. It was, however, in the years immediately following that stimulating if unproductive year that I made my first efforts to tackle the problem in instrumental terms. Unlike Partch, I wanted to use ordinary, familiar instruments and techniques. Also unlike Partch, I wanted to transform European traditions..." Ben Johnston and Bob Gilmore, *Maximum Clarity and Other Writings on Music*, 1 ed., Music in American Life, (Champaign: University of Illinois Press, 2006).¹⁴⁵

¹³ Specialization without variety, advocating for a polymath approach. Obviously, one should be skilled at their art, but Partch believed that the musician should know more than just their own discipline, else they alienate themselves from their own labor.

States.¹⁴ Partch's Corporeality¹⁵ is founded upon the union between the mind and body as the method of listening, never hiding the way the sound is produced; the larger architecture is derived not from tempered scales, but from the harmonic series. Partch believed that folk singers and popular musicians served true Corporeality over those of "serious music"¹⁶ with its propensity to value purity of tone over emotional impact through drama. It is difficult to understand how one's musical architecture would appear differently in comparison to equal temperament when using different just intonation pitch content, but it becomes clearer when you consider that many normative musical forms are not derived from pitches but instead developed over time from language and other cultural experiences, such as poetry forms and dances. Partch, I believe, extended this development of the connection between pitch and rhythm by asserting that music using the harmonic series and just intonation scales is inherently connected to the physical world and the body.¹⁷ In fact, the harmonics of sounds are what enable us to distinguish sources and

¹⁴ Related to Partch's terminology and the role of Corporeality in his just intonation practice, the terms Apollonian and Dionysian are at least heavily connected or at most nearly complete matches to Partch's own terms. These terms, and the manner Partch used them, originate from Friedrich Nietzsche's work, "The Birth of Tragedy", a text Nietzsche later renounced due to changes in his relationship with Richard Wagner. Wagner's musical aesthetics were the reason for the text's existence, and the entire argument contained within was in support of Wagnerian drama, which, as Partch himself admits, holds many parallels with his own values. With regards to these parallel terms' role in Partch's practice, he brings "The Birth of Tragedy" up to admonish Nietzsche for what Partch believes is his self-betrayal and seduction towards the values of German music. There are a few departures from how they are typically understood in philosophy, I believe, primarily due to the level of musical intimacy Partch has as a composer, as well as his staunch stance on individuality. Partch chose instead to establish his own terms of Abstraction and Corporeality, which mirror the spectrum between Apollonian and Dionysian thought. Partch believes that Nietzsche, as an amateur and limited by cultural experience, misunderstands the power of absolute music (or lack thereof), and is not the domain of Dionysus but of Apollo. He believes that to solve Nietzsche's dissatisfaction with language's limitations requires a synthesis with – not an abandonment of – music. Unfortunately, Partch does not clarify his understanding of these Nietzschean terms despite having used them.

¹⁵ "This is not to say that my attitude toward this work is objective. Objectivity would imply a lack of passion and a complete disinterest, which, if it is not all anomaly in any human being, is it least an anomaly in a composer faced with the subject of music. However I may have weighed the virtues and the shortcomings of the formulas and theories I propound, I expect and welcome – just as intense a scrutiny of them as I have endeavored to project upon the work of some of my musical predecessors and contemporaries." Partch, *Genesis of a music; an account of a creative work, its roots and its fulfillments*. xviii-xix

¹⁶ Partch, *Genesis of a Music*. 53.

¹⁷ While that may seem like a loose connection, fortunately, the physical laws of the world are in his favor; the only evidence against the harmonic series not appearing in the physical world are digitally created sounds, and even then,

locations in our immediate physical space.¹⁸ With this in mind, the possibility of justly tuned music carrying the cultural weight of our everyday experience of navigating space, though a subtle proposition, a tenuous connection can be reached.

Partch's Abstract is much easier to define, as it is characterized by what it lacks. His concept of Abstract music hides physicality, lacks language or subsumes it, and avoids dramatic impact. Partch lays out examples for each category here:

The peoples of history have radicated their instinctive Corporeal attitudes in many variations of musical utterance, in: Stories sung or chanted, including much folk music.

Poems recited or intoned, including some folk but not all, popular music[;] Dramas, such as the early seventeenth-century Florentine music-dramas, for example[;] Music intended specifically for dances which tell a story or describe a situation[;] both ancient and modern.

The tendency toward an Abstract character, on the other hand, is evident in such musical forms as: Songs with words that are intended not to convey meaning but simply to set the mood of the music[;] Songs or dramas with words that do not convey meaning because of the style of composition or manner of rendition[;] most modern operas come under this head. All purely instrumental music, whether programmed or not though programmed music often tends toward the Corporeal.¹⁹

My work, *In the Shape of a Home*, has many features that benefit from this lens of Corporeality and Abstraction. After internalizing these ideas, I find them extremely useful in creating an emotional experience with music and words. It should be said, that Partch never intended for this framework to be an objective ruleset to be applied to music, but instead a personal narrative of discovery to inspire similar journeys in others. "The work is not offered as a basis for a substitute tyranny, the grooving of music and musical theory into another set of conventions.

it is negated once sounded in the physical world. These pure digital sounds, once physically sounded, contain the harmonic series, which is ever-present in any periodic function, as proven by Fourier. Anything that freely vibrates has periodic functions.

¹⁸ C. Micheyl and A. J. Oxenham, "Pitch, harmonicity and concurrent sound segregation: psychoacoustical and neurophysiological findings," *Hear Res* 266, no. 1-2 (Jul 2010), <https://doi.org/10.1016/j.heares.2009.09.012>; Yost, W.A., R.R. Fay, and A.N. Popper. *Auditory Perception of Sound Sources*: Springer US, 2007. https://books.google.com/books?id=VH_a2vVLnIwC

¹⁹ Partch, *Genesis of a music; an account of a creative work, its roots and its fulfillments*. 9.

What I do hope for is to stimulate creative work by example, to encourage investigation of basic factors, and to leave all others to individual if not idiosyncratic choice. To influence, yes; to limit, no” After a brief synopsis of the work’s dramatic context, I will proceed to analyze the work through Partch’s framework.

1.1 In the Shape of a Home: Tuning and Narrative

In 2024, we shared our last Christmas, as he was struggling to eat and drink during his long battle with cancer. He forced his way through it, despite having fasted for days. We exchanged gifts, he played the piano, and then we took him to the hospital. After years of fighting, having survived immense surgeries for a man in his 80s, we did not know that these would be the last weeks we had with him. I recorded our conversations in the hospital, not knowing, but wary of the possibility that these would be our last conversations. On Tuesday, January 23rd, at 9 pm, my grandfather Edward Simon Anisko passed away. Just one week later, his ex-wife and my grandmother, Lorraine Alosio, passed away after a continued decline despite surviving a COVID-19 infection. I began writing this paper as the anniversaries of their deaths passed me by. In the aftermath, many family structures fell apart, and we had to face the possibility of his home being repossessed by the bank after he used a reverse mortgage to support his living expenses. Thus, the process of sorting through his belongings had to take place as soon as possible. The difficulty of this undertaking cannot be overstated, and I looked towards the preservation of memory. I resolved to take aural images of the spaces we shared and preserve the Corporeal energy my grandfather was known for. Perhaps to know that his home, as it was in my memories, was, in some way, still here.

At the beginning of the process, I was reminded of the work of Alvin Lucier, *I am Sitting in a Room*. While Lucier employed the process of reverberating his voice into a room as a method of evening out his speech. The initial recording is then played back into the room through a loudspeaker and is simultaneously re-recorded by a microphone. This new recording captures not only the sound from the speaker repeats the acoustic pattern imprinted by the room's reverberance. The new recording is immediately played back and re-recorded, and this cycle is repeated, with each new recording further exaggerating the room's sonic characteristics onto the sound until the original voice is unrecognizable. I aimed to use recordings of my grandfather to activate the spaces he once inhabited, capturing a snapshot of his life, despite his voice now only residing in recordings. Shaping the narrative around my perceptions, I chose positions in the house that carried memories of his speaking voice. Every time I returned to the house, what was most striking was memories of my grandfather's aural presence. He used to walk around with music on his hip, playing from a speaker, or working on another project, like getting free TV channels with a handmade antenna. So once again, on Christmas Day 2025, I returned to his home, alone, and made a recording of each room. I followed along from where I awoke, in the room I often slept in while visiting, and walked out into spaces where the memories we shared resided. Collectively, I had 17 different spaces.²⁰

Using the audio engineering technique of a convoluted impulse response, the physical space of the room was replicated.²¹ These techniques rely on technology developed at IRCAM and

²⁰ This process of collecting impulse responses can be completed with various tools but requires at a minimum a microphone and complex sound source, such as a clap or a balloon popping. I had used a small battery powered speaker to play a short sweep of the sound spectrum, which serves a similar purpose.

²¹ The math involved in a convoluted impulse response is quite ornate but thankfully audio engineers aren't required to understand it to replicate reverberant spaces. Essentially you put energy into any physical system, then remove that energy using these equations. When reversed, this results in a model of the original system with no energy added. Here is a link that explains the math involved: <https://lpsa.swarthmore.edu/Convolution/sbh.html>

other research groups and are tied to the spectralist method of obtaining compositional material. Various programs can be used, from SPEAR to Melodyne, as employed by composers such as Donnacha Dennehy and Tristan Murail,²² to read spectrograms or analyze them, allowing composers to retrieve or manipulate any sound within an audio file. By using Melodyne, I used an audio engineering-focused program to accomplish the same task. After completing the collection of impulse responses, I then played recordings of my grandfather's last conversations back into his home as a kind of ritual, overdubbing them to find the resonances of the home we shared.

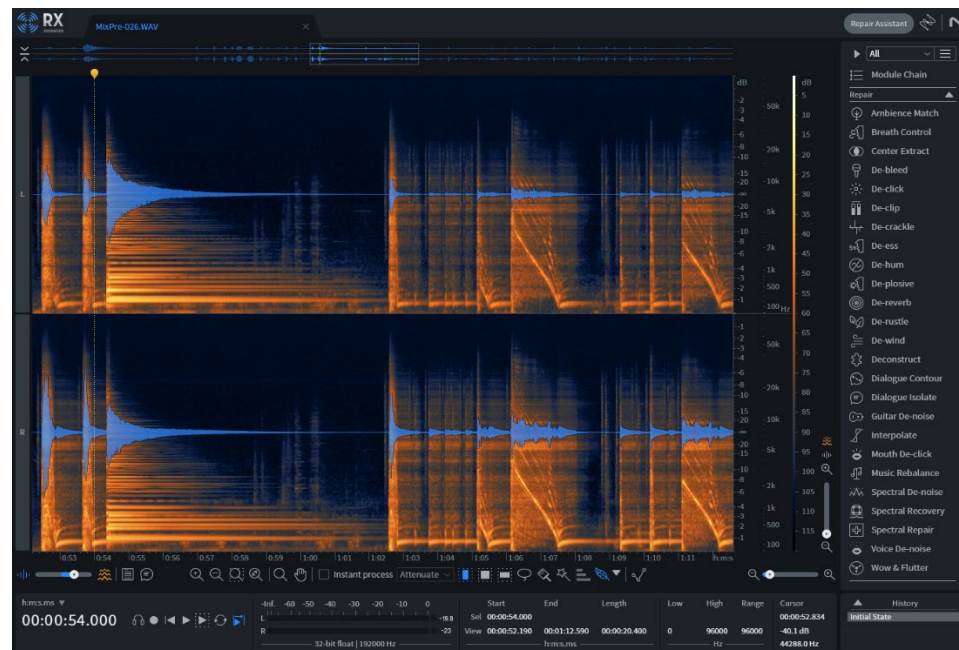


Figure 1. Contemporary audio analysis program displaying a spectrogram representing plucked notes on a harpsichord and the electric motor revving of a handheld vacuum.

Briefly, I will describe the method I used to retrieve the resonances from my grandfather's home. Using the spectrogram above, one can separate and analyze the exact frequencies that occur

²² Dennehy, Donnacha. "Owning Overtones: Grá Agus Bás and Spectral Traditions." *Tempo (London)* 69, no. 271 (2015): 24-35. <https://dx.doi.org/10.1017/S0040298214000904>; Rozalie Hirs, "On Tristan Murail's "Le lac": Contemporary compositional techniques and OpenMusic" (ProQuest Dissertations & Theses, 2007).

within a recording. Advancements in measurement devices and the invention of the Fast Fourier Transform, one of the most significant discoveries of the 20th century, gave composers at IRCAM an unprecedented ability to derive spectral sounds. A Fourier transform enables the user to obtain the original simple sine wave functions that comprise any complex function, such as sound waves. By this method, you can divide any sound into its constituent components and preserve the qualities of real spaces. The technology, now known as convolution reverb,²³ can be used to collect a space's unique sound qualities and revive them for digital use. It is commonly used when a realistic space is needed for isolated recordings. As previously mentioned, these technologies and variations of spectral retrieval are common in Spectral music. Just Intonations composers, including Ben Johnston, tend to focus on pure mathematical relationships rather than retrieving spectra from physical recordings.

Eventually, I settled on three rooms: the room where we stored his things while we rented out the home, the porch, and the spot in the living room where he used to sit, with the sound source being where his ashes rest. The final choices were prioritized based on the amount of time I spent hearing his voice in each room throughout my life.

²³ <https://lpsa.swarthmore.edu/Convolution/sbh.html> Details on the math involved in convolution



Figure 2. Room of Artifacts



Figure 3. The Porch



Figure 4. His Ashes

2.0 *In The Shape of a Home: Analytical Overview*

The vocal sextet (Soprano, Mezzo, Countertenor, Tenor, Baritone, Bass) is approximately eight and a half minutes in length, divided up into six major sections: Room of **Artifacts**, **The Mystery**, Sitting on the **Porch**, **Mystery II**, Ponderous (**Ashes**), and **The Mystery: Revealed**. Within these sections, there are a variety of textures and styles presented, each with varying conceptual adherence to the ideas of Partch's Corporeality and Abstraction. This is analyzed in multiple ways, such as each section's use of pitch on a spectrum of physical derivation and tonal constructs,²⁴ how they handle text and vocal ensemble, how the large-scale form utilizes mathematical relations, and correspondence with bodily senses. Below is a table with additional subsections laid out with where each leans on the Corporeal/Abstract spectrum.

²⁴ As physically derived sounds (particularly from a single source) are often related harmonically, tonal functions can always appear without the composer's intervention.

Table 1. Navigation Table

Ms. #s	Sect. Name / MM:SS	# of Ms.	Quality
Ms.1-5	Intro / 00:14	5	Corporeal
Ms. 6-25	Artifacts / 01:16	19	Corporeal
Ms. 26-32	Speech and Burning /00:28	7	Corporeal
Ms. 33-44	Mystery I / 00:50	11	Corporeal
Ms. 70-101	Porch Tense / 00:50	25	Abstract
Ms. 102-116	Porch Calm / 01:12	31	Abstract
Ms. 102-116	Porch Midnight / 00:32	14	Abstract
Ms. 117-130	Mystery II / 00:53	12	Corporeal
Ms. 131-147	Ashes (Ponderous) / 01:07	16	Corporeal
Ms. 147-160	Mystery III / 01:02	13	Both

2.1 Pitch and Tonal Constructs

The resulting resonances were then collated and matched to closely related just intonation ratios. This was done not only to clarify tonal relationships but to simplify the notation, as even a difference of a single cent can drastically modify the accidentals. This was not done for the section marked as *The Mystery*, as the nature of the writing allowed for additional complexity in their pitch relations; thus, it contains irrational accidental spellings. Fortunately, reality is more variable than fractions, and the spectrograms often had slight variations in pitch, so simplification was not a destructive act, erasing the “true” pitch of the rooms. With the ratios in hand, I chose to use the

HEJI (Extended Helmholtz-Ellis Just Intonation Pitch Notation)²⁵ notation system to realize the tuning, as it has become more typical in contemporary microtonal performance, despite my own extensive familiarity with the Johnston system.²⁶

Table 2. Room Values in Cents

Traditional Note Names	Artifacts	Porch	Ashes
C		-25	-72
D□	0	+43	
E□	-24		
F			-52
G□	+42		
A□	+18	-18	
A		-35	-23
B□	-24 and -18	-5	
B			-10

²⁵ <https://masa.plainsound.org/pdfs/notation.pdf> - Marc Sabat and Wolfgang von Schweinitz 2004 – I have always aimed to fulfill the needs of the ensembles performing the work, and HEJI is the preferred notation for Ekmeles, who performed in the recording.

²⁶ Gann, *The arithmetic of listening : tuning theory and history for the impractical musician.*; Partch used tablature for his music, not any accidental focused system like Johnston Notation or HEJI.

Initially, this is what I gleaned from the rooms alone using Melodyne.²⁷ Melodyne is an audio software designed to retune vocals and also provides quick analyses of spectra, allowing for the derivation of the tuning of standing waves via polyphonic analysis. I built the collective scale (with all rooms in a single scale) using D*f as the root, as it was in the first room (*Artifacts*) of the piece to be written, and it was retrieved as a 0-cent difference from equal temperament. Symbolically, the room (*Artifacts*) represented a storage space of various objects and carried emotional weight, acting as a source of both tonal and emotional gravity. Hence, it seemed appropriate to continue using it as such for the remaining notes. It is necessary to select a single root, even if there are other roots within the entire collection, because, in HEJI, all accidentals are determined by their relation to the root. If A = 440 were used, the accidentals would lack a coherent tonal relationship, as the least complex ratios would always be in reference to A = 440 and not the tonal center I used within some of the more tonal sections. Regretfully, I think this could have been better planned, as I don't always use the *fD as the scale's root, and there might be a simpler notational solution. Regardless, if a root with multiple tonal relationships is chosen, the accidentals will have more significance in showing connections between pitches.

Here is a complete chart of pitches within the work.

²⁷ <https://www.celemony.com/en/melodyne/what-is-melodyne> - Melodyne is closed-source, so there is not much available on how it precisely works. Most often used for retuning vocals, it can also detect polyphonic pitch content. Dennehy discusses Melodyne's use in his spectral works in his cited paper.

Table 3. Full HEJI Notation Collection from in *In the Shape of a Home*

Artifacts Ms.1-33		Porch Ms. 70-117		Ashes Ms.131-147		Chorale Notes	
Note	Ratio	Note	Ratio	Note	Ratio	Note	Ratio
*fD	1/1	*u19*o13D	39/38	*u13*fo5E	15/13	*no5F	5/4
		*no25D	25/24				
*o7*fF	7/6	*o11*u7*fE	31/28	*o11*u7*fA	11/7	*o31*fG	31/24
*o11*fG	11/8	*u19*o13*so5F	195/152	*no5C	15/16	*nG	729/512
		*so25F	675/512			*o7*fu5C	567/320
*fA	3/2	*u19*o13G	26/19	*Fu25D	48/25	*fo5A	40/27
*u13*fo5E	15/13	*o11*u7*no5G	165/112			Ab ²⁸	97/64
*no5C	15/16	*so5G	98415/65536			*o7*FB	14/9
*no25C	50/27	*o11*u7*fA	11/7			*o47*Fu5B	47/30
		*u19*o13A	117/76			*o7*Fu5B	63/40
		*fo5B	5/3			*o31*FA	992/729
		*so25A	54675/32768				
		*o19*u17*FC	57/34			*f*Fu25A	8192/6075
		*o11*u7*fB	99/56			*o7*Fu5C	224/135
		*no5C	15/16			*u23*fA	36/23
		*o11*u7*no5C	55/56			*u13*Fo5E	10240/9477

²⁸ There is no HEJI symbol to realize this ratio, a substitute was used in the score along with cent deviations.

As seen here, there are many more notes than the initial spectral derivations shown in the first chart. I created additional relations between the original notes, disrupting the Corporeal intention, creating notes disconnected from physical space. Johnston's work in just intonation composition provided a framework to perform tonal modulations in an extended just intonation system. It is surprisingly simple despite the appearance of frighteningly large ratios such as $54675/32768$, these ratios are disguised distant relations. *so25F and *so25A are in an $81/64$ relation, which is the same as the relationship between *fD and *FB, or, when in inversion with F, what is known as a Pythagorean major third. The reason such large ratios appear is due to the *fD maintaining its status as the $1/1$, or basis of the scale. When working with Helmholtz-Ellis notation, one can understand the differing symbols as separate key signatures, greatly simplifying their comprehension. When a note shares a symbol but is not an exact match, it can act similarly to a pivot in more traditional tonal music. This is how performers can facilitate the performance of such works without using electronic assistance, as they merely read the notes in their simplest relation. Even when using multiple harmonics, like with *u19*o13A they can be understood as the key of *u19*o13 and all notes that share those symbols are in Pythagorean tuning with one another. *o19*u17*FC is a more exotic note, which would be difficult for a musician to pick out without additional practice, as there aren't any shared notes. The Chorales utilize these exotic notes less as they resolve to more coherent scales. It is essential to note that these exotic notes are barely related, and there would be no natural way to arrive at them using ratios, as Johnston and Partch had done, making their use decidedly spectral in both their origin from room reverberations and their aesthetic.

The scales used in *Artifact* and *Ashes* have no shared symbols between their notes. This once again highlights the physical analog of the rooms and their differences, between the Corporeal and the Abstract, allowing for the spectral techniques to have an impact on the structure and function of the piece. Besides the *Porch*, which included many additions to emphasize the Abstract nature I aimed to create. There are only two exceptions in *Artifacts*, the two C notes, but they are not alluding to a new artificial tonal relationship like that within the *Porch*. The notes were created partially by my misattribution of parts of the spectrogram and afterwards used to create a beating effect. The harmonic rhythm of the work is only truly moving in the *Porch* section due to the nature of the scales as outlined beforehand. And with great frequency until the calm section, changing each bar until a more consonant ratio of chords (those using smaller ratios $3/2$ vs $728/512$) are established. This connects back to the Corporeality of Partch, wherein the first and last rooms are more grounded in the overtones derived from the resonances of my grandfather's voice when projected into the rooms. By using tonality in this way, with reservation before the release in the *Porch* section, I created a throughline to the text as it began to depart from material concerns, instead focusing on the emotional and spiritual aspects of my relationship with my grandfather.

2.2 Text Setting: Corporeal Tether

In Partch's Monophonic ideal, the rhythm of spoken words is one of the key parts of Corporeal music. Additionally, he believes the harmonic content of the voice and language forms the pitch structures of the music, and alignment with those elements forms an embodied experience

for the performer and listener.²⁹ I adhered to my own way of dramatic speaking and singing when setting this original text, except for the *Porch* section, which leans more towards the style of Ben Johnston and emulates a European Lied. Different aural textures are competing against each other and are realized through the text setting. Within the first movement, *Artifacts*, there are three different textures within the first 20 measures of the piece.

In ms. 4-6, it quickly transitions out of a slightly offset text grouping on a single pitch to clear speech and then to ensemble singing.

This culminates in a dizzying cloud of incomprehensible text, in measures 10-12:

The image shows a musical score for measures 4-6 of a piece titled "Room of Artifacts". The score is written for six parts: Soprano (S.), Mezzo-Soprano (M-S.), Contralto (Ct.), Tenor (T.), Baritone (Bar.), and Bass (B.). The key signature is B-flat major (two flats) and the time signature is 4/4. The score includes various dynamic markings such as *p*, *f*, *pp*, *mf*, *mp*, *sub. f*, *ff*, and *sub. p*. There are also performance instructions like "teeth closed (nasal) after the initial 16th" and "end - ings". The lyrics are: "rooms full", "rooms full", "end - ings", "and end - ings in a room full of", "end - ings", and "end - ings".

Figure 5. Ms 4-6

²⁹ For a scientific view of this process, refer to the paper cited here. Whether Partch's theories are correct in his attribution of harmonic spectra to such aspects is debatable. Nonetheless, the language and vocal component of music have salient impacts on bodily experience. Molnar-Szakacs, Istvan, and Katie Overy. "Music and Mirror Neurons: From Motion to 'E'motion." *Social cognitive and affective neuroscience* 1, no. 3 (2006): 235-41. <https://doi.org/10.1093/scan/nsl029>.

Figure 6 shows a musical score for measures 10-13. The score is written for six parts: Soprano (S.), Mezzo-Soprano (M-S.), Contralto (Ct.), Tenor (T.), Baritone (Bar.), and Bass (B.). The lyrics are as follows:

- S.** - ics com - put - ers and C - Ds of bot - tles full full_ full
- M-S.** Her fuzz - y robe on top of his clothes left be - hind just things left_
- Ct.** of old pho - to - graphs and tools and buck - ets of paint
- T.** left be - hind left be - hind left be - hind left be - hind locked a - way
- Bar.** ar - ti - facts and piles of and piles of pho - to - graphs ar - ti - facts
- B.** - jects and piles of tools on top of bot - tles left be - hind locked

The score includes various dynamic markings: *p* (piano), *f* (forte), *cresc.* (crescendo), *pp* (pianissimo), *mf* (mezzo-forte), and *mf* (mezzo-forte). The music is in a key with two flats (B-flat and E-flat) and a 4/4 time signature.

Figure 6. Ms. 10-13

Only the words “bottles” and “locked” line up between singers, then quickly returning to groups of three singers with slightly offset text. Within this microcosm of just 12 measures, the musical textures and text-setting techniques of the entire piece are displayed. I understand these collections of textures as representatives of the gradient of Abstraction to Corporeality, with those focusing on one voice or text spoken together as Corporeal, while a departure to more melismatic and syntactically separated text organization and rhythm is Abstract.

Within the three rooms —*Artifacts*, *Porch*, and *Ashes*, and the Chorales —we see these aural and textual textures: **Monolithic**, one unified voice, like in the first few measures of the piece, in the Chorales, and mid-way through *Artifacts*; **Dipartite** textures, where two groups are

formed and singing and or speaking separately; and **Tripartite**³⁰ textures with three groupings. A **Chaos** texture of textual meaning obscured through overactivity, which occasionally slides into a **Lieder** texture, wherein one voice rises above the others, who then become an unintelligible backdrop. We see all text textures occur within the *Artifacts* room, reflecting the space it is sourced from – full of objects–both Corporeal burdens and yet full of memories. This work was composed linearly, from start to finish. Seeing all the textures that occurred within the first section and were then explored throughout the work was an impactful architectural element I unconsciously benefited from.

Table 4. Textural Map for *In the Shape of a Home*

Ms.1-6	7-12	13-20	Ms.20-21/Ms.22-25	Ms.26-31
Lieder	Chaos	Dipartite	Monolithic/Dipartite	Tripartite

The Corporeal and Abstract dichotomy between these textures is as such, Monolithic despite adhering in a manner to Partch’s Monophonic concept. Partch felt that the act of many voices attempting to convey meaning weakens its grounding in the Corporeal.³¹ As such, the Chaos, Leider, and Tripartite textures lie more in Corporeality. The Tripartite texture with its narrator role strongly connects with Corporeality. The Lieder’s texture, while Corporeal, is set with abstract decoration, despite its single voice, due to the melismatic tonal figures in an attempt to marry the two together for the *Porch*, which occurs in the middle of the work.

³⁰ The Tripartite texture’s third division is represented by an oration, which occurs in both *Artifacts* and *Ashes*

³¹ “The chorus will cease to be ridiculous only when its sociological function is transformed or simplified: when it sings in meaningless syllables or short reiterated phrases, or interjects comments in one or two-syllable words, and abandons the effort to convey one message by the words of many.” Partch, *Genesis of a music*. 46.

Tonally, the *Mysteries* contrast from the other sections, due to their immense difference in number of pitches and their transformation from physically derived pitches to tonality. In just intonation terms, these notes are exotic, and unrelated in tonal keys. This is a result of the emphasis within these sections through a full spectrum of pitches. By the end, they clarify towards a standard tonality, shifting to a traditional justly tuned major key. Poetically, this represents the spiritual nature of memory and life's transformation towards the Abstract through death. Only through death is the complexity of the world washed away, and the Apollonian instinct is validated. Because the piece is about death and memory, it allows for these occasional enemies, Apollo and Dionysus, to collude more efficiently. To the religious point of it all, the *Mystery Part II* concludes with a quasi-plagal function, due to the ambiguity of the root, between $*o_{11}u_7^fB$ and $*o_{11}u_7^fA$. This ambiguity is further exacerbated due to the relationship between $*o_{11}u_7^fA$ (11/7) and $*u_{13}f_{5E}$ (15/13), which is between an augmented fourth and a perfect fourth. This delays the final *Mystery's* spiritual conclusion and the transition from the room tones to an Abstracted tonal scale that occurs.

126

S. [w'ɜ]

M-S. [n'əʊ] [w'ɜ]

Ct. [w'ɜ] [w'ɜ]

T. [w'ɜ] [w'ɜ]

Bar. [n'əʊ] [w'ɜ]

B. [w'ɜ]

Ponderous ♩ = 60

p

at last

non vib.

Dramatic Reading, Not speech like

f

At last your watch

non vib.

fp

non vib.

at

fp

non vib.

#bE

last

trbB / trbA

Figure 8. Ms. 127-131 – Quasi Plagal Function

2.3 Rhythm: Text and Tones

Within *In the Shape of a Home*, rhythm is closely related to the syllabic rhythms of the text. This is especially clear when there is an oration section. This tendency is abandoned in the *Porch* section. In this section, I was inspired to emulate more of Johnston's style in an effort to create a Lied-like experience of a vocal sextet. I sought to create a large polyrhythm that mimics the ratios of 7/4, a septimal 7th, and the 7th harmonic. This is also included in the pitches with notes often carrying the septimal mark. This was inspired by the methods of Johnston, who directly calls attention to such ratios using tuplets and time signatures. Specifically, a work by Johnston's

student, Toby Twining, was inspiring in the creation of this section: *Chrysalid Requiem*.³² Throughout his piece, Twining employs structures similar to those in my *Porch* section, just as Johnston did. The septimal is marked in the scale for the *Porch* by the *u7 or *o7 symbols directly in connection to the rhythmic structure.

Rarely outside of the *Porch* or Chorales do you see long stretched-out words, save for a few text-painting (ms.16-17) and the basses of the *Ashes* section. Otherwise, the text mostly adheres to my natural speech pattern, sometimes being performed or overperformed to my preference for the passages in the piece.



Figure 9. Ms 16-17

In *Artifacts*, the spoken section is more straightforward and has a simpler rhythm. (Ms.26)

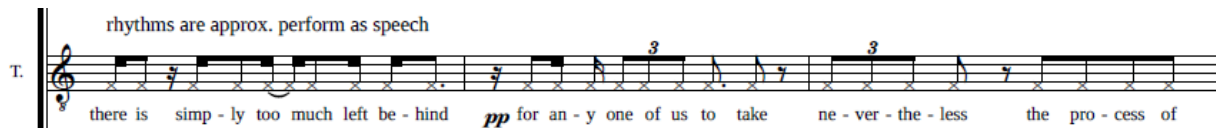


Figure 10. Ms.26

In contrast, in the *Ashes* section, I instead asked for a quality often associated with political speeches. My grandfather was a veteran, and I wanted an “official” sounding feel, similar to a military funeral. (Ms.141)

³² Timothy Ernest Johnson, "13 -limit extended just intonation in Ben Johnston's String Quartet #7 and Toby Twining's "Chrysalid Requiem", "Gradual /Tract"" (ProQuest Dissertations & Theses, 2008).



Figure 11. Partch's *Barstow* (ms.9)

Partch's own example offers a chance to clarify his priorities regarding pitch and speech. Despite there being a pitch basis for the speech here, the performance notably lacks what one may expect from this notation. It is more of a guide on where to place your speaking voice, with occasional speech-singing marked with the instruction "intone" rather than sing. The first bar of the voice part is marked "strict time, but intonationally free." As shown here, Partch does not adhere to any normal speaking intonation, but an exaggerated, dramatic one. Partch's focus on the Greeks and their theatrical practices may give more insight into what he means by speech patterns and their effect on rhythm and pitch. The Corporeal is what is connected to the wide range of human experiences, not a precise scientific measurement of speech rhythms. I do abandon any sense of purity when it feels appropriate, such as in the final *Mystery*. Artistic impact still prevails over any dogmatic reading of Partch's ideas, which, according to his own words, he encourages others to find in their own way.

2.4 Form and Proportions

The form is based on a predetermined narrative arc that unfolds through the home's various rooms. Textually, the focus shifts from material burdens to spiritual concerns, moving from leftover belongings to what my grandfather passed on to me through experience. Throughout the

work, this shift is reflected musically in variations in density, tonal treatment, and rhythmic changes in the interstitial material, known as *The Mystery*. Partch often had opinions on the function of choral groups, which is relevant to the content of *The Mystery*.

The chorus will cease to be ridiculous only when its sociological function is transformed or simplified: when it sings in meaningless syllables or short reiterated phrases, or interjects comments in one or two-syllable words, and abandons the effort to convey one message by the words of many.³³

The musical score for Ms.33 Mystery I consists of six staves, each representing a different vocal or instrumental part. The staves are labeled S, M-S, Ct, T, Bar, and B. Each staff contains a series of notes and rests, with phonetic syllables written below them. Above the notes, there are dynamic markings (f, mf) and numerical values in cents (c). The syllables are as follows:

- S:** [f'ɔ] [t'ea] [w'ɜ] [gɹæ] [aθ] [n'æθ] [d/θæ] [ia]
- M-S:** [I] [ia] [aθ] [d/θæ] [t'θ] [n'æθ] [I] [t'θ]
- Ct:** [aθ] [d/θæ] [t'θ] [w'ɜ] [I] [t'θ] [f'ɔ] [t'ea]
- T:** [ia] [w'ɜ] [aθ] [f'ɔ] [ia] [n'æθ] [w'ɜ] [gɹæ]
- Bar:** [t'θ] [f'ɔ] [I] [gɹæ] [w'ɜ] [n'æθ] [t'ea] [aθ]
- B:** [ia] [gɹæ] [t'ea] [t'θ] [d/θæ] [aθ] [w'ɜ] [f'ɔ]

Figure 12. Ms.33 Mystery I

In the effort to solidify (i.e., Corporealize) the piece, this mystery functions both as something Partch would both prefer and disapprove. The first Chorale (Ms.33) consists of

³³ Partch, *Genesis of a music*.46

“meaningless syllables”; the text in the second becomes slightly clearer but offset, and the final version reveals the text that we have been hearing as shadows all along. The piece concludes with a statement of gratitude for everything in existence. My grandfather often said that, despite the suffering present in the world, it is a place of pure amazement, and that simply being here to experience it is a blessing. To bring that sentiment forth, ms. 149 is the first time a word is pronounced in full within the *Mysteries*, revealing the inner simplicity of the original, complex, and Corporeal *Mystery*. If at this point, the contradictory nature of this dichotomy becomes more apparent, all the better. The purpose of such a soft intellectual framework, and its highly subjective nature, is its malleability and the creativity that can result from it. I feel it is beautiful to see Corporeality and Abstraction working in unison, despite Partch’s strong preference; perhaps they can work in unison to form a power greater than themselves.

The Mystery Pt. II ♩ = 60

The musical score is for "The Mystery Pt. II" in 4/4 time, with a tempo of 60 beats per minute. It features six staves, each representing a different vocal part: Soprano (S.), Mezzo-Soprano (M-S.), Contralto (Ct.), Tenor (T.), Baritone (Bar.), and Bass (B.). The lyrics are written below the staves, with phonetic transcriptions in brackets. The score includes dynamic markings such as *sub. p*, *mf*, *p*, and *f*. The lyrics are: [I] [I] [gɪæ] [t'ea] [t'σ] [d/σə].

Figure 13. Ms. 117-121

The Mystery: Revealed ♩ = 52

The musical score is for a piece titled "The Mystery: Revealed" with a tempo of ♩ = 52. It consists of six staves: Soprano (S), Mezzo-Soprano (M-S), Contralto (Ct), Tenor (T), Baritone (Bar), and Bass (B). The lyrics are: [I] with [gɹæ] [t'ea] gra - ti - ude. The score includes dynamic markings: *f* (forte), *mp* (mezzo-piano), and *p* (piano). There are also markings for *non vib.* (non vibrato) and *f* (forte) at the end of phrases. The notation includes various note values, rests, and slurs.

Figure 14. Ms. 148-152

The first Chorale lasts 11³⁴ measures of 4/4 time and the second 12.5 measures, which highlights the two prime numbers, and the final 13 measures represent a final achievement, with a slightly slower tempo and the last measure in 3/4. Doing this intuitively was intriguing, as Johnston deliberately reflected primes from just intonation ratios in his notated time and rhythm. To a degree, these purposeful relations are the defining feature of his style. The natural link between pitch and rhythm, often evidenced by the beating between two different tones, frequently results in prime relationships. Intentionally incorporating these relationships within larger structures can

³⁴ Functionally despite holding notes past the 11th bar, it could be understood as a fermata rather than an additional measure

enhance a work's perceived natural beauty as per Johnston's style. Even small coincidences like this one, especially when achieved unintentionally, elevate the aesthetic beyond a purely modernist aim and align more closely with ideas established early in the development of just intonation music, like the inherent connections between pitch and rhythm.³⁵ This also circles back to Partch's Corporeal focus. His work aims to evoke an imagined past and an optimistic future where art aligns more with lived experience rather than idealized forms. Though this is a point of contention if you are to consider the perceivability of such structures. This potentially negates any Corporeal impact from what could be physically derived forms. This is despite these structures existing naturally in the harmonic series and arising in some cultures' musical scales.

This instinctive adherence to prime numbers, as reflected in the lengths of the first two Chorales, occurred throughout the work. The first section of the work, from the beginning to the first mystery, is 31 measures long. Then Porch, from Ms. 45-116, is 71 measures long. While the final section departs from this, being only 16 measures long, when combined with the final mystery, it becomes 29, another prime number.

Double-checking these relationships in time, rather than measures, reveals the results as shown above. When determining proportions via measures, the piece appears as such on the next page.

³⁵ Cowell, H. (1930). New Musical Resources. New York, A.A. Knopf.

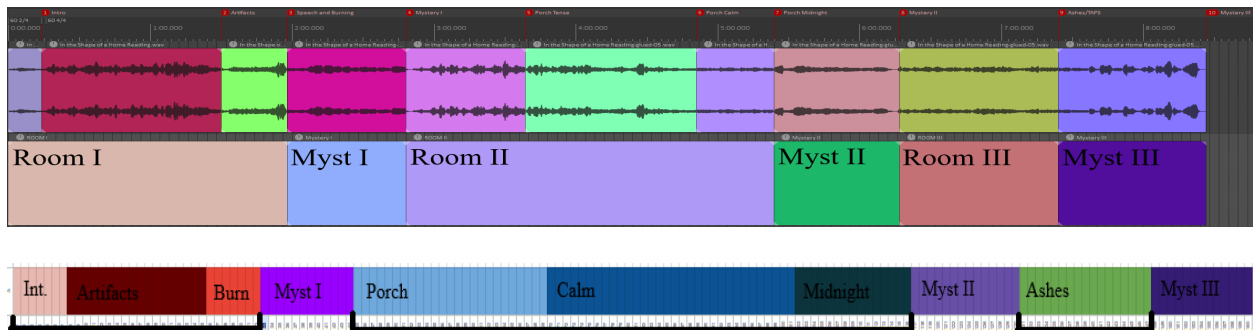


Figure 15. Visual Representations of Divisions within *In the Shape of a Home* in Time and Measures

Each black outline shows the entire room, with its subsections laid out. As we see, there is a rule of threes within the piece, with each section's larger form breaking into three subsections and the three Chorales. However, the final room doesn't follow suit, as it functions more as a coda than a full section.

Regarding tempo, the work begins at 60 BPM, chosen for its ease of performance and the body's natural sense of rhythm; often, a resting heartbeat sits around this tempo. The *Porch* section speeds up to 100 BPM to drive the piece forward toward its climax, with a slight relaxation to emphasize the text, "You made it seem so easy.", in the middle section at ms. 70. The second mystery at ms. 117 then restores the original tempo, which is maintained within the final room *Ashes*, save for a short expansion and contraction in ms. 145. The final mystery then mirrors the earlier moment of easing from ms. 70, closing out the work and resolving the tension from the delayed resolution at the end of the *Midnight* section. The subtle idea of connecting tempo to our own experience of heart rate has some validity as an example of embodiment, an aspect important to Partch. For more guidance on the divisions of each section, refer to the table below.

Table 5. Repeated Navigation Table -

Ms. #s	Sect. Name / MM:SS	# of Ms.	Quality
Ms. 1-5	Intro / 00:14	5	Corporeal
Ms. 6-25	Artifacts / 01:16	19	Corporeal
Ms. 26-32	Speech and Burning / 00:28	7	Corporeal
Ms. 33-44	Mystery I / 00:50	11	Corporeal
Ms. 44-70	Porch Tense / 00:50	25	Abstract
Ms. 70-101	Porch Calm / 01:12	31	Abstract
Ms. 102-116	Porch Midnight / 00:32	14	Abstract
Ms. 117-130	Mystery II / 00:53	12	Corporeal
Ms. 131-147	Ashes / 01:07	16	Corporeal
Ms. 147-160	Mystery III / 01:02	13	Both

I feel that the transition into the second mystery is the most dramatic part of the work. When it concludes, there is an elemental just intonation chord that resembles that of Western tonal chords. This prepares the listener for the final tonal resolution in the last Chorale.

The goal of this piece was to mythologize my grandfather, to extend his life past the material world. While it may seem that this conflicts with the ideas of Partch, Johnston spoke of his goals: “I would not say that all composers are mythmakers, but it is a venerable tradition. In that sense, Partch has many forebears. He wanted to express a depth-image of the human condition,

of the world, of his own experience.”³⁶ And to that end, I saw a kinship with Partch. The piece is not about my grandfather’s death but of my personal experience of it. I felt that distinction caused a lot of tension initially when composing the work before realizing that it was the only honest choice I could make.

³⁶ Johnston and Gilmore, *Maximum Clarity and Other Writings on Music*. 223

3.0 Conclusion

Partch's ideas of Corporeality and Abstraction proved an exciting foundation in understanding my own methods of composition, and seemingly neglected aspect of the American just intonation practice. As I examined his writings in preparation for my master's thesis, I was struck by the similarities and philosophical alignment with my own concerns. My recent work has focused on the spoken word, and it was the focus of two of my percussion ensemble works: *Executive Dysfunction* and *Ouroboros*.³⁷ Another earlier work, *Ideal:Reality*, was also an investigation into the disconnect between the Abstract and Corporeal experiences of music, intended as a gentle critique of the preconceived, prime-numbered structures of just intonation music and their abstract mathematical origins.³⁸ I had been walking along a path that others had walked, and without knowing, I was inscribing their theories in my own music. Partch's status as an outsider coming both from his lived experience as a gay man and itinerant worker, is an additional source of resonance for myself and my own outsider experiences. For some, just intonation is a pursuit of truth, resurrection of tonality, of mathematical precision, and proof of their exacting intention. Partch's Corporeality holds more than this, as the origin point for much of just intonation composition. Chiefly, the search for self-determination and place in history when placed in a world that cannot accommodate you. Combining Partch's and Johnston's techniques, with the assistance of Spectralist methodologies, has proven fruitful for balancing these many facets. Due

³⁷ Personally, I feel that *Ouroboros* is most in line with Partch's ideals; all of the text is intelligible and aligned around my own vocal performance set to a percussion ensemble. Partch's work supports a preference for solo vocal performance over ensembles and self-made percussion over Western instruments.

³⁸ As part of research for this piece, I played justly tuned intervals and slowed them down greatly. Without inhuman accuracy, I was unable to produce the ratio-based polyrhythms that are often used architecturally by Johnston, but instead heard exciting linear rhythms.

to their historical context or personal preferences, Partch and Johnston did not explore these technological angles. Reconciling these opposing forces through texture against tonal choices or vice versa, I attempted to create space for both the Corporeal and Abstract to exist. With the topic of the work to a great extent being death and memory, Abstract musical attributes held a particular role, as the path from my own experience to an external or generalized experience, from living memory to spiritual representation. This is an advantage of this method of composition and one I hope others can use in their own work. Holding awareness of where your work lies on this Corporeal spectrum allows additional control, giving way to new sources of reinforcement needed within a piece. Not everyone can abandon their influences, or desire to do so, but instead can attempt to reconcile their own experiences and consciously use them as compositional choices.

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