

THE VARIETIES OF MINIMALIST EXPERIENCE:
THE ROLES OF PSYCHOLOGICAL STATES IN THE RECEPTION OF AMERICAN
MINIMALISM DURING THE LONG SIXTIES

A DISSERTATION
SUBMITTED TO THE DEPARTMENT OF MUSIC
AND THE COMMITTEE ON GRADUATE STUDIES
OF STANFORD UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

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JUNE 2020

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Abstract

This dissertation examines the reception of compositions by Pauline Oliveros, Philip Glass, Steve Reich, Terry Riley, and La Monte Young in the long Sixties, uncovering how concepts of American whiteness and American Cold War Orientalism intersected with low-level psychological states to shape listeners' aesthetic experiences and judgements. It builds on the methods of music studies scholars Judith Becker and Zachary Wallmark, findings from experimental psychology literature and the author's own experiments.

Chapter 1 introduces the existing scholarship on minimalism's reception and offers a history of incorporating experimental psychology findings into music studies scholarship. Chapter 2 deploys Dr. Jeanne Tsai's Affect Valuation Theory to reframe the rupture in the American classical music subculture caused by minimalism as a disagreement about ideal affect in music aesthetics which hinged on the concept of white Westerners as ideally rational and Orientalized associations of low-arousal, positively-valenced states. Results from an electroencephalography (EEG) experiment guide speculation about the neural basis for contrasting modes of listening stemming from music aesthetic differences in Interlude A. Chapter 3 traces the use of brainwashing rhetoric in music critics' descriptions of minimalism's effects with works by Glass, Reich, Riley, and Young as examples. In Interlude B, I introduce an EEG study revolving around Reich's *Piano Phase* that demonstrates shared patterns of engagement between participants. Chapter 4 is a microhistory of Oliveros's 1973 Meditation Project, detailing how participants saw her *Sonic Meditations* and cultural practices from Orientalized and primitivized groups as an opportunity to heal themselves from white Western technocracy. Data that Oliveros collected during the project are analyzed in Interlude C. Chapter 5 analyses how alpha waves (8-12 Hz neural oscillations), believed by Meditation Project participants to index meditative states, functioned as an Orientalized psychic resource for participants. Chapter 6 concludes with contemporary lessons arising from the research and the limits of such mixed-methods work.

By incorporating methods and literature from music studies and experimental psychology, this dissertation analyses interconnected cultural, musical, and psychological forces that contributed to the reception of the music and simultaneously offers a mutually-beneficial research paradigm between these disciplines.

Acknowledgements

“I want to begin with a broad assertion. One I have no way of proving. I believe that most of human history has gone unrecorded. By which I mean, most of history is private. Lived by individuals, passed down at most as anecdotes, memories, secrets, and lore.”

—Tracy K. Smith¹

This document is founded on countless unrecorded moments and interactions. These acknowledgements are an attempt to thank the many people who have made the project possible.

My dissertation committee has been a source of inspiration throughout the process. Heather Hadlock has been, since my first year at Stanford, an open-minded mentor, far-seeing question-asker, and unparalleled editor. Takako Fujioka generously gave many hours of her time to guide experiments, edit manuscripts, and offer advice. Her commitment to students and love of the experimental process were a consistent source of motivation. At every crucial step, Charles Kronengold offered invaluable reading and listening recommendations and insights from his detailed knowledge of music history and composition. Anna Schultz’s thoughtful feedback consistently deepened my conceptualization of the project. There are only a handful of institutions where I could have pursued this project and an even smaller set of mentors who could have worked together and contributed so selflessly. I cannot imagine a better committee.

Professors from beyond the music department went above and beyond to welcome students from other disciplines. Jeanne Tsai’s seminar on culture, emotion, and social judgement reoriented my understanding of minimalism’s reception. Eureka moments from Fred Turner’s seminar on media technology theory and Vaughn Rasberry’s seminar on concepts of modernity became entire chapters of this project. Noah Goodman’s seminar on the science of meditation clarified my approach to the second half of the dissertation.

Within the music department, Thomas Schultz has offered advice on performing many of the compositions in this dissertation. He created an environment where my weekly lessons the past six years were also opportunities to discuss new music, spar about aesthetics, and build a friendship.

The past year, I have had the great pleasure of working as a fellow at the Stanford Humanities Center. Having my own office space allowed me to focus on my scholarship in a way I had only dreamt of and daily lunches with scholars from across campus and from academic institutions far and wide resulted in new friendships as well as insights about academic life that helped me imagine possible futures. Jeff Nagy kindly recommended readings and was always willing to share archival findings. My office neighbor Mei Li Inouye celebrated and commiserated with me at all the big moments this year.

¹ Tracy K. Smith, “183: A Room at Last,” accessed May 6, 2020, <https://www.slowdownshow.org/episode/2019/08/07/183-a-room-at-last>.

Two research labs at the Center for Computer Research in Music and Acoustics (CCRMA) were critical for this work: Takako Fujioka's NeuroMusic lab and Jonathan Berger's Music Engagement Research Initiative (MERI). Experiments are always a collaborative endeavor and I could not have completed mine without such thoroughly supportive lab members. Early in my time at Stanford, Blair Kaneshiro of the MERI lab offered a guiding and helping hand. Assistance from Duc Nguyen and Nick Gang also made the inter-subject correlation project possible.² Madeline Huberth and Emily Graber of the NeuroMusic lab were also important guides who helped at so many stages of the project. It has also been a delight to collaborate with Barbara Nerness. In addition to her assistance with the final realization of the event-related potential experiment, she has spearheaded the digitization and analysis of alpha wave activity from Pauline Oliveros's Meditation Project.³

Librarians from Stanford, the University of California, San Diego (UCSD), Mills College, and the Walker Art Center have been spectacularly kind and helpful. At Stanford, a special thanks go to staff in Special Collections and on the interlibrary borrowing team who unquestioningly tracked down an ungodly number of midcentury texts. The Special Collections & Archives team at UCSD made my visits a highlight of my research. In particular, analyzing data that Oliveros collected in the early 1970s would have gone nowhere without Heather Smedberg and Lynda Claassen. Janice Braun at Mills College and Jill Vuchetich at the Walker Art Center connected me with recordings that rekindled the voices of Meditation Project participants.

I was privileged to attend the first Deep Listening Retreat after Oliveros's passing. A thank you to Ione, Heloise Gold, and Jennifer Wilsey for their leadership and an introduction to practices that now span decades.

A host of fellow music scholars have been willing to share their thoughts and writing. Kerry O'Brien, Ted Gordon, and John Kapusta shaped my understanding of many of the composers whose works are central to this project. Since my first MinSoc conference, Alice Cotter has offered encouragement and support. I will also never forget the conversation with Zachary Wallmark at SEM that gave me the courage to pursue mixed-methods work in a music studies context.

Geographically closer to home, many of my music studies colleagues at Stanford the last six years have become like family to me. The friendship, scholarly discussions, and honest feedback of Nate, Victoria, Kira, Sarah, Ioanida, Tyler, Kara, Joe, Kirstin, Kelly, Ben, Mike, David, Gabriel, Michiko, Elea, Hanyu, Christina, Lorenzo, Munir, Max, and Jeremiah surpassed

² See Interlude B for an overview.

³ See Interludes A and C, also Tysen Dauer, Barbara Nerness, and Takako Fujioka, "Predictability of Higher-Order Temporal Structure of Musical Stimuli Is Associated with Auditory Evoked Response," *International Journal of Psychophysiology* 153 (2020): 53–64, <https://doi.org/10.1016/j.ijpsycho.2020.04.002>.

my dreams of what graduate school might be like. I need to add two more people to this list. Jonathan recently reminded me that we started and ended this academic journal synchronously: meeting each other in Allie Kieffer's class, "Music and the Postcolonial," on the first week of classes in 2014 and defending our dissertations on the same day this spring. Jonathan and his intellect, creativity, humor, and, most of all, friendship, have been constant and inspirational at every step along the way. For the past two years, Alysse has been a steadfast writing buddy, crushing *pomorodo* after *pomodoro* with me on weekday mornings.⁴ She has graciously read zero drafts of nearly every chapter in this dissertation (the sign of a true friend), providing feedback and enthusiastic support at every step. Her friendship, generous sharing, and intellectual and comedic brilliance have become a rock of support.

This dissertation, my time at Stanford, neither would have happened without Erik Heath. His unwavering encouragement gave me the confidence to apply to Stanford and he has been there at every high and low to celebrate or talk it out. It seems to me that Tracy K. Smith is right about most of history being unrecorded and private. In addition to documenting glimpses of our human stories in "anecdotes, memories, secrets, and lore," I think we also catch those glimpses in love, in the vast, detailed, interwoven moments of lives lived together. Sharing that with Erik is a wonder and my greatest joy.

⁴ Francesco Cirillo, "The Pomodoro Technique," 2006, <http://www.baomee.info/pdf/technique/1.pdf>.

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Chapter 1

Introduction

It felt as though every cell in my body was flipped on its side and vibrating in unison. If my memory serves me correctly, I was sitting in a front-row balcony seat which allowed my gaze to cross the audience in the orchestra seating area and fixate on the stage of the Ted Mann Concert Hall at the University of Minnesota.¹ A small group of string players from the Saint Paul Chamber Orchestra performed John Adams's *Shaker Loops*, somehow with equal parts calm and hyper-precise activity. I think the feeling of vibrating cells had been going on for some time before my conscious attention turned to it. "I've never experienced this before," I remember thinking. It felt something like tunnel-vision but for each one of the senses and it seemed as if the shuddering string sounds were the only thing in the tunnel. I know that the experience could not have lasted very long but in the moment it felt, wonderfully, like hours on end. The sensation receded and the music continued. I was still very much engaged but felt for the remainder of the piece, and for the bus ride back home, as if I was in the pleasant, even blissful wake of that moment.

My experience had both identifiable physiological and memorable, conscious elements, in dynamic play with each other and enmeshed in the details of my life at that time. The memory is focused on the context and the effect of the performance, the sorts of details Carolyn Abbate described as drastic.² "Music in performance affects us physically, but...its physical action can engender spiritual conditions, grace, humility, reticence."³ Abbate contrasted such a focus on responses to live events with the ways this is obfuscated by both musical hermeneutics (interpreting the meaning of a work) and musical formalism (defined as music theory and analysis).⁴ "Hermeneutics argues for music's efficacy in a particular way, seeing musical configurations either as sonic media for embedded signification or, more subtly, as points of departure wherein cultural or poetic associations are released in listeners during their contemplation of the work, upending their sense of self in the process."⁵ Both approaches (hermeneutics and formalism) treat the music as a gnostic or mystical source of knowledge about either the composer or the culture and society surrounding the music. Abbate argued that treating musical works as vessels of knowledge in this way (treating musical works as ways to "induce the cryptographic sublime") ignores the vitality of musical performance and its effects, covering it up

¹ I was unable to find the archives from the Saint Paul Chamber Orchestra (SPCO) for the year this concert happened: 2010-2011. A later recording by the SPCO can be found here: <https://content.thespco.org/music/concert-library/composition/shaker-loops-john-adams>.

² Carolyn Abbate, "Music—Drastic or Gnostic?," *Critical Inquiry* 30, no. 3 (2004): 505–36.

³ Abbate, "Music," 529.

⁴ Abbate, 530.

⁵ Abbate, 521.

with more respectable-sounding academic language drawn from meaning culture (as opposed to presence culture, both terms drawn from Hans Ulrich Gumbrecht).⁶

Forty years prior to Abbate's article, Susan Sontag's "Against Interpretation" struck a related chord of concern about the dreary output of interpretation-based scholarship and journalism and, accordingly, what art critics should be doing instead. "Interpretation takes the sensory experience of the work of art for granted, and proceeds from there. This cannot be taken for granted, now" she wrote in 1964.⁷ "In place of a hermeneutics we need an erotics of art."⁸ One counterintuitive path towards this erotics of art, Sontag proposed, is more emphasis on form, or, alternatively, descriptions of surface that emphasize sensation. In Sontag's argument, these paths would effectively deemphasize interpretation and content and help those engaging with art, "recover our senses. We must learn to *see* more, to *hear* more, to *feel* more."⁹

The sorts of aesthetic experiences at the center of both Sontag and Abbate's texts are deeply meaningful to many, whether arising from interactions with music or other art forms. These experiences themselves even become the topic of art. Ming Di's poem, *A Room of Her Own*, offers up such an example: a drastic experience of music turned into poetry. An example that also lends itself to the kind of critical work Sontag advocated, an emphasis on sensation. Di's poem begins:

She never knew love made for such cold winters.

She hides in the room she painted for herself,
tuning, listening, as music spreads pain

⁶ Abbate, 531.

⁷ Susan Sontag, "Against Interpretation," in *Against Interpretation and Other Essays* (New York: Farrar, Straus and Giroux, 2013), 9.

⁸ Sontag, "Against," 10.

⁹ Sontag, "Against."

like spiderwebs down her legs.¹⁰

The physical, sensory effects of music are centered in the poem, but they are also tightly interwoven with the personal rather than cast as clinically objectified observation.

Emphasizing the drastic and sensory, however, not only leads to the literary sharing of experience evidenced in texts like Di's. It can lead to places Abbate and Sontag may not have desired (such as measuring physiological responses during aesthetic experiences) and that have a strangely comfortable fit within traditional conceptions of musicology.¹¹ My experience of the Adams piece, above, for example, can be well described by the concept of frisson, known more colloquially as chills. It involves "a pleasant tingling feeling associated with the flexing of hair follicles...a cold sensation...sometimes producing a shiver," as well as "dimpled skin." It can occur in waves lasting from "less than a second to more than ten seconds."¹² Frisson occurs in a variety of human experiential contexts but "music-induced frisson" in particular has a relatively robust psychological literature surrounding it.¹³ While such scholarship has uncovered musical features strongly associated with frisson, it has also demonstrated that not all individuals experience music-associated frisson and that individuals have relatively consistent frisson

¹⁰ The rest of the poem reads:

She walks from one corner to another,
the room grows bright with sunlight, or moon,
stabbing her with needles.
She paints a wall. Erases. Paints again.
Erases.
A wall grows like leaves emerging in winter.
She wants to paint a wall around the wall
to guard a memory, then
paint flowers and birds, mountains and oceans—a wave
swirls around like a wreath, circling up,
entangling her.

I see myself in that room, struggling. "Paint a window,"
I tell her, a window that leads to the sky.
Paint a sky.

Tracy Mumford, "121: A Room of Her Own," APM Podcasts, accessed May 14, 2019, <https://www.apmpodcasts.org/slowdown/2019/05/121-a-room-of-her-own/>

¹¹ Karol Berger, "Musicology According to Don Giovanni, or: Should We Get Drastic?," *Journal of Musicology* 22, no. 3 (2005): 490–501.

¹² David Huron and Elizabeth Margulis, "Musical Expectancy and Thrills," in *Handbook of Music and Emotion: Theory, Research, Applications*, ed. Patrik N. Juslin and John A. Sloboda (Oxford: Oxford University Press, 2010), 591. See pages 591–600 for more on potential causes, examples, physiological correlates, and theories of music-induced frisson.

¹³ In addition to the summaries in Huron and Margulis, see Valorie N. Salimpoor et al., "Anatomically Distinct Domaine Release during Anticipation and Experience of Peak Emotion to Music," *Nature Neuroscience* 14, no. 2 (2011): 257–64, <https://doi.org/10.1038/nn.2726>.

responses to specific parts of musical works.¹⁴ That is to say, even if you and I both experience music-associated frisson, the odds are good that we experience it with different pieces and/or sections of a piece.

Drastic human interactions with music could encompass the examination of other physiological responses as well, perhaps something like Dr. Finn Upham's "Solo Response Project" in which Upham (who uses the pronouns they/them) collected a variety of data in response to the same twenty-five compositions every day for almost a month.¹⁵ These physiological measures can glean detailed information about processes that we may not be aware of (I, for example, cannot reliably track and remember my heart rate over the course of a composition, let alone access things like neurophysiological responses). Even self-report measures may illuminate patterns that we were not conscious of. But all of these processes are happening in counterpoint with conscious responses, our internal running dialogue that may be attending to things like musical form or enjoying a personal memory associated with a composition. Part of the beauty of Upham's project is that they had access to both sides of that coin since Upham was both experimenter and participant. As a result, they were able to reflect on how the physiological and phenomenological data might relate.

Upham's ability to act as both researcher and participant in their project, the embeddedness of my frisson example, and the poetry of Di's text simultaneously point out the usefulness and incompleteness of examining *only* the measurable elements of our interactions with music.¹⁶ This is likely old news to many music scholars. Historically, these two domains of enquiry (what I am loosely calling the physiological and phenomenological) have had little to do with one another in music studies, and for good reason. What I am calling physiological investigation was housed in experimental psychology in the 1860s, then a relatively new field that sought to probe

¹⁴ Huron and Margulis, "Musical," 592. Huron and Margulis report the percentage of participants who experienced frisson under three different paradigms: 47% (Goldstein 1980), 55% (Grewe et al 2007), and 35% (Konečni 2007). Interestingly, 90% of music students in Goldstein's study reported experiencing music-associated frisson. Huron and Margulis reason that those who experience music-associated frisson may be more likely to study music (rather than a causal link where studying music leads to more experiences of frisson).

¹⁵ Finn Upham, "About," *The Solo Response Project* (blog), June 3, 2013, <https://soloresponseproject.com/about/>.

¹⁶ Sherry Ortner's approach to texts and social constructs is a useful starting point here: "Studies of the ways in which some set of 'texts'—media productions, literary creations, medical writings, religious discourses, and so on—'constructs' categories, identities, or subject positions, are incomplete and misleading unless they ask to what degree those texts successfully impose themselves on real people (and *which people*) in real time." Sherry B. Ortner, *Making Gender: The Politics and Erotics of Culture* (Boston: Beacon Press, 1996), 2. Rather than a one-way street from text to construct, I examine the *interactions* between texts and constructs using any evidence left in the wake of musical experiences (reviews, diaries, numerical data, etc.). Conceptualizing these interactions between text and construct as potentially cyclical draws on Hazel Rose Markus and Shinobu Kitayama, "Cultures and Selves: A Cycle of Mutual Constitution," *Perspectives on Psychological Science* 5, no. 4 (2010): 420–30, <https://doi.org/10.1177/1745691610375557>.

human psychology by conducting experiments rather than relying solely on interior reflection.¹⁷ These early experimental psychologists sought to understand human responses to sounds in highly controlled environments, using very simple stimuli.¹⁸ In the 1960s, scholars of Western classical music interested in conscious responses to music, what I'm calling phenomenology, worked in reception history and their primary materials were often limited to published concert reviews which focused on debates about musical style and form (hardly a window into most listeners' minds).¹⁹ Neither side, those interested in physiology and those interested in phenomenology, seemed to have much to offer the other. And, as conceived, they were right. Take an example like Wagner's operas. Experimental psychologists would have had little use for these works as stimuli, given their complexity. Reception historians would similarly have had a hard time connecting experimental psychology findings with the grand concerns of music critics. And so the two sets of concerns developed with little reference to one another.

Theoretical overlap started to emerge in the mid-twentieth century but it has really been with the recent attention given to neuroscience that practical implications from the psychological sciences became ripe for picking in music studies. Ethnomusicologist Judith Becker and musicologist Zackary Wallmark incorporated relevant literature from experimental psychology into their cultural analyses.²⁰ Becker sketched the overlap between cultural and neuroscientific understandings of music-assisted trance in 2004. Ten years later, Wallmark conducted his own experiments to more closely examine hypotheses stemming from the measurable implications of cultural analyses of timbre in free jazz and death metal. This approach is also not unique to music studies, with humanities-based scholars from fields like English, History, and Religious Studies collaborating on experiments or running their own.²¹ Some researchers have already deployed minimalist compositions as stimuli in their studies. Musicologist Keith Potter and his colleagues from computer science, Geraint Wiggins and Marcus Pearce used two early works by Philip Glass

¹⁷ Edwin Garrigues Boring, "General Survey of Experimental Psychology: Fechner to the Present," in *A History of Experimental Psychology*, 2nd ed. (New York: Appleton-Century-Crofts, 1950), 599–652.

¹⁸ For one set of early examples, see Robert Gjerdingen, "The Psychology of Music," in *The Cambridge History of Western Music Theory* (Cambridge: Cambridge University Press, 2002), 960–962, <https://doi.org/10.1017/CHOL9780521623711.033>.

¹⁹ Jim Samson, "Reception," in *Grove Music Online* (Oxford: Oxford University Press, 2001), <https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000040600>.

²⁰ Judith Becker, *Deep Listeners: Music, Emotion, and Trancing* (Bloomington: Indiana University Press, 2004), <http://www.loc.gov/catdir/toc/ecip049/2003021168.html> <http://hdl.handle.net/2027/heb.05905>. Zachary Thomas Wallmark, "Appraising Timbre: Embodiment and Affect at the Threshold of Music and Noise" (PhD diss., University of California, 2014).

²¹ Examples include: Natalie Phillips, "Literary Neuroscience and the History of Attention: An fMRI Study of Reading Jane Austen," in *The Oxford Handbook for Cognitive Approaches to Literature*, ed. Lisa Zunshine (Oxford: Oxford University Press, 2015), 55–81; Mark J. Bruhn and Donald R. Wehrs, eds., *Cognition, Literature, and History*, Routledge Interdisciplinary Perspectives on Literature 22 (New York; London: Routledge, Taylor & Francis Group, 2014); and D. Jason Sloane, ed., *Religion and Cognition: A Reader*, Critical Categories in the Study of Religion (London; Oakville, CT: Equinox Pub, 2006).

to compare information dynamics and musical structure.²² Psychologist Michael Schutz joined forces with percussionist Russell Hartenberger to analyze intentional desynchronization in Reich's *Drumming*.²³ Using Reich's *Clapping Music*, psychologist Daniel Cameron and colleagues have studied the connection between participants' experience of groove and neural entrainment.²⁴ My contention is that while the things we can quantify are not equivalent to our rich interactions with music, they do offer additional insights, especially when coupled with close examination of conscious experience (whether through archival work for past experiences or ethnographic work with those willing to share their experiences in the present).

Honing in on listeners's experiences means that every bit of information we can gather (numeric or linguistic or otherwise) is precious. Such work takes seriously the implications of a recent statement from the former poet laureate, Tracy K. Smith: "I believe that most of human history has gone unrecorded. By which I mean, most of history is private. Lived by individuals, passed down at most as anecdotes, memories, secrets, and lore."²⁵ In a music history that embraces the drastic, the minutiae of human experiences with music that usually go unrecorded, or, if recorded, are often ignored, become essential. Abbate recognized this state of affairs as well, writing that "The state engendered by real music, the drastic state, is unintellectual and common, familiar in performers and music lovers and...nonmusicologists, and it has value."²⁶ The title of this dissertation is meant to signal my focus on individual experience, an homage to American psychologist and philosopher William James's book, *The Varieties of Religious Experience: a Study in Human Nature*. James, a professor at Harvard in the early 1900s when he published the book, put first-person accounts of religious experiences at the center of his project, rather than emphasizing theology or philosophy and sociology of religion. "If the inquiry be psychological, not religious institutions, but rather religious feelings and religious impulses must be its subject,"

²² Keith Potter, Geraint A. Wiggins, and Marcus T. Pearce, "Towards Greater Objectivity in Music Theory: Information-Dynamic Analysis of Minimalist Music," *Musicae Scientiae* 11, no. 2 (2007): 295–324.

²³ Michael Schutz, "Steve Reich's 'Drumming,'" *MAPLE Lab* (blog), accessed May 11, 2020, <https://maplelab.net/reich/>. Russell Hartenberger, *Performance Practice in the Music of Steve Reich* (Cambridge: Cambridge University Press, 2016), <http://public.eblib.com/choice/publicfullrecord.aspx?p=4697942>.

²⁴ Daniel J. Cameron et al., "Neural Entrainment Is Associated with Subjective Groove and Complexity for Performed but Not Mechanical Musical Rhythms," *Experimental Brain Research* 237, no. 8 (August 1, 2019): 1981–91, <https://doi.org/10.1007/s00221-019-05557-4>. See also Daniel Cameron et al., "Perception of Rhythmic Similarity Is Asymmetrical, and Is Influenced by Musical Training, Expressive Performance, and Musical Context," *Timing & Time Perception* 2017 (2017): 1–17.

²⁵ Tracy K. Smith, "183: A Room at Last," accessed May 6, 2020, <https://www.slowdownshow.org/episode/2019/08/07/183-a-room-at-last>.

²⁶ Abbate, "Music," 534.

wrote James in the first lecture.²⁷ The focus on individual experience reveals not only the diversity of musical interactions but also potentially unexpected connections with psychological phenomena. My use of the word experience in this project is intentionally broad enough to cover the range of artifacts that listeners leave in the wake of their interactions with music, the cascade of real-time moments when the listener and the music unfold or *are* together. In this wake can come a music critic's description of a concert, the diary entry of a listener detailing a dream inspired by a composition, and the numerical data collected by a composer to understand the effects of their work.

The Western academic borders between music studies (writ large as musicology and ethnomusicology) and experimental psychology (meaning the subfields of psychology that rely on conducting controlled experiments) mark fraught terrain. I have already mentioned some of the historical reasons for the rather sharp divide between the domains and these differences dwell inside a more general divide between the “two cultures” described by C. P. Snow in 1959 (roughly falling into quantitative and qualitative methods; or science, technology, engineering, and math “versus” the arts and humanities).²⁸ These walls thickened during the Science Wars of the 1990s when the divide turned into a publicized pitting of postmodern deconstruction against the sciences (especially the hard sciences).²⁹ Shadows of this divide appear in Abbate's article, in which she specifically cautioned that “anything that sounds like a science fair should...give pause.”³⁰ The more abstract antagonism also played out at the local level of investigating the effects of music on listeners because of early and ongoing interest in music from experimental psychologists. Inquiry into sound and music in fact occupied founders of experimental psychology like Gustav Fechner.³¹ Scholars wondered what the relevance of these findings might be, with some taking dismissive stances. Perhaps most famously, the philosopher Wittgenstein's declaration that “People still have the idea that psychology is one day going to explain all our aesthetic judgements, and they mean experimental psychology. This is very funny—very funny indeed... Aesthetic questions have nothing to do with psychological experiments, but are

²⁷ While I share James's interest in the text with the psychological and the emphasis on individual, documented experience, we quickly part ways. The rest of the quoted sentence goes on to endorse the examination of only genius religious figures: “...I must confine myself to those more developed subjective phenomena recorded in literature produced by articulate and fully self-conscious men, in works of piety and autobiography... one must always look to its more completely evolved and perfect forms.” As will become clear in my discussion of microhistory, I choose to diverge with James's stated confinements and argue that all listeners' experiences offer insights into music reception; well-read critics alongside listeners with no formal training, and every case in between. William James, *The Varieties of Religious Experience: A Study in Human Nature* (Oxford: Oxford University Press, 2012), 12.

²⁸ C. P. Snow, *The Two Cultures*, Canto (London: Cambridge University Press, 1993), <http://hdl.handle.net/2027/heb.03176>.

²⁹ Keith M. Parsons, ed., *The Science Wars: Debating Scientific Knowledge and Technology, Contemporary Issues* (Amherst, N.Y: Prometheus Books, 2003).

³⁰ Abbate, “Music,” 529.

³¹ Florian Cova and Réhault Sébastien, eds., “Introduction,” in *Advances in Experimental Philosophy of Aesthetics* (London: Bloomsbury Academic, 2019), 1.

answered in an entirely different way.”³² Wittgenstein argued that mechanistic explanations of aesthetic experiences (he specifically called out brain “mechanism[s]” in response to musical stimuli) disappoint for two reasons: (1) they are necessarily the result of multiple participants and (2) they are incapable of explaining *why* any particular aesthetic impression arises.³³ Both points are addressed in the mixed-methods approach I deploy.

It is true that the findings of experimental psychology rely on multiple participants and thus abstract away some features of responses that may be unique to an individual.³⁴ However, depending on what is under examination, this may pose only small obstacles or be remedied by connecting experimental findings with relevant cultural analyses. For example, in one experiment conducted for this work, we measured a neurophysiological response that arises in response to even small changes in the acoustic environment. The response (the N100 event-related potential) can be modulated by attention (in this case, made larger or smaller in amplitude) but will not be entirely absent in a listener without hearing loss or damage.³⁵ Depending on the paradigm, the findings can be responsibly generalized to populations with non-clinical hearing statuses. In “higher-level” phenomena such as cognitive appraisals of preference (even something as seemingly simple as like/dislike), the averaging over participants may involve a significant loss of information. Here, far more factors are likely contributing to the data of interest, making it more difficult, though not impossible, to control for their unique impacts. There is also the issue of historical distance: what reason do we have to imagine that human participant responses now are good indicators of human responses in the past? The best way to handle this, it seems to me, is to generalize responsibly. For example, based on the decades of literature on the N100 response, we have good reason to believe that hearing humans displayed such a response in the past, even the distant past. More complex questions of how the N100 might operate in response to specific culturally embedded sounds would be harder to answer and could invite speculation that takes advantage of current knowledge about its cultural functions and further experimental work rather than unfounded over-generalizations. At another level, if the goal is ultimately to make sense of individual experience, then the findings of experimental psychology could come into play when

³² Ludwig Wittgenstein, *Lectures and Conversations on Aesthetics, Psychology and Religious Belief* (Oxford: Blackwell Publishers, 1966), 19-20, http://pm.nlx.com/xtf/view?docId=witt_ll/witt_ll_03.xml;chunk.id=div.witt_ll.lectures.conversations.10;toc.depth=1;toc.id=div.witt_ll.lectures.conversations.7;brand=default.

³³ “One could show that this sequence of notes produces this particular kind of reaction... The question is whether this is the sort of explanation we should like to have when we are puzzled about aesthetic impressions... Obviously it isn’t...” Wittgenstein, *Lectures*, 20.

³⁴ To be fair, it is also common practice, and best practice, to investigate individual and subgroup responses in data. Medical studies also regularly handle case studies. More recently, individual differences are also the subject of experimental enquiry, see Elliot M. Tucker-Drob, “Individual Differences Methods for Randomized Experiments,” *Psychological Methods* 16, no. 3 (2011): 298–318, <https://doi.org/10.1037/a0023349>.

³⁵ See Interlude A for more details on the N100 response.

relevant (when it appears that the generalizations of replicated results are consistent with reported experience) without allowing these findings to censure experiences that do not align. The results of experiments give us probabilities, likely explanations for groups of people, not dictatorial standards of subjective realities. Indeed, where individual experience is unaddressed by such findings or contradicts them (in the case of the N100, such as those with clinical hearing conditions, hard of hearing, or deaf individuals), it presents an area of exploration for further experimentation.

To Wittgenstein's second point: I find myself in full agreement. By themselves, the methods and results of experimental psychology will not uncover the historically rooted and culturally embedded origins and developments of aesthetics for any subculture, let alone an imagined universal aesthetics.³⁶ This is where tools deployed within music studies are indispensable—archival work, music analysis, ethnography, and critical cultural theories (of race, sexuality, gender, ableness, and more). My contention is that constructs from experimental psychology add layers of insight into the complex objects of qualitative study, probing phenomena like measurable physiological responses that are traditionally absent from cultural investigation and uncovering interactions between what are normally considered high- and low-level aspects of human responses to music. As Cova and Sébastien describe the situation for experimental philosophy of aesthetics:

Still, despite such views [as Wittgenstein's], philosophers working in aesthetics and philosophy of art have been paying more and more attention to empirical research outside their field. Far from being the fools Wittgenstein described, none of them thinks that psychology is going to explain *all* our aesthetic judgements. Still, that does not prevent psychology from being relevant to aesthetics in a more modest way. As Zangwill (2009: 19) puts it: 'There is surely some scope for empirical research. It would be odd if there were not.'³⁷

Multiple subfields of music studies have engaged with experimental psychology literature with a growing number also deploying its methods. Perhaps most notable are music theory and music perception and cognition. In these domains, there is a tendency to treat the connections between human listeners and musical stimuli as unidirectional: specific musical features are argued to induce certain reactions or psychological states. As Nicola Dibben has pointed out, "Based on the history of research into music perception and cognition one could be forgiven for assuming that the cultural character of music has little to do with the perceptual capabilities of

³⁶ Though, once again, to be fair, in experimental work (including hypothesizing, literature surveying, experimental design, analysis, and publication of results) the *why* of a phenomenon is interwoven with discussions of the *how*.

³⁷ Cova and Sébastien, "Introduction," 2. Their reference to Zangwill can be found here: Nick Zangwill, "Aesthetic Experience," in *The Oxford Companion to Consciousness*, ed. Tim Bayne, Axel Cleeremans, and Patrick Wilken (Oxford; New York: Oxford University Press, 2009), 16–19.

individuals.”³⁸ Beyond music theory and scholars of music perception and cognition, the rise of affect theory and new materialism has brought many scholars in the humanities, including musicologists and ethnomusicologists, into closer interaction with scientific findings. But these interactions are usually a one-way street: a music scholar finds a study that seems to reinforce their point and then moves on. I think we have more to offer, and gain, by getting involved in experiments. Not only can we bring justified critiques to bear on experimental design, participant selection, and rampant over-generalizations, we can also conduct experiments that more directly address our own research questions, running experiments that decrease the distance between scientific findings and our cultural analyses.

The opening story about my experience with the Adams piece and discussions of Abbate and Sontag may suggest connections with affect theory. However, my first serious investigation of the roles of emotion and affect in the reception of minimalism came from studying literature in experimental psychology. The key moments of clarity on this topic, moments that undergird the entire project, occurred in Dr. Jeanne Tsai’s course on “Culture, Emotion, and Social Judgement.” These discourses have little dialogue with one another.³⁹ For contemporary psychologists, the foundational psychological texts drawn on in affect theory writings are now surpassed by more recent research or theorizations and for most affect theorists, there is little collaboration with colleagues across the methods divide (individual experimental findings are included when judged to support an argument).⁴⁰ Moreover, the experiments I conducted over the course of the project do not test affective states, but rather the neural processing of specific musical techniques that may contribute to various affective states. However, for most of this text’s readers, affect theory will loom larger than the experimental psychology literature and there are ways in which this project could be categorized within the boundaries of affect theory. Using the eight “orientations” of affect theory enumerated in Seigworth and Gregg’s introduction to *The Affect Theory Reader*, I can see my work fitting into two of the orientations. Their fourth orientation of affect theory includes psychology-based inquiry that names affects and operationally defines them, but remains “open to ongoing impingements and pressures from intersubjective and interobjective systems of social desiring.”⁴¹ In other words, this group acknowledges social and cultural forces at work in affective experiences, something at the core of Tsai’s Affect Valuation Theory and a key theme in

³⁸ Nicola Dibben, “Musical Materials, Perception, and Listening,” in *The Cultural Study of Music: A Critical Introduction*, ed. Martin Clayton, Trevor Herbert, and Richard Middleton (New York: Routledge, 2003), 193.

³⁹ Ruth Leys, “The Turn to Affect: A Critique,” *Critical Inquiry* 37, no. 3 (2011): 434–72, <https://doi.org/10.1086/659353>.

⁴⁰ For more on such deployments of scientific literature, and their designation as “exotic pets,” see Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham, NC: Duke University Press, 2002), 19.

⁴¹ Melissa Gregg and Gregory J. Seigworth, “An Inventory of Shimmers,” in *The Affect Theory Reader* (Durham: Duke University Press, 2010), 7.

understanding the desirability/dismissal of minimalism-induced psychological states. The current project also fits into Seigworth and Gregg's sixth orientation: "attempts to turn away from the much-heralded 'linguistic turn' ... [and is] focused on understanding how the 'outside' realms of the pre- / extra- / para-linguistic intersect with the 'lower' or proximal senses...while also arguing for a much wider definition for the social or cultural."⁴² Where the fourth orientation focused on the affects themselves, this orientation is more focused on the ways affects arise in encounters with art objects (among other objects) and the affordances the objects bring to these encounters. This is an even closer fit with the current project, as I look to see how musical parameters of minimalist compositions contributed to listeners' states while also engaging the cultural forces that concurrently shape those states.

If it is possible to fruitfully conduct these mixed-methods investigations, the question still remains, how? A brief detour courtesy of the musician Björk helps set the course:

If you even get close to a human
 And human behavior
 Be ready, be ready to get confused
 There's definitely, definitely, definitely no logic
 To human behavior
 But yet so, yet so irresistible

And there is no map

They're terribly, terribly, terribly moody
 Oh, human behavior
 Then all of sudden turn happy
 But, oh to get involved in the exchange
 Of human emotions
 Is ever so, ever so satisfying...

And there is no map
 And a compass wouldn't help at all...⁴³

I agree with Björk about there being no logic, singular. Instead, multiple logics appear when sifting through musical experiences. I found linguistic reappearances, conceptual repetitions, and similarly changing opinion that, if tied together, can act as a compass. From an experimental psychology angle, the studies we conducted point to mechanisms for specific effects the music seems to have. Does it help? I think it depends on what we want from findings. If we are contented with a pragmatic approach, expecting knowledge of limited generalizability and hemmed in by alternative explanations, there is much of interest. If we look to experiments or the archives as the ultimate arbiter of complex musical experiences, we will be disappointed. This is where Björk and Wittgenstein's views productively meet: expecting multiple logics for listeners'

⁴² Gregg and Seigworth, "Inventory," 7-8.

⁴³ Björk, *Björk – Human Behaviour*, accessed May 11, 2020, <https://genius.com/Bjork-human-behaviour-lyrics>.

“behaviors” and embracing the potential contributions and interactions of multiple methods of enquiry can ground responsible knowledge production in this fraught terrain. The mixed-methods approach will itself act as a guardrail against the twin dangers of overgeneralizations and blinding ourselves to potential patterns.

Early American minimalism is an ideal set of works for connecting the literature and methods of music studies with experimental psychology. There are four key reasons that minimalism is an ideal repertoire for this mixed-methods work. First, the music is relatively simple. Unlike the Wagner example, the distance between controlled stimuli for experiments in a lab and actual musical compositions is small. In some cases, the actual composition is suitable for lab use. Second, in descriptions of their experiences, minimalism’s listeners focused on their psychological states (rather than on matters like style and form) in an unprecedented way in Western classical music. The music was important to many listeners because of the psychological states it seemed to induce, so important that they recorded their conscious responses in detail. Third, these listeners left behind a rich archive: hundreds of concert reviews, detailed diaries, even brain data. Finally, the polemical reception of minimalism in the long Sixties ensures that this case study accounts for multiple patterns of experience in response to the same repertoire. Unlike the writings that Dibben mentioned, making sense of the historical documents left in the wake of early minimalism forces a move beyond misleadingly simplified models of musically induced responses. Instead, a variety of often contradictory or antagonistic responses arose from listeners’ musical interactions with the repertoire. Moreover, the extremes of the responses reveal information about the American classical music subculture at the time. To quote Beck, “In the crossfire there’s a story.”⁴⁴ (In this case, the history of countercultural influence in the American classical music culture and aesthetic entanglements with Orientalism and contingent conceptions of whiteness in America.) Minimalism’s relative simplicity has already attracted the attention of researchers in auditory neuroscience and the cognitive science of music.⁴⁵ In music studies circles, however, recognition of our wealth of materials and potential connections with experimental psychology literature has seen less movement.

Minimalism as a school of composition is only fifty-some years behind us yet the music has already garnered a wealth of attention and writings from music and art historians.⁴⁶ Below, I divide the historiography of minimalism as Western classical art music into three periods that help group similarities in the literature and mark important changes. The earliest histories, from writer/composers like Michael Nyman and Wim Mertens, are largely focused on minimalist compositions; they mostly concern themselves with the question “where did minimalism come

⁴⁴ Beck, *Beck – Don’t Let It Go*, accessed May 11, 2020, <https://genius.com/Beck-dont-let-it-go-lyrics>.

⁴⁵ Schutz, “Steve Reich’s ‘Drumming.’” Cameron, “Neural.” Cameron, “Perception.”

⁴⁶ For more on minimalism as a style or school of composition, see Timothy Johnson, “Minimalism: Aesthetic, Style, or Technique?,” *The Musical Quarterly* 78, no. 4 (1994): 742–73.

from?"⁴⁷ Beginning in the 1990s, authors like Dean Suzuki, Edward Strickland, K. Robert Schwarz, and Keith Potter published life-and-works style writings generally focused on the question, "what was minimalism?"⁴⁸ Finally, the boom of scholarly literature since 2004 has largely consisted of cultural-hermeneutic readings of the repertoire, asking the question "how did minimalism play out in specific cultural contexts?" Each of these periods provides an opportunity to examine how historians' foci and definitions of "music history" and "music" impacted their scholarly output. Examining those impacts reveals what has been excluded from minimalism's histories and suggests important ways forward.

I. The First Scholarly Works: 1970s, 1980s.

Early writers on the history of minimalism were publishing when the term minimalism was still an active label for contemporary compositions. As a result, many of these writers were interested in understanding how minimalism emerged from other contemporary classical music repertoires. Nyman's *Experimental Music* is a discussion of mostly English-speaking experimentalists with a concluding chapter on American and British "minimal music."⁴⁹ Though the experimentalists' techniques and aesthetic priorities are contrasted with high modernists (the author named Stockhausen, Birtwistle, Berio, Boulez, and Maxwell Davies as examples, calling them avant-garde), Nyman never casts doubt on the underlying subcultural unity of modernism and experimentalism as classical music.⁵⁰ His job then becomes to trace how previous Western classical music informed minimalist compositions. He, Mertens, and many after them link early minimalist compositions with Fluxus and serialism. While Nyman also casts Fluxus as experimental, it is serialism, especially the music of Webern that provides an additional, convenient link between the most well-known minimalist composers (especially La Monte Young and Philip Glass) and prior Western classical music practices.

Mertens added links to the classical music historical chain, plotting out connections between minimalist techniques and European polyphonic music from the Renaissance, French and Italian music from the 1300s, isorhythm, and the works of Erik Satie.⁵¹ Mertens's *American Minimal Music* also emphasized the influence of musics beyond the Western canon on minimalist composers, noting musical similarities with Indian, West African, and Balinese works. These non-

⁴⁷ Michael Nyman, *Experimental Music; Cage and Beyond* (London: Studio Vista, 1974). Wim Mertens, *American Minimal Music: La Monte Young, Terry Riley, Steve Reich, Philip Glass*, trans. J. Hautekiet (London: Kahn & Averill, 1983).

⁴⁸ Dean Paul Suzuki, "Minimal Music: Its Evolution as Seen in the Works of Philip Glass, Steve Reich, Terry Riley, and La Monte Young" (PhD diss., University of Southern California, 1991). Edward Strickland, *Minimalism—Origins* (Bloomington: Indiana University Press, 1993). K. Robert Schwarz, *Minimalists* (London: Phaidon, 1996). Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge: Cambridge University Press, 2000).

⁴⁹ Nyman, *Experimental*.

⁵⁰ Nyman, *Experimental*.

⁵¹ Mertens, *American*, 13.

canonic influences would come to be a hallmark of minimalist historiography, with later scholarship adding the influence of jazz artists like John Coltrane and Miles Davis.

This early literature is also clear on which composers were valued as the most important minimalists. Since at least the early 1970s, music critics like Tom Johnson grouped Philip Glass, Steve Reich, La Monte Young, and Terry Riley together. (These four are sometimes referred to as the “big four.”) Johnson recalled that people had dubbed them the “New York Hypnotic School.”⁵² While Nyman also considered British minimalists, his selection of Johnson’s four to represent American minimalism is repeated in Mertens’ work, where they become the exclusive focus (and his book’s subtitle). The big four would show up in nearly every subsequent work on musical minimalism.

National boundaries and projected identities played key roles in these early scholarly works. While Nyman’s book demonstrated a way to value minimalism within Western classical music in general, Mertens’ emphasis on minimalism as a specifically American movement set up a tension between the emerging aesthetics of a faction within the classical music subculture in the States on the one hand and the transnational norms of high modernism and its ideologues on the other. In the closing section of his book, Mertens contrasted Adorno’s idealization of “authentic,” thinking subjects with minimalism’s effects on listeners (including supposed links with the psychoanalytic unconscious and libidinal French philosophy).⁵³ In this analysis, minimalism becomes a conduit for regressive, erotically-driven, pseudo-mystical experiences. America is set up as a child-like inheritor of European traditions and minimalists are viewed as rejecting the central tenets of those traditions, to the detriment of society. Minimalism is viewed as caught up and unwittingly accelerating the alienation and disintegration of the (implicitly Western) subject.

Thus, at the same time that Mertens is narrowing the repertoire by using national boundaries, he is also extending a set of continental philosophical concerns onto a supposedly American repertoire. The conclusions he draws may hold for members of the American classical music subculture with a certain pedigree who inherited and adhered to the philosophical apparatus at work, but his conclusions fail to acknowledge or incorporate American cultural realities (such as the counterculture) that had reformulated the ideological stakes. For many minimalist advocates, the music’s hypnotic, lulling, sensual effects were viewed as ways to connect with aspects of being human lost in the dominant technocracy, or rebalance non-cognitive psychological states that were perceived to be undervalued by mainstream society.⁵⁴

⁵² Tom Johnson, “La Monte Young, Steve Reich, Terry Riley, Philip Glass,” in *The Voice of New Music by Tom Johnson: New York City 1972 - 1982, a Collection of Articles Originally Published in the Village Voice*, ed. Tom Johnson and Paul Panhuysen (Eindhoven: Het Apollohuis, 1981).

⁵³ Mertens, *American*, 113-124.

⁵⁴ Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and Its Youthful Opposition* (Garden City, NY: Doubleday and Company, Inc., 1969). Pauline Oliveros, *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 158-164.

Language also played a role in these texts, largely exclusionary of non-English-speaking composers or composers with little English-language press: Dutch composer Louis Andriessen, Estonian composer Arvo Pärt, Henryk Górecki from Poland, and French composer Éliane Radigue fail to make appearances in these early writings. While some of them were little known beyond their home country's borders when Nyman was writing, all of them were on the map by the time Mertens chose to hone in on America.

A final example of early historical writing on minimalism comes from music critic John Rockwell's *All American Music*, a series of essays on 20th century American classical, jazz, and popular musics.⁵⁵ His chapter "The Orient, the Visual Arts & the Evolution of Minimalism" dealt with the music of Philip Glass. After discussing various Asian influences on earlier American composers like John Cage and Lou Harrison, Rockwell laid out an interpretation of minimalist works that surfaced common themes in first-person descriptions of minimalism from the 1960s and 70s:

The way this Oriental influence most decisively expressed itself in American music of the sixties and seventies was in a newly meditational mode of perception. Western art music has been built on tension and release, which would be unthinkable without the tonal system, with its balances between consonance and dissonance and its excursions away from and back to a home key. Such music involves considerable variation of dynamics, and rhythmic ideas that, while fairly primitive, still build to an ever more rapid climax. The meditational approach is more quiescent. The listener settles into the flow of a piece rather than tensely awaiting its denouement; a parallel between traditional masculine and feminine love-making suggests itself. Someone accustomed to conventional Western classical music may find this new meditational music uneventful, simplistic and dull; the new listener — and many Orientals — find classical music noisy, clumsy and brash.⁵⁶

While Rockwell's book may have had limited scholarly impact, he made explicit minimalism's associations with other countries, in this case a racialized and essentialized conglomeration of Asian cultures.⁵⁷ More tellingly, the consequences of these associations are spelled out in diametrical opposition with Western classical music. Rockwell thus lays bare what much of the scholarly literature until recently shied away from: a glimpse of the links between associating minimalism with non-Western cultures and dismissing it on various purportedly purely aesthetic grounds. Rockwell's binaries lend themselves to easy analysis using Said's 1978 *Orientalism*.⁵⁸ And recent work on Cold War Orientalism by Christina Klein, Lisa Lowe's heterogeneous

⁵⁵ John Rockwell, *All American Music: Composition in the Late Twentieth Century*, 1st ed. (New York: Knopf, 1983).

⁵⁶ Rockwell, *American*, 112-113.

⁵⁷ For more on racialization, ascribing racial meaning to a previously racially unclassified practice, see Michael Omi and Howard Winant, *Racial Formation in the United States*, Third (New York and London: Routledge, 2015).

⁵⁸ Edward W. Said, *Orientalism* (London: Penguin, 2003).

understanding of Orientalism, and Melani McAlister's "post-Orientalism" offer tools for understanding more subtle othering expressions in accounts of and scholarship on minimalism.⁵⁹

The orientalist discourse that sprang up around minimalism, like so much of the orientalist discourse that Said and others have traced, had more to do with the identity of the subculture creating the discourse than the implicated cultures themselves. The racialized associations with groups lower on the contingent hierarchy of Western racial constructions made minimalist compositions easy to denounce for minimalism's detractors.⁶⁰ Meanwhile, advocates often idealized the associations precisely because the "lower" group on the hierarchy was thought to be in touch with some more "primitive" and "pure" thing of value to the mostly white American classical music subculture. The many layers of racialized associations surrounding minimalist compositions provide a unique opportunity to discuss the role of orientalism in the construction, propagation and renegotiation of white identities in the American art music subculture. (There were additional strands of racialized psychological states at play in the reception of minimalism in the long Sixties that I do address in this dissertation, including those circling the compositions's associations with African, American Indian, and African American musics.⁶¹ In addition, I distinguish this investigation from the important literature on appropriation. While much appropriation remains to be examined in the history of minimalism, I view this project as an examination of listeners' experiences and judgements of the works, their motivations and expectations together with the underlying ideological foundations.)

II. The 1990s, Life-and-Works Scholarship

In the 1990s a series of important works on minimalism took a life-and-works approach. With post-minimalism already underway by the 1980s at the latest, there was enough chronological distance to ask, what was minimalism? And writers, especially music writers, continued to focus on the big four. Schwarz emphasized them, even giving the commercially successful Reich and Glass two chapters a piece.⁶² He added other American composers (John Adams and Meredith Monk) but called them post-minimalists and included European composers Louis Andriessen, Arvo Pärt, and Michael Nyman in a final chapter. Schwarz cast them as after-effects, inspired by the Americans when they received European success in the 1970s or outliers who may not even be minimalists (in the case of Pärt).

⁵⁹ Christina Klein, *Cold War Orientalism: Asia in the Middlebrow Imagination, 1945-1961* (Berkeley: University of California Press, 2003), <http://site.ebrary.com/lib/stanford/Doc?id=10048970>. Lisa Lowe, *Immigrant Acts: On Asian American Cultural Politics* (Durham: Duke University Press, 1996). Melani McAlister, *Epic Encounters: Culture, Media, and U.S. Interests in the Middle East, 1945-2000* (Berkeley: University of California Press, 2001).

⁶⁰ Steve Garner, *Whiteness: An Introduction* (London: Routledge, 2007).

⁶¹ "Every history has more than one thread, each thread a story of division." Ocean Vuong, "Part I" in *On Earth We're Briefly Gorgeous: A Novel* (New York: Penguin Press, 2019), iBooks.

⁶² Schwarz, *Minimalists*.

Keith Potter's *Four Musical Minimalists* again focused on the big four, this time giving biographical information and providing descriptions of most of their early works.⁶³ Potter's text is in many ways a culmination of a focus on individual minimalist composers that had taken root in Nyman and Mertens. Justifying narratives of composers as solitary creators often relies on locating genius or novelty in the compositional process and Potter's book shows how it is possible to translate this narrative onto minimalist composers while also showing the precariousness of such translation. As Ian Quinn has pointed out, most minimalist compositions thwart analyses that seek to find "hidden" complexity since the content and processes involved are often clearly audible or visually evident.⁶⁴ This can leave the minimalist composer outside the privileged space of genius or novelty. Where complexities can be uncovered, they need to be ascribed to the intention of the composer in order to bolster the narrative; unintentional coincidences do not help narratives emphasizing the importance of individual composers.⁶⁵

With compositional complexity often superficially lacking, some life-and-works writers used minimalism's non-Western influences as inflection points for composerly interest. Because the scholarship on music history in America and Western Europe is extremely focused on Western classical music traditions, stories of influences like Ravi Shankar on Philip Glass, Pandit Pran Nath on Terry Riley, or Gideon Alorwoyie on Steve Reich cast the composer a compositional conduit of other cultures or masters of other culture's structural and sonic subtleties.⁶⁶ The music is exoticized in part by the mere association between Western-trained composer and non-Western musician and is rarely followed up with detailed analysis of the musical manifestations of the interactions.⁶⁷ But this tactic can also have the potentially undesirable effect of estranging the composer from the Western canon, straining the traditional composer narrative. It is telling that Steve Reich, the big four composer who is most integrated into the Western canon and the most written about by music theorists, is also the composer who most accentuates his connections with previous Western art music practices (Stravinsky and the pre-Baroque), and most downplays the influence of non-Western musics.

While transnational musical networks with non-Western musicians and artists continued to be treated as exotic add-ons in scholarly works, artistic networks inside the States continued to receive detailed emphasis. Strickland took on the role of movements like Fluxus and the

⁶³ Potter, *Four*.

⁶⁴ Ian Quinn, "Minimal Challenges: Process Music and the Uses of Formalist Analysis," *Contemporary Music Review* 25, no. 3 (2006): 283–94.

⁶⁵ For an example of such complexities, see Richard Cohn, "Transpositional Combination of Beat-Class Sets in Steve Reich's Phase-Shifting Music," *Perspectives of New Music* 30, no. 2 (1992): 146–77.

⁶⁶ David Nicholls, "Transethnicism and the American Experimental Tradition," *The Musical Quarterly* 80, no. 4 (1996): 569–94. Ralph P. Locke, *Musical Exoticism: Images and Reflections* (Cambridge, UK: Cambridge University Press, 2009), 287–289.

⁶⁷ For an exception, see V. Kofi Agawu, *Representing African Music: Postcolonial Notes, Queries, Positions* (New York: Routledge, 2003).

composers referred to as the New York Hypnotic School in the larger context of the American art scene, including film, sculpture, painting, dance, and literature.⁶⁸ His text treats these artistic scenes as parts of the same cloth, noting how composers and artists worked for each other, attended each others' events, and collaborated. By zooming out beyond the confines of a single artistic medium, Strickland took note of agents that had gone previously under-noticed such as Yoko Ono and Pauline Oliveros, who appear in the text as both performers and composers.

Oliveros's work contrasted with dominant modernist definitions of music even more than the works of the big four. If modernist composer Elliot Carter could argue that minimalism's repetition "doesn't have anything to do with music" and philosopher Peter Kivy found the repertoire to be "far from the prescriptive code of Western art music," what is the ontological status of works like Oliveros' *Sonic Meditations* that treat music as a welcome by-product?⁶⁹ It is perhaps understandable that Oliveros emerges from the musicological margins only when a study like Strickland's takes a multi-art approach to minimalism. Dean Suzuki's dissertation stands out for including both Ono and Oliveros and noting their use of minimalist techniques.⁷⁰

III. Since 2000, the Importance of Cultural Hermeneutics

Since 2000 the scholarly literature on minimalism has boomed, with the overwhelming majority of musicological texts taking cultural-hermeneutic approaches to the repertoire. Building on previous literature that cast minimalism as a primarily American phenomenon and Susan McClary's 1998 positive appraisal of minimalism's cultural status, Robert Fink's work reads minimalism as a cultural practice: the compositions sprang from and were consumed as elements of postindustrial and mass-mediated society.⁷¹ Fink noted that such cultural readings may have been hindered for decades because the people writing about minimalism were often the people composing minimalist compositions. What resulted, in Fink's estimation, were surface readings of musical processes and influences rather than meaningful cultural analyses (he cited music criticism by Joan La Barbara, Tom Johnson, William Duckworth, and K. Robert Schwarz).⁷²

In 2004, Sumanth Gopinath and Cecelia Sun both published texts on the performance of minimalism that emphasized the cultural nexus surrounding composers, performers, and

⁶⁸ Edward Strickland, *Minimalism—Origins* (Bloomington: Indiana University Press, 1993).

⁶⁹ Geoffrey Norris, "'Minimalism Is Death,'" *The Telegraph*, July 23, 2003, sec. Music. The quotation from Kivy is quoted in Quinn, "Minimal."

⁷⁰ Suzuki, "Minimal."

⁷¹ Susan McClary, *Rap, Minimalism, and Structures of Time in Late Twentieth-Century Culture* (Lincoln: College of Fine and Performing Arts, University of Nebraska--Lincoln, 1998). Robert Fink, *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley: University of California Press, 2005), x, 4.

⁷² Fink, *Repeating*, 17.

audiences.⁷³ Sun discussed how works by Gavin Bryars, Brian Eno, and Terry Riley became incorporated into the musical institutions they once bristled against via changing performance practice. Gopinath's text traced the importance of Ewe drumming performance practice for Steve Reich's *Drumming* and how the composer navigated the hierarchies of his own performing ensemble. He followed up with texts focused on the roles and context of African-American race history in Steve Reich's early works.⁷⁴

Scholarship has also broadened the repertoire and composers associated with minimalism, no doubt thanks in part to the formation of the Society for Minimalist Music in 2007 and its regular conferences. Kyle Gann's work has uncovered some of the earliest examples of American minimalism, Brett Boutwell fleshed out the importance of Terry Jennings's compositions, and Theodore Gordon and Kerry O'Brien have crafted detailed histories of Pauline Oliveros's years on the West coast and the influence of Asian spiritual and musical practices on some of the big four.⁷⁵ Martha Mockus's 2008 book on Pauline Oliveros does not link the composer with minimalism but brings much needed attention to the role of gender in minimalist circles by interrogating the role of feminist thought and "lesbian musicality" in works that use minimalist techniques.⁷⁶ Gopinath has presented a preliminary analysis of the role of gender in minimalist performances, taking account of members in Reich's performing ensemble and Marian Zazeela's work with La Monte Young.⁷⁷ He also co-presented work on the queer use of Reich's music in film contexts.⁷⁸ A collection of essays on the life and works of gay, African-American composer and performer Julius Eastman has invigorated interest in his minimalist works.⁷⁹ Patrick Nickleson has rethought the authorship of the big four's works have in his 2017

⁷³ Sumanth Gopinath, "'A Composer Looks East': Steve Reich and Discourse on Non-Western Music," *Glendora Review* 3, no. 3–4 (2004): 134–45. Cecilia Jian-Xuan Sun, "Experiments in Musical Performance: Historiography, Politics, and the Post-Cagian Avant-Garde" (PhD diss., University of California Los Angeles, 2004).

⁷⁴ Sumanth Gopinath, "Contraband Children: The Politics of Race and Liberation in the Music of Steve Reich, 1965–1966" (PhD diss., Yale University, 2005). Sumanth Gopinath, "The Problem of the Political in Steve Reich's Come Out (1966)," in *Sound Commitments: Avant-Garde Music and The Sixties*, ed. Robert Adlington (Oxford: Oxford University Press, 2009), 121–44, <https://searchworks.stanford.edu/view/7838790>. Sumanth Gopinath, "Reich in Blackface: Oh Dem Watermelons and Radical Minstrelsy in the 1960s," *Journal of the Society for American Music* 5, no. 2 (May 2011): 139–93.

⁷⁵ Kyle Gann, "Reconstructing November," *American Music* 28, no. 4 (Winter 2010): 481–91. Brett Boutwell, "Terry Jennings, the Lost Minimalist," *American Music* 32, no. 1 (2014): 82–107. Kerry O'Brien, "Experimentalisms of the Self: Experiments in Art and Technology, 1966–1971" (PhD diss., Indiana University, 2018). Theodore Barker Gordon, "Bay Area Experimentalism: Music and Technology in the Long 1960s" (PhD diss., The University of Chicago, 2018), <https://search.proquest.com/pqdtglobal/docview/2111350819/199D06234657458FPQ/1?accountid=14026>.

⁷⁶ Martha Mockus, *Sounding out: Pauline Oliveros and Lesbian Musicality* (New York: Routledge, 2008).

⁷⁷ Sumanth Gopinath, "'Minimalism and Gender: Queries and Notes'" (4th International Conference on Music and Minimalism, Long Beach, CA, October 2013).

⁷⁸ Sumanth Gopinath and Pwyll ap Siôn, "'Queering Reich? Affect and Non-Heteronormative Sexuality in Film/TV Adaptations of Steve Reich's Music'" (6th International Conference on Music and Minimalism, Knoxville, TN, June 2017).

⁷⁹ Renée Levine Packer and Mary Jane Leach, eds., *Gay Guerrilla: Julius Eastman and His Music* (Rochester: University of Rochester Press, 2015).

dissertation detailing the collaborative creative process behind many minimalist works.⁸⁰ Focusing on minimalism as an American phenomenon has left discussions of subcultural differences on the margins. While Gopinath dealt with race relations in specific geographic regions at particular historical moments, work from Mertens to Fink, which casts the music as uniquely American, failed to register that the America they referred to was largely made up of the predominantly white American classical music subculture (with composers like Julius Eastman and his history of exclusion serving as further evidence for this fact). This has also marginalized related discussions of gender and class.

Music historical valuation of Western classical music with complex or novel structures that elicit high-level cognitive responses has frequently pushed minimalism to the fringe of scholarly enquiry. Even within minimalist repertoire pieces of purported greater complexity tend to get more attention. As already noted, this has sidelined works by Yoko Ono and Pauline Oliveros but also affected compositions from the likes of Peter Garland, Terry Jennings, Dennis Johnson, and Julius Eastman. The emphasis on classical music in Western music history partially rests on the embrace of dispassionate, analytical, objective experience and appreciation of music as an aesthetic object. If minimalism was long suspect to music historians because of its simplicity, with some even questioning if it was music, then the mostly non-cognitive, sensation- and perception-heavy responses to the music were easily dismissible as psychological regression and counterculture drivel.⁸¹ Failure to take drug culture seriously also played a role in dismissing reactions to the music and related repertoires.⁸² This is particularly evident in the work on minimalist reception history (or relative lack thereof).

This embrace of dispassionate, disinterested music appreciation has also affected our musicological tools: both musicology and music theory have struggled to make sense of a repertoire that seemed bent on offering only a surface, a repertoire where the brunt of its importance to audiences seems to reside in listeners' sensation, perception, and low-level attention. There is thus historical work to be done at an intersection that minimalist histories consistently gesture towards but which music historical norms have steered away from for decades: the intersection of cultural and psychological forces in the reception of minimalism. How did listeners' experiences of drones and repetition couple with cultural forces like brainwashing, hypnosis, and self-improvement? How did affective states believed to be induced by minimalist works come to accrue racialized associations? What assumptions and philosophical projections were necessary for some patterns of attention while listening to minimalism to be

⁸⁰ Patrick Nickleson, "The Names of Minimalism: Authorship and the Historiography of Dispute in New York Minimalism, 1960-1982" (PhD diss., University of Toronto, 2017).

⁸¹ Mertens, *American*.

⁸² See quotations from Kivy in Quinn, "Minimal."

deemed politically suspect? With the wealth of writings on minimalist compositions (including the decades worth of music theoretical literature), their composers, and detailed analyses of cultural forces at play, especially in the American setting, the work ahead consists of understanding the complex, “drastic” experiences of minimalism’s audiences as the tandem operations of culture and psychology.

Because the project focuses on the negative reception of compositions by the big four in the first half and critiques of the positive reception of Oliveros’s Meditation Project in the second half, it will likely disappoint readers looking for joy- or hope-filled readings. I analyze how minimalism’s dismissal was informed by white supremacist ideology alongside American Cold War Orientalism and also analyze how acceptance of the music was based on an anti-technocracy fetishization of the supposed primitive. I think these critiques are valuable, and have either not been made in the past, have not been made as strongly as I think they should, or have stopped at the level of appropriation. Eve Kosofsky Sedgwick argued in *Touching Feeling* that pursuing what Paul Ricoeur called the “hermeneutics of suspicion” is a choice: “whether or not to undertake this highly compelling tracing-and-exposure project represents a strategic and local decision...”⁸³ At this particular moment and within the discipline of musicology, I think there is value in telling these anti-uplifting histories. There are also histories of positive value to be told surrounding this repertoire, many of them already well-told by scholars like Kerry O’Brien and Theodore Gordon, and many still waiting to be told.⁸⁴ As Bruno Latour wrote in 2004, “if something is constructed, then it means it is fragile and thus in great need of care and caution.”⁸⁵ My hope is that we can do this much-needed reparative work while still keeping an eye on dehumanizing affordances, historical and theoretical, that arise from musical works.

In the following chapter, I use Jeanne Tsai’s Affect Valuation Theory (AVT) to reframe the rift between high modernism and what we now call minimalism. Historical actors and later scholars have cast the rift as a clash between reason and feeling, compositional individuality and mechanical processes, progress and regression. Underlying all of these divisions are two competing notions of ideal affect (the way we want to feel). On the one hand, advocates of works by high modernists like Babbitt and Boulez idealized supposedly affect-free, disinterested states of aesthetic contemplation that were actually about the pursuit of neutral-affect. Meanwhile, minimalism’s advocates sought out the works because they seemed to induce low energy, positively valenced affective states (LAP for short, described as calm, meditative, hypnotic, etc.). I trace ways that musical parameters may have contributed to listeners’ psychological states and

⁸³ Eve Kosofsky Sedgwick, “Paranoid Reading and Reparative Reading, or, You’re so Paranoid, You Probably Think This Essay Is about You,” in *Touching Feeling: Affect, Pedagogy, Performativity* (Durham: Duke University Press, 2003), 124.

⁸⁴ O’Brien, “Experimentalisms.” Gordon, “Bay.”

⁸⁵ Bruno Latour, “Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern,” *Critical Inquiry* 30, no. 2 (2004), 246.

then address how this new ideal affect rocked boats in the Western classical music subculture and resonated with larger societal concerns in America. Not for the last time, focusing on listeners' psychological states highlights connections with American Orientalism as ammunition to critique and valorize the music, concomitantly summoning concepts of whiteness in the long Sixties.

In the midst of the Cold War, one such LAP state was brainwashing, a term popularized during the Korean War, reinvigorated during the Chinese cultural revolution during the 60s, and studied by psychologists and the CIA. In chapter 3 I trace how the term and its associated fears of a Communist and Orientalized East boiled over into the negative reception of minimalist compositions. For some, minimalist compositions seemed capable of literally brainwashing listeners and in so doing, damage supposedly Western reason, freedom, and democracy. I incorporate findings on the quasi-automatic neural effects of compositional techniques common in minimalist works and consider how this may have contributed to critic's concerns.

Halfway through the dissertation, I turn to Pauline Oliveros's 1973 Meditation Project, a ten-week experiment to test the efficacy of meditation practices, including her text scores, the *Sonic Meditations*. In chapter 4 I write a microhistory of these ten weeks, documenting daily activities and participants' reactions as documented in self-report data and diaries. Reading the diaries in conjunction with Oliveros's notes and bibliography for the project, I show how participants, many deploying the language of second-order cybernetics, thought they could use sonic meditation practices to access what Carl Jung scholars call the racial unconscious, a repository of archetypes that rests just above the universal unconscious.

Chapter 5 examines the role of alpha activity in the Meditation Project. These 8-12 Hz neural oscillations were believed to index meditative states. Within counterculture circles, authors argued that white Westerns could use meditation, quantified as alpha activity, to heal themselves from Western technocracy. Alpha activity thus acted as a psychospiritual resource for Meditation Project participants, motivated by a dehumanizing logic where Eastern meditation practices were of interest precisely because the so-called Oriental race was considered less developed and thus less corrupted by technocracy. In this chapter, I also analyze the alpha activity data Oliveros collected from participants at the beginning and end of the project.

Even in the midst of these concerning motivations, Oliveros's compositional motives read positively to me. Her goal was to improve lives using music. While the opening quotation was published in 1983, already in 1971, after describing how her *Sonic Meditations* should be performed in group settings and noting the benefits that she observed, she wrote that "Music is a welcome byproduct of this activity."⁸⁶ It is a moving example of how music and its analysis need not stop at notes and rhythms. Exploring the functions of music was valuable to Oliveros and can also open lines of scholarly enquiry. As William Cheng has noted in *Just Vibrations and Loving*

⁸⁶ Pauline Oliveros, "Sonic Meditations," *Source: Music of the Avant Garde* 5, no. 2 (1971): 104.

Music Till It Hurts, we can build a music studies that handles music's effects on people alongside more traditional musicological analyses.⁸⁷

Three interludes between these chapters provide overviews of two EEG experiments (Interludes A and B) and analyses of self-report data collected by Oliveros (Interlude C). Because the full details of these studies and analyses has or will appear in other publications, the emphasis here is on offering relevant insights in non-technical language. These experiments offer additional layers of understanding that connect with reported experiences of the music but are not readily available via reflection or traditional archival materials. Two examples from the first interludes include the effects of minimalist-like repetition on early auditory processing in the human cortex and the strength of neurophysiological correlations between listeners while they attend to a minimalist composition. The experiments I ran and describe in this dissertation are initial, small steps in what could become a series of studies that gradually and carefully reduce the distance between laboratory listening and concert experience.

In the final chapter, I consider the potential uses of this work for music scholars whose interests lie beyond minimalism. I also think through the promises and limits of my mixed-methods approach and trace potential paths for further research in this area.

⁸⁷ William Cheng, *Just Vibrations: The Purposes of Sounding Good* (Ann Arbor: University of Michigan Press, 2016). William Cheng, *Loving Music till It Hurts* (New York: Oxford University Press, 2019).

Chapter 2

“One-Note Nirvanas? Music as Ritual? Phooey!”

Minimalism and a New Ideal Affect

It is now an almost fully-formed trope to open discussions of minimalism with a foray into the plentiful dismissive reviews of such works in the long Sixties. In 2005, Robert Fink offered one summary of prior critiques in his seminal analysis of the repertoire’s cultural entanglements.¹ According to the music’s various detractors (named in parentheses after their assertions):

…perhaps [minimalism] can be understood as a kind of social pathology, as an aural sign that American audiences are primitive and uneducated (Pierre Boulez); that kids nowadays just want to get stoned (Donal Henahan and Harold Schonberg in the New York Times); that traditional Western cultural values have eroded in the liberal wake of the 1960s (Samuel Lipman); that minimalist repetition is dangerously seductive propaganda, akin to Hitler’s speeches and advertising (Elliot Carter); even that the commodity-fetishism of modern capitalism has fatally trapped the autonomous self in minimalist narcissism (Christopher Lasch).²

In this chapter, I point out a pattern in the negative reception of early American minimalism by tying together a variety of critiques from within the American classical music subculture (and wherein its composers were trained and started their careers) using psychologist Jeanne Tsai’s Affect Valuation Theory (AVT). In AVT, the way we want to feel (ideal affect) is distinguished from the way we currently feel (actual affect). Moreover, Tsai argues that cultural factors strongly shape ideal affect and that “discrepancies between actual and ideal affect motivate mood-producing behavior,” including music listening.³ While Tsai and her colleagues often conduct studies contrasting differences in ideal affect at the level of national or regional cultures, here I

¹ Another example of the predominantly negative associations with minimalism comes from Keith Potter’s preface to his book on Glass, Reich, Riley and Young: “Given the negative connotations of its [minimalism’s] connecting aesthetic subject matter, it seems more than usually appropriate to make clear what this book strips away from a truly comprehensive account of musical minimalism.” Or this note on the visual art movement, from Potter’s introduction: “An additional problem attaching to Minimalism arises from its already derogatory sounding suggestion of ‘less than usual’. As the art critic Lawrence Alloway has pointed out, ‘[b]ecause there is no consensus on what is Enough, or Too Much, one cannot accurately characterize [such art] as minimal....It is a weakness of ‘minimal’ as a critical term that it assumes, or rather memorializes, a point in time when such work was less than expected.’” Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge: Cambridge University Press, 2000), xiv, 1.

² Robert Fink, *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley: University of California Press, 2005), 19.

³ J. L. Tsai, “Ideal Affect: Cultural Causes and Behavioral Consequences,” *Perspectives on Psychological Science* 2 (2007), 251, 249-250.

propose applying these insights at a subcultural level.⁴ Namely, I argue that listeners' ideal affects meaningfully contributed to their experiences and aesthetic judgements of minimalist works by the big four (Glass, Reich, Riley, and Young). Specifically, detractors idealized supposedly neutral affective states (by deploying the rhetoric of reason and information processing) that contrasted with their perception of minimalism's effects on many listeners. Detractors witnessed the music's advocates in low arousal, positively valenced psychological states (abbreviated as LAP and described as hypnotic and calm, among other descriptors) and argued that such effects were detrimental to the individuals and Western enlightened democracies in general. Such assertions simultaneously revealed LAP's associations with Orientalism in Cold War America. In this chapter I also explore LAP-related, low-level psychological states arising from attempts to turn conscious attention towards sensation and perception. This includes a brief introduction to one of the electroencephalography (EEG) studies conducted as part of this project.⁵

A review from the New York Times music critic Harold Schonberg offers a case study in the role of ideal affect within the American classical music subculture of the long Sixties. Schonberg's text, dated February 4, 1973, covered four New York City premieres from the prior two weeks: Elliot Carter's *String Quartet No. 3* performed by the Juilliard String Quartet, John Cage's *Cheap Imitations* performed at Tully Hall to celebrate the composer's sixtieth birthday, Peter Maxwell Davies's *Versalii Icones* performed as part of the Juilliard Music School's 20th Century Music Series, and Steve Reich's *Four Organs* performed in New York by the Boston Symphony under the baton of Michael Tilson Thomas. Schonberg cast the works into two groups: Carter represented "...a quest for greater complexity, denser sonorities, improved data processing" while Cage, Davies, and Reich all demonstrated, according to Schoenberg "a quest for simplicity, direct communication, clarity."⁶ Perhaps Schonberg's rough-around-the-edges, binary taxonomy was simply the result of the quick deadlines in journalistic writing. Whatever

⁴ I have proposed a series of studies that would test the potentially measurable implications of the arguments I make in this chapter. I hope to conduct them as part of my future work. As for the use of the word subculture: it could be replaced by the phrase "American classical music establishment" but using the term subculture locates it within the larger American cultural context. Deploying the term to describe the American classical music scene of major cities is unusual but fits key elements of Clarke, Hall, Jefferson, and Roberts' 1976 definition: "sub-cultures are sub-sets - smaller, more localised and differentiated structures, within one or other of the larger cultural networks....They must be focussed around certain activities, values, certain uses of material artefacts, territorial spaces, etc. which significantly differentiate them from the wider culture." John Clarke et al., "Subcultures, Cultures and Class," in *Resistance through Rituals: Youth Subcultures in Post-War Britain*, ed. Stuart Hall and Tony Jefferson (London: Hutchinson, 1976), 13-14. My use of the term subculture differs from the more frequent deployment to describe subordinate groups, especially viewed as a source of cultural resistance. It is not, for example, Hebdige's definition of subculture as "the expressive forms and rituals of...subordinate groups...who are alternately dismissed, denounced and canonized..." See Dick Hebdige, "Introduction: Subculture and Style," in *Subculture: The Meaning of Style* (London: Routledge, 1991), 2. For more recent uses of the term, see Ken Gelder and Sarah Thornton, eds., *The Subcultures Reader* (London: Routledge, 1997).

⁵ This experiment is further detailed in Interlude A.

⁶ Harold C. Schonberg, "Carter, Cage, Reich...Speak to Me," *The New York Times*, February 4, 1973, sec. D.

the reason, he was not the only writer to use this course juxtaposition to characterize the “opposing views of the musical avant-garde”: it maps onto the uptown/downtown division common in writings from the time and in scholarship until recently.⁷

For Schonberg, Carter’s string quartet was admirable because of its difficulty, its obvious musical complexity. The piece sets violin and cello against violin and viola using tempo and rhythm (Image 2.1). In addition, “[e]verything is fortissimo, full of double and triple stops from all instruments, with a completely atonal texture.”⁸ Schonberg conjured Beethoven, Ives, Bartók, and Sessions as points of comparison. Carter’s piece was (laudably, for Schonberg), “music that one will respect and never love...awfully forbidding stuff” that “demands repeated hearings.”⁹ In contrast, Schonberg described Reich’s piece as “A quartet for four tiny electric organs.... Reich has...taken a chord...and kept it going for some 20 minutes, letting it drift slowly out of phase so that an acoustic beat develops, and hence a feeling of dissonance....electronic composers...have been experimenting with this out-of-phase gimmickry for some years now.”¹⁰ Before taking further account of Schonberg’s experience of Reich’s piece, a brief description of the work will prove helpful.

The pitch content of the entire piece appears already on the first beat of the first numbered module (after eleven pulses from the maraca).¹¹ The pitch content is an E-major eleven chord (Image 2.2). Reich put the pitches through two sets of processes. First, in what I call the setup (modules 0-17), the repeated chords heard in module 1 on eighth note beats one and four are

⁷ Schonberg, “Carter.” Potter noted this divide between one specific form of high modernism, serialism, and minimalism. In addition to the usual round up of anti-minimalism rhetoric from high modernists, he offered anti-high modernist quotations as well: “Like Cageian indeterminacy, they [“early phases of American musical minimalism”] represent an American reaction to the serial models of modernism offered by European composers such as Pierre Boulez and Karlheinz Stockhausen, and a by American serialists such as Milton Babbitt....In 1986, Reich protested to Tim Page: ‘Don’t get me wrong. Berg, Schoenberg and Webern were very great composers. They gave expression to the emotional climate of their time. But for composers today to recreate the angst of “Pierrot Lunaire” in Ohio, or in the back of a Burger King, is simply a joke’. In 1991, Glass was more directly critical of the activities of Boulez and the European serialists in the 1960s, speaking of ‘a wasteland, dominated by these maniacs, these creeps, who were trying to make everyone write this crazy creepy music.’” Potter went on to note connections between serialism and minimalism. The narrative of high modernism versus minimalism also had a life beyond those directly involved. See Björk’s description of minimalism “shak[ing] off that armor of the brain” and David’s Lang’s description of minimalism as “a historic reaction to a sort of music which had a stranglehold on American musical institutions....I look at minimalism...as being just the battleground that was necessary to remove those forces from power....And I think that [one reason why] Glass’s music and Reich’s music came out so severe, and so pared down, was that...it was a polemical slap in the face.” Potter, *Four*, 10-11, 13, 20.

⁸ For more on pitch organization in the piece, see Andrew W. Mead, “Pitch Structure in Elliott Carter’s ‘String Quartet’ #3,” *Perspectives of New Music* 22, no. 1 (Fall 1983): 31–60.

⁹ Schonberg, “Carter.”

¹⁰ Schonberg, “Carter.”

¹¹ For another analysis of key moments in *Four Organs* and its relationship with vernacular musics, see Sumanth S. Gopinath, “‘Departing to Other Spheres’: Psychedelic Science Fiction, Perspectival Embodiment, and the Hermeneutics of Steve Reich’s *Four Organs*,” in *Rethinking Reich* (Oxford: Oxford University Press, 2019), 19–52.

fused by gradually sustaining more and more of the reiterated pitches during eighth note beats two and three. For example, in the Organ 1 part, in module 1, in the left hand, F#4 and G#4 are iterated on beat one and beat four. In module 2, the G# from the first iteration is sustained into beat two (Image 2.3). This pattern repeats until module 9, when both the F# and the G# are sustained during beat two. Then, in module 10, the G# is further sustained during beat three, thus bridging the originally separate iterations we saw in module 1. In module 11, the process is completed, with both F# and G# fused for the duration of beats one through four. Similar processes gradually connect the other chordal figures until all are fused in module 17.

Simultaneously during this process, a “reentry” figure emerges in Organs 2-4 that acts as a slowly growing upbeat. The reentry figure first appears in module 4, Organ 4, beat eleven: an E4 attack tied to the chord on the down beat. The figure expands in modules 6, 8, 11 of the introduction (see Image 2.4). Over the course of modules 18-42, Reich deployed multiple processes. First, the opening chord is incrementally extended in duration across modules (Image 2.5). Second, it is also gradually thinned within each module by releasing pitches of the chord one by one (Image 2.6). Third, the reentry figure in Organs 2-4 grows from module to module, eventually overlapping with the thinning in Organ 1 (Image 2.7). Fourth, the temporally expanding chord and reentry figure (the first and third processes described above) result in longer and longer module lengths (Image 2.8). Module 43 closes the piece by presenting only the thinning chord process.

Contrasting Reich’s piece with Carter’s quartet, Schonberg focused on the set of pitches in the piece and he seems to have misheard Reich’s processes in the piece (described above) as phasing, prevalent in the composer’s earlier compositions for tape and instruments.¹² Schonberg’s critique went further than a dismissive description of pitch content and process. Reich, according to Schonberg, had “confuse[d] an acoustic phenomenon with music. As such, ‘Four Organs’ is non-music...”¹³ More than just bad music, the piece did not, in Schonberg’s estimation, qualify as music. “The music is indeed a bore. There is no ‘content’ in this kind of music: it is pure sound, and there is nothing to ‘understand’ in it.” Schonberg cited “minor baroque compositions” that follow “formulae” without “personality” as additional examples of non-music. After dismissing the compositional content and its ontology, Schonberg critiqued those who received it as art. Schonberg argued that Reich’s music fooled people into believing it was art only because it was *presented* as art (a phenomenon he believed this music shared with minimalist visual art). But only those who were “afraid of ‘art’” or “do not understand what art really is” could be fooled. A third category of people could also fall for it: those who were “too emotionally inhibited to share

¹² Reich made clear in an interview with Michael Nyman that “*Four Organs* is not a phase piece at all: it consists of one chord growing in time.” Michael Nyman, “Steve Reich: An Interview with Michael Nyman,” *The Musical Times*, March 1971.

¹³ Schonberg, “Carter.”

the emotional and intellectual processes of a real creator's mind. 'Four Organs' is baby stuff, written by an innocent for innocents." The point for these innocents, "is for the listener to saturate himself in the pure sound, departing to other spheres on a cloud of musical Zen." Schonberg was not alone in his dissatisfactions. "[A]n amused and, in some cases, vocally resentful audience... started walking out in large numbers."

Unlike Reich's supposedly non-music output, recall how Schonberg asserted that Carter's piece "demands repeated hearings."¹⁴ What would someone like Schonberg expect one to do in these repeated hearings? Likely, engage in what has come to be called structural listening. Rose Subotnik's influential book chapter, "Toward a Deconstruction of Structural Listening," lays out a definition and the stakes. Drawing primarily on Adorno and Arnold Schoenberg's theorizations, Subotnik defines structural listening as "a method that concentrates attention primarily on the formal relationship established over the course of a single composition."¹⁵ Subotnik presents how listeners perform structural listening in time: it is "a process wherein the listener follows and comprehends the unfolding realization, with all of its detailed inner relationships, of a generating musical conception, or what Schoenberg calls an 'idea.'"¹⁶ The value of a composition, in this line of thought, stems from formal musical parameters which the listener should track.¹⁷ For Adorno, the more internal formal logic a piece has, the freer it is from social ideology and thus the greater its moral value.¹⁸ Such values and consequences may sound positive, but they came to be exclusionary: great art becomes understandable only to those whose "artistic and ethical culture is on a high level."¹⁹ Adorno would go so far as to call out the musical stupidity of

¹⁴ Schonberg, "Carter."

¹⁵ Rose Rosengard Subotnik, "Toward a Deconstruction of Structural Listening: A Critique of Schoenberg, Adorno, and Stravinsky," in *Deconstructive Variations: Music and Reason in Western Society* (Minneapolis: University of Minnesota Press, 1996), 148.

¹⁶ Subotnik, "Toward," 150.

¹⁷ Subotnik, 151-152. Subotnik also tracks how musical structures came to be "full," "metaphorical," and "replete," with "spiritual associations and imagery" for the Romantics of the 1800s. For some minimalist composers like Young, and some of their advocates in the audience, a similar system was at play but it shifted registers from structure to pitch content, as we shall see.

¹⁸ Subotnik, 154.

¹⁹ Subotnik, 155.

nonstructural listening.²⁰ Not only was the idealization of structural listening widespread in the American classical music subculture during the long Sixties, it was built on a long intellectual history in Western Europe and the States. Subotnik traces the roots of structural listening back through figures like Eduard Hanslick to Emmanuel Kant's idealization of disinterested aesthetic contemplation.²¹ As the concept developed into the mid-twentieth century, compositions could be judged by how well they met the expectations of structural listening. Did the musical parameters display a sense of internal logic? How did internal relationships serve the overall form of the piece? Whatever benefits may come from objectifying musical works in this way, Subotnik argued that very few compositions actually contained this level of internal logic. But that was never really the point, it was always more about the *feeling* of objectivity than its actual demonstration. Maybe the plethora of divisions that critics set up between high modernist works and minimalist compositions stemmed from desires for different feeling states or affects. Following Subotnik's line of thought: the high modernist camp wanted a neutral affect, and minimalism seemed to induce something different, something less disinterested, something less objective, something less reasonable. A different, maybe antithetical affective ideal.

Here, Jeanne Tsai's affect valuation theory (AVT) reframes the primary documents and the secondary literature on minimalist reception. Critics and scholars went on for pages about what made minimalism so strange, so at odds with the dominant logic in the American classical music subculture. Minimalism was, according to these writers, regressive, influenced by the exotic, a faux religious experience, ideological, simplistic, functional, escapist, isomorphic with corporate marketing techniques, the list goes on. Tsai's concept of ideal affect, the way we want to feel as opposed to the way we actually feel, threads all of these divides together. She argued in a 2007 paper that cultural forces shape the affective states we idealize and that discrepancies between ideal and actual affect lead to "mood-producing behavior," including music listening. AVT uses a

²⁰ "Technically, [Arnold Schoenberg's] maturing of music means the protest against musical stupidity. ...it does demand musical intelligence.... Schoenberg's music honours the listener by not making any concessions to him." Theodor W. Adorno, "Arnold Schoenberg, 1874-1951," in *Prisms* (Cambridge: The MIT Press, 1981), 154. Adorno also constructed a typology of listener types including the "culture consumer," "emotional listener," "resentment listener," "jazz expert and jazz fan," "entertainment listener," the "indifferent, unmusical, anti-musical," and the "expert listener." "My point is neither to disparage representatives of the described listening types negatively nor to distort the picture of reality by deriving judgements on the world situation from the present dubious state of listening to music. ...the condition arises from the nethermost sociological layers: from the separation of mental and manual labor, or of high and low forms of art; later from the socialized semiculture; ultimately from the fact that the right consciousness in the wrong world is impossible, and that even the modes of social reaction to music are in the thrall to the false consciousness." Theodor W. Adorno, *Introduction to the Sociology of Music*, trans. E. B. Ashton (New York: Continuum, 1976), 6, 8, 10, 12, 14, 17, 19, 18. For developments of Subotnik's writing as well as responses, see Judith Irene Lochhead and Joseph Henry Auner, eds., *Postmodern Music/Postmodern Thought*, Studies in Contemporary Music and Culture, v. 4 (New York ; London: Routledge, 2002).

²¹ For more on Hanslick, see Stephen Hinton and Nick Zangwill, "Musical Beauty," in *The Oxford Handbook of Western Music and Philosophy*, ed. Jerrold Levinson and Tomas McAuley (Oxford: Oxford University Press, in press).

standard, two-dimensional representation of affective space along lines of arousal (or energy) and valence (sense of good or bad). My proposal is simple: the high modernist camp idealized neutral affects (or, in the case of Adorno, also negatively valenced affects) while many advocates of minimalism, influenced heavily by the counterculture, idealized low arousal, positively valenced states (LAP) (Image 2.9).²²

From reviews of works by Philip Glass, Steve Reich, La Monte Young, and Terry Riley, positive descriptions of the music almost uniformly reside in the LAP region of the diagram. For advocates, the music was meditative, spontaneously pleasurable, “oriental tranquility,” hypnotic, contemplative, almost hallucinatory, profound, like taking drugs, trance-inducing, absorbing, timeless, fascinating, spellbinding, direct, sumptuous, arresting, transfixing, exuberant, irresistible, serene, ritualistic, gripping, revelatory, mesmeric, sensual, Nirvana, spiritual, exhilarating, static, evocative, spellbinding, hallucinogenic, exotic, baptism, a state of ecstasy, intense concentration, joyous, buoyant, quiescent, satisfying, relaxing, Zen. Such emphasis on the music’s psychological effects made the music easier to dismiss. In addition, complexity’s associations with reason and intelligence in the American and European classical music subcultures were defined against simplicity and affective responses. The music’s parameters and ritual or affective functions clumped it with other supposedly primitive musics and, given that its composers were classically trained, gave it an additional edge of regressive associations.

The valuation of supposedly neutral affective states in contrast with LAP states resonated with existing discourses dividing reason from feeling. Already in the early 1970s the binary was sufficiently established to afford critic John Rockwell the following lead: “The gulf between composers Pierre Boulez and La Monte Young seems...enormous.”²³ On the one hand, Boulez cast himself, wrote Rockwell, “...as a defender of Western rationality and individuality, battling to preserve the composer’s control and choice...” Boulez’s interest in rationality and individuality, supposedly Western values or characteristics, cascaded from composer to composition to performer to listener. These values were not only part of his personal branding, they were perceived in the structure and content of his compositions (and the compositions emerging from other high modernists in the subculture), in instructions for performers, and even into the ideal mode of listening for audiences in the subculture.

²² Note that my use of the word affect differs from the many ways it is deployed in affect theory. Tsai’s definition works nicely: “Affective states are neurophysiological changes that are often experienced as feelings, moods, or emotions and that can be organized in terms of at least two dimensions.” Tsai, “Ideal,” 242. My aim, unlike Massumi et al. is to bring experimental psychology literature and music reception history into dialogue, not craft specialized, humanities-only definitions of psychological concepts.

²³ John Rockwell, “Boulez and Young: Enormous Gulf or Unwitting Allies?,” *Los Angeles Times*, February 13, 1972, sec. V.

How did composers, critics and audiences hear rationality and individuality in high modernist compositions? In 1969, *New York Times* critic Theodore Strongin praised Elliot Carter's *Sonata for Flute, Oboe, Cello, and Harpsichord* (1952) and the *Sonata for Cello and Piano* (1948) as positive examples of "timelessness," a kind of composing that Strongin believed rose out of the "inner place" of the creator, and with a force that leads to "inevitability": additional words for individuality and rationality.²⁴ Carter, said Strongin, "writes within, he follows his inner demands." These inner demands translated into compositional complexity and perceived intellectual demands on the listener.

[Carter's] demands are rigorous ones. In both [the *Sonata for Flute, Oboe, Cello, and Harpsichord* and the *Sonata for Cello and Piano*], each instrument is a remarkably independent identity that goes its own way. And yet, [the instruments] are parts of a lofty, many-layered scheme. Although each [instrument] serves the overall scheme, each does so as a full-fledged unit of its own. Each is a separate personality, so to speak, whose character is organized into a grand total design.²⁵

Strongin may have been responding to the rhythm, meter, and register devices that Carter used in the *Sonata for Cello and Piano* to exaggerate the independence of the two instruments (Images 2.10-14) as well as the unifying pitch and formal elements (Images 2.15-16). The *Sonata for Flute, Oboe, Cello, and Harpsichord* offers less drastic examples of instrumental independence but just as much large-scale structure within its three movements (fast-slow-fast) (Images 2.17-19).

Pierre Boulez and his serialism were also cornerstones of high modernism for critics. He was, according to music publisher Ernst Roth, a "leading representative of the younger generation of composers."²⁶ If Boulez "...viewed composition as a form of aesthetic research and demanded that it be conducted on stringently scientific (that is, logical) lines..." his second piano sonata illuminates how these values manifested as complexity in musical parameters and formal structures in compositions.²⁷ From a pitch perspective, Boulez laid out what amounts to a twelve-tone row in the opening two measures of the work (Image 2.20).²⁸ Rather than deploying it as a single entity, Boulez treated the row as a "reservoir" of material, with smaller units or cells of the row developing over the course of the movement.²⁹ Structure emerges from textures and their associated tempos, the work contains an allusion to J.S. Bach (Image 2.21), and according to composer Samuel Andreyev, a reference to Beethoven's *Große Fuga* in the fourth movement's

²⁴ Theodore Strongin, "Is Timelessness Out of Style?," *New York Times*, December 21, 1969, sec. D.

²⁵ Strongin, "Timelessness."

²⁶ Ernst Roth, *The Business of Music; Reflections of a Music Publisher* (New York: Oxford University Press, 1969), 218.

²⁷ G.W. Hopkins, "Boulez, Pierre," in *Grove Music Online*, 2001, <https://www.oxfordmusiconline.com/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000003708>.

²⁸ Ton de Leeuw, *Music of the Twentieth Century: A Study of Its Elements and Structure* (Amsterdam: Amsterdam University Press, 2005), 126-127.

²⁹ Samuel Andreyev, *Pierre Boulez' Deuxième Sonate: Analysis*, accessed September 17, 2019, <https://www.youtube.com/watch?v=8giW4XdcV-M>.

fugal writing. In addition, Ton de Leeuw gave a thumbnail sketch of rhythmic complexity in the third movement, detailing how three rhythmic cells are developed. Already in the opening ten measures, Leeuw traces how the three cells are presented, compressed, elided, and then run through a similar cycle with additional development (Image 2.22).³⁰ Zooming out to the level of tempos, Boulez incorporated twelve tempo changes in the third movement which lasts just 2'30" and consists of only 84 total measures (Image 2.23). The performer is also drawn into its demands. In the opening remarks to the performer, Boulez notes that the rhythms and silences must be “extremely respected,” he coaches performers on how to handle the irregular meter, instructs that the voices in the counterpoint are of equal importance, and states that “articulating the musical architecture is left to the understanding of the interpreter” taking care to avoid “expressive nuances.”³¹

In 1952, Boulez was so convinced of the connection between serialism and compositional value that he could state: “...any musician who has not experienced—I do not say understood, but truly experienced—the necessity of dodecaphonic language is USELESS. For his entire work brings him up short of the needs of his time.”³² This meant taking seriously the compositional problems posed by works from the past, formulating from them a “constructive logic.”³³ Composers could bring pitch, rhythm, intensity, mode of attack, and timbre into the logic springing out of dodecaphonic music. Even when Boulez loosened his grip on serialism and incorporated mildly aleatoric features into works like *Éclat/Multiples*, reviewers praise revolved around its “minute application of deep structural philosophies” and its status as a “cerebral

³⁰ Leeuw, *Music*, 43-44.

³¹ “Respecter extrêmement les rythmes et les silences... La métrique étant irrégulière, les indications métronomiques indiquent le tempo général par celui du ou des premiers groupes de notes. Tous les contrepoints sont également importants: il n'y a ni parties principales, ni parties secondaires. Le soin d'articuler l'architecture musicale est laissé à l'intelligence de l'interprète... Eviter absolument, surtout dans les temps lents, ce que l'on convient d'appeler les “nuances expressives”. Pierre Boulez, *Deuxième Sonate: Pour Piano* (Paris: Heugel, 1950), Remarques.

³² “...tout musicien qui n'a pas ressenti—nous ne disons pas compris, mais bien ressenti—la nécessité du langage dodécaphonique est INUTILE. Car toute son œuvre se place en deçà des nécessités de son époque.” Pierre Boulez, “Possibly...” in *Stocktakings from an Apprenticeship*, trans. Stephen Walsh (Oxford: Clarendon Press, 1991), 113. Pierre Boulez, “Éventuellement...” in *Relevés d'apprenti* (Paris: Éditions du Seuil, 1966), 149.

³³ Boulez, “Possibly,” 115. “What does this leave for us to try, if not to gather up the various possibilities worked out by our predecessors, while demanding of ourselves a minimum of constructive logic? At a time of transformation, and reorganization, in which the problem of language presents itself with particular acuteness, and, from which it seems that music will derive its *grammar* for some time to come, we assume our responsibilities unflinchingly. No sham emotionalism is going to prevent our practical working-out of the feeling, the felt necessity, of our time.” “Que nous reste-t-il, dès lors, à tenter, si ce n'est ramasser le faisceau des disponibilités élaborées par nos prédecesseurs, en exigeant de soi-même un minimum de logique constructive? A une époque de transformation et d'organisation, où le problème du langage se pose avec une particulière acuité, et dont, semble-t-il, découlera pour un certain temps la *grammaire* musicale, nous assumons nos responsabilités, avec intransigeance. Ce ne sont pas des hypertrophies cardiaques simulées qui arrêteront notre mise en œuvre de la sensibilité, de la nécessité sensible de notre époque.” Boulez, “Éventuellement,” 152.

feast.”³⁴ In the piece, Boulez gave indeterminate information about duration and dynamics but the conductor often makes decisions on behalf of the performers and cues them in a predetermined manner (Image 2.24).³⁵ The ascribed intellectual, cerebral quality seemed associated with the density of information in the score (as opposed to the density of real-time information in performance: in other words, a slow serial movement can be information dense).³⁶ If information is defined in popularized cybernetic terms as the “transmission of...equally probable bits in computer networks,” then pieces like Boulez’s second piano sonata place it above the complexity of works with slower development and more subtle changes like *Four Organs*.³⁷ As we shall see, this privileges cognitive load complexity over complexities of sensation or perception.

If Schonberg perceived a lack of content in Reich’s *Four Organs*, judgements were even worse for drone works by La Monte Young, which seemed not only content-free but also devoid of form. An initial encounter with a piece like *31 VII 69 10:26-10:49 pm*, named after the date and time it was recorded, likely feels aimless. For example, Richard Taruskin’s analysis sums up the piece this way,

³⁴ Martin Bernheimer, “Well-Conceived Merger of Past, Future at Ojai,” *Los Angeles Times*, June 10, 1973, sec. P. For more on the concept of depth in Western classical music, see Holly Watkins, *Metaphors of Depth in German Musical Thought: From E. T. A. Hoffmann to Arnold Schoenberg* (Cambridge: Cambridge University Press, 2011).

³⁵ See the composer’s instructions (taken from the score). Pierre Boulez, *Éclat*, 1st ed. (London: Universal Edition, 1965).

³⁶ Note that from Boulez’s perspective as a composer, his serial mode of creation was not devoid of or opposed to expression—they were interwoven. “In a dying echo of romanticism, theoretical research is still, as we have seen, regarded as a closed circle having no common ground with creative work in the true sense. Let us have done with this outdated legend: we must indeed do so, or die of asphyxia. A consciously organizing logic is not something independent of the work, it contributes to its making, it is connected to it in a two-way circuit; for it is the need to pin down what one wants to express that directs the evolution of technique; this technique reinforces the imagination, which can then protect itself towards the previously unperceived; and in this way, in an endless play of mirrors, creatively pursues its course; a living and lived organization, allowing every discovery, enriched by every new experience, self-completing, self-modifying, even as regards its accentuation. I go further: it is through the glorification of rhetoric that music justifies itself. Otherwise, it remains trivial anecdote, deafening grandiloquence, or gloomy debauchery. Is a conclusion necessary? Once more, the unexpected: ‘The heart, an intestine which replaces everything...’ [Verlaine, “Les Œuvres et les hommes par Barbey d’Aurevilly”].” Boulez, “Possibly,” 139-140. “Dernier résidu du romantisme, on conçoit toujours les recherches théorique comme un cycle fermé, ne coïncidant pas avec les créations proprement dites, ainsi que nous l’avons déjà mentionné. Débarrassons-nous de cette légende désuète: il ne peut, sous peine d’asphyxie mortelle, en être ainsi. Une logique consciemment organisatrice n’est pas indépendante de l’œuvre, elle contribue à la créer, elle est liée à elle dans un circuit réversible; car c’est le besoin de préciser ce que l’on voudrait arriver à exprimer qui amène l’évolution de la technique; cette technique renforce l’imagination qui se projette alors vers l’inaperçu; et ainsi, dans un jeu de miroirs perpétuel, se poursuit la création; organisation vivante et vécue, laissant possibles toutes les acquisitions, s’enrichissant à chaque nouvelle expérience, se complétant, se modifiant, changeant même d’accentuation. Nous dirons plus: c’est par la glorification de la rhétorique elle-même que la musique se justifie. Sinon, elle ne demeure qu’anecdote dérisoire, grandiloquence fracassante, ou libertinage morose.” Boulez, “Éventuellement,” 182.

³⁷ Ronald R. Kline, *The Cybernetics Moment, or, Why We Call Our Age the Information Age* (Baltimore: Johns Hopkins University Press, 2015), 6. Another example of contemporary low-information compositions are the *barococo* pieces described in Robert Fink, “A Pox on Manfredini”: The Long-Playing Record, the Baroque Revival, and the Birth of Ambient Music,” chap. 4 in *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley: University of California Press, 2005).

a sine-wave generator...gives out a continuous G below middle C. Zazeela's part is confined to doubling the drone, while Young's voice slides among tones that harmonize with the drone at perfect Pythagorean intervals: unison, octave plus minor seventh, fourth, and major second... Near the end, Zazeela moves briefly from the drone to the second and then resumes the drone.³⁸

A pitch-content analysis could simplify it even more drastically to four pitch classes: G, D, F, and A. But analyses of the work, similar to the brief overview of *Four Organs*, can readily offer more nuances. Analysis of the piece alongside Young's writings reveal a modular structure.³⁹ We can view the piece as consisting of three kernels: melodic figures defined by their pitch content and order. Image 2.25 shows their simplest forms. The modular structure or form is revealed in at least three ways (Image 2.26). First, multiple consecutive phrases are based on kernel C or kernel A during the first three-fifths of the piece but after phrase 47 we never hear consecutive phrases based on only one kernel. Second, phrases based on kernel B appear more and more frequently, building up to a climactic moment in phrase 60 when Marian Zazeela shifts her drone from G4 to A4.⁴⁰ Third, the integration of multiple kernel elements into one phrase (kernel fusions) increase over the course of the recording. Kernel fusions also become more complex such as in phrases 51 and 62 featuring elements of all three kernels. While it is true that Young and Zazeela's performance does not reveal the sort of pre-planned forms we encountered in the Boulez and Carter sonatas, it is possible to construct a structural analysis of the recording ("Keep on seeking, and you will find").⁴¹

In addition, a micro-level analysis reveals just how much variation exists within what I labelled as kernels. No two phrases based on kernel B are identical, one version of kernel C does occur multiple times (phrases 4, 7, 34, 36, 40, and 43) but only if we ignore note durations, and mutations of kernel A are particularly instructive. They range from the kernel as conceived in Image 2.25 in phrases 18 and 54 to augmentations like phrases 2 and 47, retrogrades like phrase 10 (with an added D4 at the beginning of the phrase), to fusions with kernel C like phrases 1 and 53 and phrase 63. In any case, for Young, the aesthetic power of these works did not come from conscious awareness of form, but from the neural processing of the carefully selected pitch

³⁸ Richard Taruskin, "A Harmonious Avant-Garde?," in *Music in the Late Twentieth Century* (Oxford: Oxford University Press, 2005).

³⁹ Microanalysis of the piece benefits from concepts of ornament and raag from Hindustani classical music.

⁴⁰ Note that Zazeela's part interacts with Young's in two main manners: droning over Young's phrase breaks (providing continuity) and filling the long gap at structural moments like that between modules 46-47.

⁴¹ Matthew 7:7 (New Living Translation). Music theorists have grappled differently with issues of depth in minimalist repertoire. See Tristian Evans, "Analysing Minimalist and Postminimalist Music: An Overview of Methodologies," in *The Ashgate Research Companion to Minimalist and Postminimalist Music*, ed. Kyle Gann and Pwyll Ap Siôn (Burlington, VT: Ashgate Publishing Company, 2013), 241-258; and Sumanth Gopinath and Pwyll ap Siôn, "Introduction: Reich in Context," in *Rethinking Reich* (Oxford: Oxford University Press, 2019), 3-5. Quinn has also detailed his approach to the problem in Ian Quinn, "Minimal Challenges: Process Music and the Uses of Formalist Analysis," *Contemporary Music Review* 25, no. 3 (2006): 283-94.

content. Believing that our “brains can best analyze information of a periodic nature,” Young sought out pitches with integer-multiple relationships. Audiences exposed to specific frequencies would reach a causally-related psychological state.⁴²

The consequences of deploying structural listening with a piece like *31 VII 69 10:26-10:49 pm*, a part of Young’s *Map of 49’s Dream*, undergirded many negative reviews. For example, after a quick dig at the title of the work (“The title of La Monte Young and Marian Zazeela’s (she is Mrs. Young) sound-plus-light show, heard and seen at the Barbizon Plaza Theater last night is (hold your breath) — ‘Map of 49’s Dream the Two Systems of Eleven Sets of Galactic Intervals Ornamental Lightyears Tracery (1966-present)’”), a critic described the piece as “a continuous, unchanging environment... It goes on like an eternal drone, changing only marginally, very slowly, almost imperceptibly.”⁴³ “Experiencing ‘Map’ was like being held in an involuntary trance with time almost stopped. Just as it had no beginning, for the audience at least, so it felt that it would never end. Maybe it won’t. It was still going on when I left.” Another reviewer set the scene and described the effects this way:

The concert’s atmosphere of trancelike timelessness was heightened by burning incense and by slides of calligraphic tracery projected by Young’s wife, Marian. Practiced listeners could lose themselves ‘inside the sound environment’ and ‘ride’ on the infinite variations of small detail within the over-all monotony. Less entranced listeners wondered if tedium isn’t the message of Young’s flirtation with catatonia (Image 2.27).⁴⁴

In other words, the work holds little or next to nothing for thinking listeners. In fact, it could give them headaches and was even displeasing to dogs. Harold Schonberg recorded the details:

O.K. Carnegie Recital Hall was filled with electronic equipment, loudspeakers fore and aft, incense permeating the hall, lights at a minimum. The Young piece consisted mostly of one note, amplified, with occasional interjections from the dim musicians on the dark stage. That one note was loud. LOUD. People walked in, blanched, stood it for a while, and walked out. They sat on the stairs, smoked, murmured to each other. One lady loudly announced that she had a headache. ‘Here,’ she said, pointing to her right temple. ‘I’m going home and take some aspirin.’ A couple with a nondescript dog walked in. They came out a few moments later. The dog looked unhappy.⁴⁵

⁴² Jeremy Grimshaw, “Getting Inside the Sound: The Works from 1959 to 1960,” in *Draw a Straight Line and Follow It: The Music and Mysticism of La Monte Young* (Oxford: Oxford University Press, 2011). See also Junker’s 1968 review and interview with Young: Howard Junker, “Johnny One-Note,” *Newsweek*, March 4, 1968. “With the long durations of space travel, he [Young] believes, the problem of ‘continuous sounds’ will become acute. But by then he hopes to have established certain sets of ‘preferred frequencies’ that will generate desired psychological states.”

⁴³ Theodore Strongin, “Sound-Light Show Drags Slowly On,” *New York Times*, February 19, 1968. Poking fun of Young and Zazeela’s titles was a common trope in concert previews and reviews. Another “classic” comes to us from H. Schonberg: “It’s nonsense, and everyone is going to say that the title is the best thing about the composition. Let me be the first to say it.” Harold C. Schonberg, “Music: Second Avant-Garde ‘Evening,’” *The New York Times*, January 13, 1965. See also “Art Notes: Arts Club to Exhibit Boghosian,” *Chicago Tribune*, January 18, 1970.

⁴⁴ Junker, “Johnny.”

⁴⁵ Harold C. Schonberg, “Music: Loud Last Word,” *The New York Times*, May 7, 1969.

On the other side of the country, Winfred Blevins judged Young's piece more ambivalently but still emphasized its barely-changing nature: "Here are sounds for the senses without the mind—no beginning, middle, or end, no development, no order, no pattern. ...the effect is near total stasis."⁴⁶ His takeaway? "I felt a child-like exhilaration in merely perceiving for about an hour. After that it seemed a kind of sensory over-kill." "Rigid," and "rejecting" reactions to the music came from listeners who were "afraid of being fooled...the ones who see the emperor's clothes everywhere," wrote one reviewer.⁴⁷ With supposedly no organic development or macro-structure, was this some kind of joke? Or were the creators really so simple? Harold Schonberg believed the latter. In a tellingly titled review ("One-Note Nirvanas? Music as Ritual? Phooey!"), he wrote

With much of the music of the Cage school and its derivatives...there is little feeling that powerful and unique minds are at work. Often there is instead the heady smell of opportunism on the one hand, spiritual nullity on the other. If these practitioners want to make an esthetic of pure dullness (and they do), it results in a retreat from life and the world rather than real engagement with its problems: only a bird in a gilded Cage.⁴⁸

Such characterization applied to all of the Big Four, as in an article from Alan Kriegsman, in which he wrote of a strand of "...obsessive fundamentalism, going back to Satie, perhaps, but conditioned also by Indian ragas and the quest for new spiritual ecstasies. La Monte Young, Terry Riley, Philip Glass, and Steve Reich are the best known exponents of this new idiom, based on rhythmic iteration and permutation..."⁴⁹ Perhaps most dimly, composer and musicologist Wim Mertens linked minimalism with the Freudian death drive in his groundbreaking 1983 study of the Big Four.

In repetitive music, repetition does not refer to eros and to the ego, but to the libido and to the death instinct. Process and repetition produce a shift from the dialectical principle of reality onto the unconscious level, where external realities are replaced by psychic ones. The ecstatic state induced by this music, which could also be called *a state of innocence, an hypnotic state, or a religious state*, is created by an independent libido, freed of all the restrictions of reality. Repetitive music only appears to succeed when the listener

⁴⁶ Winfred Blevins, "Senses Called on in Museum Event," *The Los Angeles Times*, January 31, 1968. While this music, for Blevins, was not for the mind, he found that it made him "more conscious," albeit of his body. Unlike Fred Turner's discussion of multimedia audience stimulation, the effects of Young and Zazeela's multi-sensory and multimedia events were intended to induce single states. Fred Turner, *The Democratic Surround: Multimedia & American Liberalism from World War II to the Psychedelic Sixties* (Chicago; London: University of Chicago Press, 2013).

⁴⁷ Jean Vanden Heuvel, "The 'Fantastic Sounds' of La Monte Young," *Vogue*, May 1966.

⁴⁸ Harold C. Schonberg, "One-Note Nirvanas? Music as Ritual? Phooey!," *The New York Times*, July 20, 1969, sec. D. This article was a response to an earlier article penned by composer Larry Austin who wrote, in part: "'Why so loud? Why just one note? Why 80 minutes long?' Partly because the composers and practitioners of new music, particularly of electronic music, want to audience to be physically as well as intellectually and spiritually involved in their music, to be taken 'out of time' into a private, nirvanic sound-world. The loudness is part and parcel of the music—the corporeal aspect. They want to immerse their audience in sound, sight and smell, just as they are. It's an act of love, not hostility. Their music is new ritual, not old." Larry Austin, "'Music Is Dead—Long Live Music,'" *The New York Times*, July 6, 1969, sec. D.

⁴⁹ Alan M. Kriegsman, "Serious Music: 1973: Crosscurrents," *The Washington Post, Times Herald*, January 7, 1973, sec. G.

consciously discards his dialectical way of listening. Ecstasy in other words can only occur when the ego can let go. Repetitive music can lead to psychological regression. The so-called *religious* experience of repetitive music is in fact a camouflaged erotic experience. One can speak of a controlled pseudo-satisfaction because the abandoning of dialectical time does not really happen but is only imaginary. The libido, freed from the external world, turns towards the ego to obtain imaginary satisfaction. Freud defined this as a regression and a ‘return to the infantile experience of hallucinatory satisfaction’. To what extent the ecstatic dimension is consciously pursued and to what extent it may even be the main purpose of composing repetitive music, is not clear. It is certainly one of the main reasons for its popularity. The drug-like experience and the imaginary satisfaction it brings about are even more obvious in disco music and space-rock, the popular derivatives of repetitive music....Processes of production without negativity are utopian and historically unrealistic, like the absolute libido in repetitive music.⁵⁰

Mertens went on to cite Marcuse on the ability of “ruling monopolist powers” to absorb theoretically and initially “emancipatory movements” such as minimalism.⁵¹ Minimalism, springing out of experimentalism and the avant-garde, was supposed to be (for Frankfurt school theorists like Marcuse) a seedbed for real difference and change. To see the music’s effects as yet another false consciousness was scary and called for denouncement.⁵²

Fink emphasized in his 2005 book that psychoanalytic terms are “just metaphors for the bodily effects of material social conditions.”⁵³ I propose that attempting to translate these metaphors at physiological (including neurophysiological) levels illuminates the reactions of both detractors and advocates while simultaneously revealing why denouncements of minimalism from the long Sixties fall so flat for listeners today. Music critic and composer Tom Johnson, writing about La Monte Young, Steve Reich, Terry Riley, and Philip Glass in 1972, described a special mode of listening for minimalist compositions:

The term ‘static’ is often used in reference to their music, since it never leaves this one level and never seems to be moving toward anything. Traditionally this word has been considered derogatory when applied to music, and in many quarters it still is. But in listening to the music of these composers, one soon discovers that static does not necessarily mean boring, the way we always thought it did. Many interesting things happen all on one plane. A pitch changes slightly, a rhythm is altered, something fades in or out. They are not big changes, but they are changes, and there are more than enough of them to sustain one’s interest, provided that he can tune in on this minimal level.⁵⁴

⁵⁰ Wim Mertens, *American Minimal Music: La Monte Young, Terry Riley, Steve Reich, Philip Glass*, trans. J. Hautekiet (London: Kahn & Averill, 1983), 123-124. For more on the religious as erotic experience, see Jeffrey J. Kripal, *Secret Body: Erotic and Esoteric Currents in the History of Religions* (Chicago: The University of Chicago Press, 2017).

⁵¹ Mertens, *American*, 124.

⁵² Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, 2nd ed. (Boston: Beacon Press, 1991). For one strand of the origins of this pattern of thought, see Walter Benjamin, *Illuminations*, ed. Hannah Arendt, trans. Harry Zorn (London: Pimlico, 1999).

⁵³ Fink, *Repeating*, 7.

⁵⁴ Tom Johnson, “La Monte Young, Steve Reich, Terry Riley, Philip Glass,” in *The Voice of New Music by Tom Johnson: New York City 1972 - 1982, a Collection of Articles Originally Published in the Village Voice*, ed. Tom Johnson and Paul Panhuysen (Eindhoven: Het Apollohuis, 1981).

Tuning in on this minimal level meant, for Johnson, listening for small changes in parameters like pitch, rhythm, and loudness. Johnson's article brings up a crucial point: it is not that minimalism's advocates were not paying attention to the music, rather, they were listening at a different "level," to use Johnson's words. Tuning in on a minimal level was bringing attention from "high" level cognitive concerns like form "down" to sensation and perception. This was fraught terrain: influential countercultural authors, as we shall see in later chapters, believed that sensation and perception, particularly sensation, were pure and unmediated psychological states, meaning they were not corrupted by culture, they were shared with all people, a potential global connection. High modernists viewed such levels as *beneath* reason, and, as we saw in Harold Schonberg's review, beneath the threshold of aesthetic experience. (As we will see below, many in the classical music subculture beyond just high modernists held similar views and were similarly influenced by structural listening paradigms.) Johnson managed to bridge the binary of reason and feeling, staking out a middle ground between the slow processing of cognitive work and supposedly instantaneous aspects of affect. Minimalist works and their contemplation were neither pure affect nor pure structure for Johnson.

Johnson's article highlights the importance of attending to small changes in the music. Why would this be desirable or interesting for a listener? David Huron summarized previous research on mere exposure and auditory repetition and argued that, all other things being equal, more predictable music is more preferred. In fact, while our responses habituate, "continuing to present the stimulus still results in an increased liking."⁵⁵ Of course, in the case of minimalism's listeners, all other things were not equal: the effects of other musical features, cultural associations, and listeners' expectations informed their reactions. But even remaining focused on minimalism's repetition, we find that its relationship with predictability is complex. Unpredictable repetition found in compositions like those of Glass's *Two Pages*, offers listeners repeating modules of slightly changing content and length within an extreme amount of repetition (see the arc diagram in Image 2.28). For example, module 1 consists of a five-note, rising melody (Image 2.29). Module 2 adds an additional four notes - a restatement of the first four notes of module 1. This additive process is also reversed at times, with bits of the accumulated melody dropping off across modules (Image 2.29).⁵⁶ What makes these small changes potentially interesting is their unpredictability: because the number of module repetitions is indeterminate, left up to the performer, the listener never knows precisely when the small change will happen.⁵⁷ The first-time listener is also unaware of the precise content of the upcoming module. To see this in detail, I

⁵⁵ David Brian Huron, *Sweet Anticipation: Music and the Psychology of Expectation* (Cambridge, MA: MIT Press, 2006), 135.

⁵⁶ For a detailed and early analysis of the work, see Wes York, "Form and Process in Two Pages of Philip Glass," *Sonus* 1, no. 2 (1981): 28–50.

⁵⁷ It is possible that a performer could choose to repeat each module the same number of times, thus making the repetition predictable, but I have yet to encounter a performance like this.

computed the number of notes that occur between iterations of the same pitch in Glass's *Two Pages*. As Image 2.30 shows, while there are patterns, they are non-linear meaning that even at an acoustic level, there is highly unpredictable repetition.

In an experiment I conducted, participants heard stimuli with this sort of unpredictable repetition (based on Glass's technique) and different stimuli with predictable repetition (where each module is repeated the same number of times) and the same pitch content. We found that preattentive monitoring (that is, quasi-automatic monitoring occurring before one is conscious of a given stimulus element) continued over the course of our minutes-long stimuli when the repetition was unpredictable but diminished over the course of predictable stimuli.⁵⁸ Perhaps when listeners tune in on a minimal level, the rewarding and potentially pleasurable response arises from bringing conscious attention to ongoing preattentive processes that is calling out for attention.⁵⁹ For minimalism's advocates, a mode of listening that seemed infantile or pathological to detractors was an entry into the foundations of human perception.⁶⁰ Elizabeth Margulis has argued that the use of repetition can be ritualistic, demoting quotidian goals, shifting attention and eliciting "a sense of profundity, sacredness, or transcendence..."⁶¹ "Repetition makes it possible for us to experience a sense of expanded present characterized not by the explicit knowledge that x will occur at time point y, but rather by a heightened sense of orientation and involvement."⁶²

Minimalism's reception as non-thinking music by detractors also led them to question the composers' intentions.⁶³ Music critic Donal Henahan presented the case against minimalism because of its perceived diminishment of composers' control over their works. In presenting this case, Henahan drew parallel examples from Indian classical music and medieval music in the West.⁶⁴

⁵⁸ For details, including more information about the stimuli, see Interlude A and Tysen Dauer, Barbara Nerness, and Takako Fujioka, "Predictability of Higher-Order Temporal Structure of Musical Stimuli Is Associated with Auditory Evoked Response," *International Journal of Psychophysiology* 153 (2020): 53–64, <https://doi.org/10.1016/j.ijpsycho.2020.04.002>.

⁵⁹ Kathrin Lange, "The Ups and Downs of Temporal Orienting: A Review of Auditory Temporal Orienting Studies and a Model Associating the Heterogeneous Findings on the Auditory N1 with Opposite Effects of Attention and Prediction," *Frontiers in Human Neuroscience* 7, no. 263 (2013), <https://doi.org/10.3389/fnhum.2013.00263>.

⁶⁰ Elizabeth Margulis has pointed out the long history of pathologizing repetition and those who like to listen to it. See Ferdinand Praeger's exclamation that repetition is "the emanation of a disordered brain." in Elizabeth Hellmuth Margulis, *On Repeat: How Music Plays the Mind* (Oxford: Oxford University Press, 2013), 4.

⁶¹ Elizabeth Hellmuth Margulis, *On Repeat: How Music Plays the Mind* (Oxford: Oxford University Press, 2013), 57.

⁶² Margulis, *Repeat*, 9.

⁶³ For more on authorship in minimalist circles, see Patrick Nickleson, "The Names of Minimalism: Authorship and the Historiography of Dispute in New York Minimalism, 1960–1982" (PhD diss., University of Toronto, 2017) and Patrick Nickleson, "Transcription, Recording, and Authority in 'Classic' Minimalism," *Twentieth-Century Music* 14, no. 3 (2018): 361–89.

⁶⁴ For more on critique of minimalist compositions because of elevated status of composer/creator, see David Nicholls, "Transethnicism and the American Experimental Tradition," *The Musical Quarterly* 80, no. 4 (1996), 587–588.

The composer himself might not agree, but he appears to be occupying a less prominent place in such works as Terry Riley's 'In C' and Steve Reich's 'Violin Phase.' In these intricate, long and hypnotic pieces, the patterns and root formulas are more or less stipulated but development of ideas is largely left to performers, or to performers abetted by computers, electronic sequencers and other devices for expanding human capabilities. Often as not, such pieces are cast in an open-ended, or extended-time, form: duration is not specified, so that the music can last for hours or minutes depending upon the mood and milieu of the moment. The Indian raga naturally suggests itself as a model for such pieces—and who was the auteur of the raga you heard Ravi Shankar perform? The anonymity of the composers of Gregorian chant also comes to mind in discussing such works.⁶⁵

He tellingly used Boulez as a counterexample to this diminishment strand and links it with French rationalism. Finally, all things non- and anti-rational were piled upon Cage and his followers (including minimalists).

Of course, individual expression, which underlies the auteur theory, is still much alive, and motivates the great majority of composers, even yet. On his last visit to New York, Pierre Boulez was asked by this writer what he thought was the reason for composing music in our day. He looked startled at the very question and replied quickly, 'Self-expression, of course.' The French, children of rationalism and imperial history who still dream of old glories, were the ones who thought up the auteur theory to explain away bad films, and Boulez is obviously not ready to abandon the parallel concept in music... Cage and his followers, on the other hand, seem hopeful of reuniting themselves, through music, with the universe. They look back fondly at Pythagoras, for whom music was numerology, astrology and magic. They play at Tarot cards, I Ching and dice, and search for the mystic convergence of chance with determinism. They are in flight from authorship, commonsensical logic and fealty to Apollo, toward group creativity, nonsensical anti-logic and the ecstasies of Dionysius. To a traditionalist, such music may seem a subversion of the hard-won Western ideals of the separate self, the organic personality, the mastermind and the masterpiece. The auteur theory rests on these foundations—as do the virtuoso concerto, the novel, the solo recital, the autobiography and the Olympic pole vault. But after too many man-made disasters and wars in this century, the young have had enough for now of chest-thumping, and their musicians are reflecting that dissatisfaction. It is not stretching things to find parallels between the new modes in art and the turn to drugs, magic, group gropes, anti-rationalism and student protests. But how to listen these days, with old moorings drifting away?... It may help to unburden ourselves of history now and then, when we listen to the new music, and occasionally even to forgo the crutch of "style." The question to ask each composer, whether he regards himself as auteur or member of the universe, is the old one: What of the night? Does he have anything to pass on? And we do still need the author, after all, if only to give us somebody to blame when the show is over.⁶⁶

Henahan's review displays how easily a whole host of supposedly "anti-logical" associations glommed onto minimalist works. While Henahan made a gesture towards critiquing such simplistic, either/or logic ("...such music may *seem* a subversion..."), he ends up reinforcing the original division by connecting the anti-logical list with counterculture-associated activities ("drugs, magic, group gropes, anti-rationalism..."). In the end, Henahan offers a thin justification

⁶⁵ Donal Henahan, "Who Dreams of Being a Beethoven?", *The New York Times*, June 29, 1969, sec. D.

⁶⁶ Henahan, "Who."

for retaining an emphasis on the auteur/composer: we need someone to blame if we did not enjoy the concert.

The thinking versus feeling dichotomy at work in differences between neutral and LAP ideal aesthetic affective states also resonated with Orientalist binaries of East and West. Previous scholarship by Cecelia Sun and Ralph Locke showed how minimalist compositional techniques, recording paratext, and concert environments were exoticized and Orientalized. The ideal affect framing of minimalist reception adds another item to that list: listeners' psychological states. While Tsai argues that ideal affect is culturally bound and never promotes a racialized division of East and West or a hierarchy of superiority, the situation was less nuanced in the American classical music subculture of the long Sixties. LAP states, especially when described as meditative states, were directly linked with an imagined, unitary Eastern culture and way of being (one which overlapped with mid-twentieth century racial categories). The writings of music critic John Rockwell give the most explicit account of this logic.

As one of minimalism's most influential early advocates, Rockwell frequently mentioned the music's meditative effects. Reflecting back on the music in the 1980s, he described the Orientalist binary at play, mapping the Orientalist binary onto modes of listening, musical parameters, their effects, listeners' expectations, gender, and heterosexual sex:

The way this Oriental influence most decisively expressed itself in American music of the sixties and seventies was in a newly meditational mode of perception. Western art music has been built on tension and release... The meditational approach is more quiescent. The listener settles into the flow of a piece rather than tensely awaiting its denouement; a parallel between traditional masculine and feminine love-making suggests itself. Someone accustomed to conventional Western classical music may find this new meditational music uneventful, simplistic and dull; the new listener — and many Orientals — find classical music noisy, clumsy and brash.⁶⁷

Kate Lloyd's detailed description of a concert by Young and Zazeela offers a glimpse of how, in the style of Locke's "All the Music in Full Context" paradigm, multiple senses reinforced Orientalist associations for listeners.⁶⁸ Visual elements like a rug, clothing, and an ash tray, proprioceptive qualities like the posture of the performers, and olfactory stimulation of incense all become affordances for Orientalism that tugs minimalism into its orbit. Musical elements like drones and their effects, including a child-like stance towards sound and a vaguely mystical description of supposed stasis more subtly link the music with the Eastern side of the binary.

Three singers sit in a row cross-legged on an Oriental rug with on violinist perched near them on a low stool. The singers: two men, one of whom is La Monte Young, and his wife, all wear pale silk kimonos and dark glasses; the violinist—no glasses—trousers, shirt,

⁶⁷ John. Rockwell, "The Orient, the Visual Arts & the Evolution of Minimalism," in *All American Music: Composition in the Late Twentieth Century*, 1st ed. (New York: Knopf, 1983), 112-113.

⁶⁸ Ralph P. Locke, *Musical Exoticism: Images and Reflections* (Cambridge, UK: Cambridge University Press, 2009), 3.

stocking feet and a glittery ruby-red open vest (hints of Arabian Nights).... a brass Indian ash tray with three punk-shaped sticks of incense—King of Mogra, Laxmi Dhoop, and Lord Krishna Puja—burning.... We are all submerged, swamped in light, sound, and scent. Endless drawn-out notes continue with no noticeable start or finish, sometimes as appealingly coherent as a Beethoven finale, sometimes a wrench of dissonance, music going nowhere, simply existing, almost more in space than in time. The human tones fall between nasal billy-goat bleats and saying a-a-ah for the doctor. The effect is curiously satisfying. All intellectual criticism suspended—there is neither content nor performance to criticize. Concentration impossible—there is no circumscribed body of sound or climaxes to concentrate on. Dismissal impossible—there is no turnoff point, no intermission with orange drinks. there is nothing to do but accept, and the acceptance is singularly relaxing.... Within this fluctuating group of thirty to fifty people, one man sits immobile in a yoga posture, the pink and green spotlights edging his face.... Outside on the street a man ushering two women into a taxi is braying one long note. He thinks he is poking fun at the music, but he persists, taking the absent-minded pleasure in his long-drawn tone that small children find in pure, unqualified sound.⁶⁹

While Rockwell and many advocates of the music found an awkward and dehumanizing value in such states by underscoring their usefulness for white American listeners, the association between the East and LAP states had a longer history of a more traditional Orientalism.⁷⁰ In that history, East and West are cast in a dialectic that argues for the West's supposed supremacy.⁷¹ For example, in Adorno's co-authored book, *The Dialectic of Enlightenment*, he recounts the story of Odysseus and the Lotus-eaters, an image of ancient and primal peoples of the East, who, from Adorno's perspective, bliss out on plant matter and thus fail to upend "ossified social orders." Their blissed out state was out of touch with reality, meaningless, "[a]t best," wrote Adorno, "an absence of awareness of unhappiness." He went on to associate lotus-eating with children and dessert (i.e. unnecessary food) and lets us know that lotus blossoms, "still play[s] a part in Chinese and Indian cooking." Intellectuals during the long Sixties were likely to have

⁶⁹ Kate Lloyd, ...“...And One Evening When Listeners ‘Floated Away,’” *Vogue*, May 1, 1966.

⁷⁰ For listeners influenced by the American counterculture, Johnson's minimal mode of listening can be seen as part of the story of valuing regression. In this way the advocates and detractors agreed on the language and many of the facts, it was just the valuation of things that differed. Counterculture-informed listeners might value listening to the senses. From there it was perhaps only a small step to the 1960s valorisation of regression as a positive good in itself. “In this particular type of journey, the direction we have to take is *back* and *in*....They will say we are regressed and withdrawn and out of contact with them. True enough, we have a long, long way to back to contact the reality.” R. D. Laing, *The Politics of Experience; and, The Bird of Paradise* (Harmondsworth: Penguin, 1984), 137.

⁷¹ David Nicholls has cast minimalism (among other American classical traditions) as engaging in “transethnicism” and multiculturalism. Nicholls, “Transethnicism.” See also his 1999 article that distinguishes between engagement and appropriation: David Nicholls, “Reaching beyond the West: Asian Resonances in American Racism,” *American Music* 17, no. 2 (1999): 125–28. David Bernstein offered a similar sentiment in response to material from chapter 5 of this dissertation: Oliveros, in his view, was deeply engaged with practices from a variety of cultures, this was not superficial interest. Here, and throughout, I am not arbitrating the politics of appropriation (important as such considerations are, they require, in my view, a thorough engagement with recent literature on ethics and substantial field work that are beyond the scope of this project). Rather, I am interested in detailing the motivations and intellectual foundations that supported or drove listening experiences and judgments. In the conclusion (chapter 6), I will offer speculative lessons that present-day listeners may take from this history.

encountered Adorno and Horkheimer's influential text and would very likely also be familiar with the Greek myth.⁷² The perceived effects of minimalist music looked a lot like lotus eating to many critics: "If you don't allow yourself to respond with consciousness but daydream along, the music may draw you into its unreal but not uncomfortable world."⁷³ The music was "...a new and almost hallucinatory byway..."⁷⁴ The pieces were "new-school navel-gazing compositions."⁷⁵

Critics' discomfort with observing fellow Westerners in such states stemmed from the idea, stated most forcefully in Adorno's writings, that such conditions prevented Westerners from recognizing and improving the sad state of society and made them more susceptible to ideology. These concerns were rooted in a history dating back at least to Hegel's *Philosophy of History* where what he called the Oriental World was cast as stationary, stuck in development that put its people "outside the World's History."⁷⁶ As opposed to the West, Hegel described an Orient without freedom and without development. By the 1960s, this line of thought had accrued untold layers. In the midst of the Cold War, concerns about communism in the East fanned the flames of American Orientalism and the Chinese Cultural Revolution rekindled fears of brainwashing. As I will show in the following chapter, strange and threatening parallels between popularized notions of brainwashing and the psychological states apparently induced by minimalism suddenly made these compositions a domestic political threat.

Harold Schonberg's review of a Gagaku concert in Tokyo reveals how members of the American classical music subculture processed musical parameters and their effects differently depending on where the composer and audience member landed in an East and West binary.⁷⁷ "Gagaku music and dance is in no hurry to go anywhere. Often the pulse is hypnotically slow, recalling the one-note music of a modernist like Steve Reich."⁷⁸ Yet, unlike Schonberg's scathing reviews of Reich and other minimalists, he waxes positively about the "elaborate ceremonial costumes" and the "slow and stately symbolism of Gagaku." "The music...hits severely at the musical subconscious." "Listening to Gagaku is almost equivalent to coming into contact with musical prehistory." Schonberg celebrates the music even as he casts it as nigh-unto unknowable for Westerners. "An untrained observer can only guess at the meaning and symbolism of this music and dance." "...to Western ears this music was a strange and wrenching experience." Speaking of the narrative element of the art, he wrote "[t]he story is familiar to Japanese

⁷² David Held, *Introduction to Critical Theory: Horkheimer to Habermas* (Berkeley: University of California Press, 1980).

⁷³ Strongin, "Timelessness."

⁷⁴ Heuvel, "Fantastic."

⁷⁵ Bernheimer, "Well-Conceived."

⁷⁶ Georg Wilhelm Friedrich Hegel, *Philosophy of History*, trans. J. Sibree (New York: Dover Publications, 1956), 116. Also quoted in Peter Singer, *Hegel: A Very Short Introduction* (Oxford: Oxford University Press, 2001), 16.

⁷⁷ For another comparison with Gagaku (this time with La Monte Young's music), see Junker, "Johnny."

⁷⁸ Harold C. Schonberg, "Japan's Music and Dance," *The New York Times*, October 10, 1973.

audiences, but outsiders have to grope for it.” But most critically, he wrote of the music’s effects on Westerners, implicitly universalizing those effects while simultaneously acknowledging the lack of such effects on “Japanese.” “Westerners usually doze off somewhere during the course of a program; the music has that effect. Japanese are always asking visitors, ‘Did you stay awake?’” The music seems, to Schonberg, to actually turn off Western consciousness (evidenced in their state of sleep), the very effect against which he rails in minimalism contexts. For Schonberg, Gagaku seems to have Orientalized value as something deeply other. In contrast, when similar compositional techniques and effects are used by white Westerners, Schonberg dismisses the music outright. This suggests that perhaps for Schonberg (and others at the time) such musical techniques and effects may be fine for a group cast as other, but when similar techniques and effects are deployed by white Westerners, the creator is seen as betraying reason, challenging intellect, and dissolving the very concept of composer. Classically-trained white Western composers, in other words, should know better and do better.

It was not just critics like Harold Schonberg or composers like Arnold Schoenberg and theorists like Adorno who held such views. Structural listening and its value associations for musical works extended into textbooks and music appreciation texts, trickling down, as it were, through music education. This makes it likely that the negative reception of minimalism by many critics was shared by other listeners (though we rarely encounter the documented reasoning of the audience members who are always leaving the concert hall during performances of minimalist works). In addition to the examples from textbooks below, popular books like Aaron Copland’s *What to Listen for in Music* privileged structural listening and its related values.⁷⁹ While many critics focused on divisions between high modernism and minimalism, the trickle-down effects of structural listening and its resulting musical hierarchies also afforded contrasts with more middle-brow classical works and associations between minimalism and jazz, “primitive music,” folk, and other vernacular traditions. Here, I focus on texts that predate or coincide with the emergence of American minimalism and thus may have influenced listening experiences in the long Sixties.

A textbook by William Miller connected the appeal of jazz with the “psychological—sensuous, primitive, and erotic.”⁸⁰ It had failed to become the “American music of the future” because “its appeal is too primitive and immediate.”⁸¹ Ernst Roth described jazz, so influential to Glass, Reich, Riley, and Young, as “devour[ing] all the charming European tunes... The lost paradise mourned by the Blues and the present misery against which the wild outbursts of Jazz seemed to revolt were very different from any similar European experience, but the expression

⁷⁹ Aaron Copland, *What to Listen for in Music*, Revised edition (New York: McGraw-Hill, 1957).

⁸⁰ William Hugh Miller, *Introduction to Music Appreciation; an Objective Approach to Listening* (Philadelphia and New York: Chilton Book Co., 1961), 24.

⁸¹ Miller, *Introduction*, 24.

was welcome to Negroes and whites alike.”⁸² While some predicted that jazz would be an important influence for art music, William Smoldon noted that rhythm was its chief contribution and its “intellectual and emotional shortcomings have become apparent.”⁸³ Jazz offered the communication of a “single ‘affect,’” contained “no feelings of development,” and “cannot be studied in score.”⁸⁴ Relatedly, folk music’s “directness and simplicity” were part of its “unconscious expression...of...racial feelings, characteristics, and interests of a people.”⁸⁵

One textbook claimed that music listening can be divided into three levels: sensual (listening only to the “sound itself”), emotional (focusing on one’s own emotional reaction), and intellectual (“the most difficult and the most rewarding”).⁸⁶ Another writer earlier in the century attempted to defend music with external references (such as programmatic music) but was forced, en route, to “admit, of course, that... ‘unless the work is intelligible simply as music alone, constructed on its own purely musical principles, apart from all external considerations, it must fall short of perfection as a work of art’ ...”⁸⁷ Having earlier noted that the “evolution of musical forms” was a “self-evident fact,” the author concluded the chapter on musical aesthetics by noting that “music is the Christian, Mediæval, and Romantic art, the most characteristic art-expression of our era, and consequently provides a better key than any other to the understanding of the innermost spirit of the modern world and the History of Civilization.” In a textbook promising “an objective approach to listening,” author William Miller presented “man’s progress from the primitive to the present” as musical development from music that serves a function to music as art.⁸⁸ It was only when music was made for its own sake that it “took its place with the purely

⁸² Roth, *Business*, 246.

⁸³ William Lawrence Smoldon, *A History of Music* (London: H. Jenkins, 1965), 446.

⁸⁴ Smoldon, *History*, 446.

⁸⁵ George F Strickling, *Music Literature; a Practical Music Appreciation Book for Everybody* (St. Louis: M.A. Shickman, 1956), 29, 28.

⁸⁶ William R Clendenin, *History of Music* (Totowa, N.J.: Littlefield, Adams, 1965), 4-5.

⁸⁷ This is Cecil Gray quoting a “Professor Dent.” Cecil Gray, “An Outline of Musical Aesthetic,” chap. 17 in *History Of Music* (New York: Alfred A. Knopf, 1928).

⁸⁸ Miller, *Introduction*, xviii. “In the course of man’s progress from the primitive to the present, music has been a needful part of his existence. In the cycle from birth to death, primitive man’s experiences in the art of living ranged through five basic types of *utilitarian* music--music that is used to satisfy basic needs, namely, (1) work songs, (2) war dances, (3) ballads, (4) ritual dances, and (5) chants. Through the enlightenment and refinement of taste acquired by intellectual and aesthetic training resulting from education and discipline, this utilitarian music has evolved into the following: (1) art songs, (2) marches and march songs, (3) art ballads, (4) social dances--folk, court, and ballroom, and (5) liturgical music.” Miller goes on to note that our only access to this early music is the “crude music of the present-day primitives...” Miller, 3.

aesthetic—art music—which is its ultimate stage of development.”⁸⁹ “Real aesthetic enjoyment required active attention, the aid of the intellectual process, practice, and an affective response.”⁹⁰ A history of music published in 1965 noted that, “It is serialism of a new severity which is to save music for humanity, and this by breaking every link with the past.”⁹¹ Modern music “rejects subjective emotion as a basis for art” and hinges on “denial of the emotional excess of Romanticism.”⁹²

The implications of structural listening also show up in textbook perspectives on supposedly primitive music. Asian and African cultures were regularly viewed in these textbooks as access points for information on the origins of both music and speech. One author, for example, noted that “We know that pitch was a factor in the meaning of early speech; the Bantu languages of Africa and the early spoken languages of China, India, and Japan show such a relationship.”⁹³ Another argued that we can only understand primitive music via “observation of musical development in children and the music of primitive peoples” and theorized that music’s intoxicating rhythms must have seemed magical to primitive humans.⁹⁴ Humans must have progressively figured out melody, deriving greater pleasure from it as it served their emotional needs. “A characteristic of the conception of primitive music is monotony, the endless repetition of the same short melody...”⁹⁵ Ancient civilizations used pentatonic scales because they are simple: “This scale is limited to five degrees of the octave, and the less easily compassed semitones are avoided, much as a child avoids and replaces by easier ones the difficult sounds of a language.”⁹⁶ As “[primitive man] advanced in the ways of civilization, their music became more varied and complex.”⁹⁷ “The practice of music assisted men to advance in the ways of civilization. The genius of a nation is shown in the development of its art and music.”⁹⁸ In an undergraduate textbook, the history of music is cast as an ascent from primitive and utilitarian to

⁸⁹ Miller, *Introduction*, 4. Miller details what art is: “Simply and briefly stated, art is free expression in which the artist vividly communicates to others, perhaps less gifted, what he sees in his mind's eye. The observer calls the clump of trees a work of art when he sees them not as trees but as a form which so interests him that he becomes absorbed and steeped in it. For the philosopher, this is the true aesthetic experience and one which has intrinsic value for the observer. To do this the artist must rise above mere skill and present a perfect subject in an inimitable way. The true lover of art is susceptible and responsive to this perfection.” Miller, 5. “Art which is dependent on another art belies its responsibility, loses its independence and its aesthetic value. To have aesthetic value as music it must be able to stand alone.” Miller, 26.

⁹⁰ Miller, *Introduction*, 27.

⁹¹ Smoldon, *History*, 451.

⁹² Milo Arlington Wold, *An Introduction to Music and Art in the Western World*, 5th ed. (Dubuque, Iowa: W. C. Brown Co., 1976), 285, 331.

⁹³ Clendenin, *History*, 93.

⁹⁴ Alfred Einstein, *A Short History of Music*, 4th American ed (New York: Vintage Books, 1954), 3.

⁹⁵ Einstein, *Short*, 4.

⁹⁶ Einstein, *Short*, 6.

⁹⁷ Don C Walter, *Men and Music in Western Culture* (New York: Appleton-Century-Crofts, 1969), 3.

⁹⁸ Walter, *Men*, 13-14.

the “total control” of high modernism.⁹⁹ At the fringes of classical music, Cage and “his aleatoric endeavors and mystical (Zen Buddhist) esthetic philosophies of music have increasingly caused him to appear to be consciously trying to destroy the traditions of Western music.”¹⁰⁰

Miller’s writing on “‘Classical’ Versus Popular Music” lays the groundwork for understanding some of the dismissals of minimalism. Not only did he aim to explain the difference between the two types of music (“Have you ever wondered why the best in serious music is great while some music is not so great, or what the difference is between great music and popular music?”), he also hoped to show how his readers might eventually learn how to appreciate “serious” music (“Have you ever wondered...whether you as an individual can ever learn to understand and enjoy great music?”).¹⁰¹ Serious music, which Miller also called subtle music, was truly appreciated when (1) the listener was actively attentive, (2) the music was intellectually understood, and (3) was accompanied by an affective response. That order was key for Miller, as it defined the boundary between serious and popular musics: “In popular music, affective accompaniment gains first place and the other two responses are relegated almost to oblivion.”¹⁰² If one practiced attending closely to music and learned to “recognize and understand” patterns in rhythm, melody, harmony, timbre, and form - what Miller called the “substance for an aesthetic response” - one could learn to appreciate serious music. Prefiguring key critiques of minimalist compositions, Miller argued that, “In the case of popular music, affective accompaniment gains first place, becomes objective feeling, and tends to obliterate active attention and perception, thus precluding the aesthetic response.”¹⁰³ To demonstrate his point, Miller provided a list of recordings that contrast works by W.C. Handy, Oscar Strauss, and Scott Joplin with George Gershwin, Johannes Brahms, and Claude Debussy (Image 2.31).¹⁰⁴ Miller cast rhythm as a framework for melody, “rarely” beautiful in itself.¹⁰⁵ Good melody, in turn, is an arrangement of tonal intervals that “give the feeling of coherence and unity” and “must create a feeling of continuous movement toward an objective.”¹⁰⁶ Only some melodies were capable of producing an aesthetic response: what Miller called subtle melodies. “A subtle melody is one which is crafty, artful, or sophisticated, while a trite or obvious melody is one which leans

⁹⁹ John David White, *Music in Western Culture; a Short History* (Dubuque, Iowa: W.C. Brown Co., 1972), xi, 324.

¹⁰⁰ White, *Music*, xi, 355.

¹⁰¹ Miller, *Introduction*, 29.

¹⁰² Miller, *Introduction*, 30.

¹⁰³ Miller, *Introduction*, 33. The term “objective feeling” requires explanation. Miller viewed affective accompaniment as involuntary bodily movement that arouse feeling. When these reactions are strong enough, they gain the listener’s attention or become objective feeling. “When this happens, the listener is indulging himself in an emotional spree at the expense of attention and perception. Viewed in their proper perspective, feeling reactions are subtle and must remain in the twilight of attention and perception.”

¹⁰⁴ Note that his definition of popular music included “jazz and so-called popular ‘classics.’” Miller, *Introduction*, 33.

¹⁰⁵ Miller, *Introduction*, 37. “One speaks often of a beautiful melody but rarely of a beautiful rhythm.”

¹⁰⁶ Miller, *Introduction*, 69-70.

toward the ‘popular’ and contains elements which are commonly familiar and are used in a common way.”¹⁰⁷ If followed, Miller’s logic placed minimalist compositions in aesthetic precarity: while created by classically-trained composers, the works held much in common with popular music. Their musical parameters, such as melody, do not display movement towards an objective in the manner that Miller would have recognized. Instead, as we have seen, their movement was tiny and incremental. Even more crucial, most of minimalism’s advocates prioritized its affective accompaniment: indeed, they often sought out the music as a way to induce these states, making it functional, and thus, for many of these writers, no longer art, but a regression to primitive music.

John Rockwell’s lead that I referenced earlier in this chapter (“The gulf between composers Pierre Boulez and La Monte Young seems...enormous.”) reads in full, “The gulf between composers Pierre Boulez and La Monte Young seems *at first glance* enormous” (emphasis added).¹⁰⁸ Rockwell described how comments from Boulez (such as music infused with “a philosophy dyed with Orientalism and masking a fundamental weakness in the technique of composition...recourse to a subtle poison that destroys every embryo of craftsmanship...puerile magic”) superficially oppose Boulez’s defense of “Western” rationality and Young’s “strong spiritual feeling.” What they shared, according to Rockwell, was an emphasis on compositional control (albeit at different levels), heterophony, heterorhythm, a complexity in their understanding of their own pieces, influence from Webern, and European training. Rockwell expands this overlap to all of the Big Four in a prescient forecast about their incorporation into the canon:

They are, in a specifically American transformation of Eastern thought and music, exploring musical ideas which will no doubt eventually be seen to fit smoothly into the ongoing continuum of Western musical tradition—however odd they now sound to conventionally trained musical ears, and however much their current audience and support comes principally from those in the visual arts.¹⁰⁹

And for some, the concurrence was existential. By the end of the long Sixties some even believed that high modernism, at least in its serial form, had run its course. Having lost its “dynamism,” “Hard-core serialism has all but disappeared...” wrote Alan Kriegsman in 1973.¹¹⁰ But this future, where serialism loses power and minimalism enters the canon, would only emerge after the long Sixties.

¹⁰⁷ Miller, *Introduction*, 70.

¹⁰⁸ Rockwell, “Boulez.”

¹⁰⁹ Rockwell, “Boulez.”

¹¹⁰ He went on to mention Milton Babbitt as an exception. Kriegsman, “Serious.”

Image 2.1. Elliot Carter's *String Quartet No. 3*, measures 1-2.¹ Schonberg noted the separation of the instruments into two duos with different rhythmic "schemes"² Even within Duo II there are different groupings: Violin II is playing eighth note triplets while the viola is spinning quintuplets. The opening measures also show the duos in different time signatures with different metronome markings (but with measures of equal duration, 6 beats/105 beats per minute x 60 seconds/minute in Duo II = 4 beats/70 beats per minute x 60 seconds/minute in Duo I).

For the Juilliard Quartet

STRING QUARTET No.3

Elliott Carter
(1971)

Maestoso (giusto sempre)
J. = 105

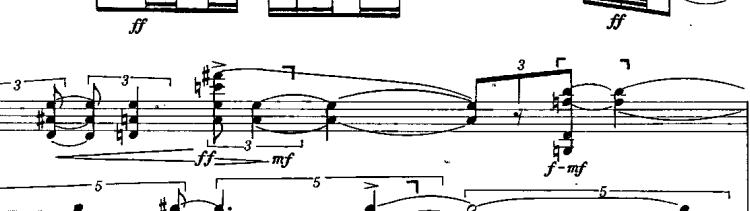
Duo II

Violin (II) 

Violin (I) 

Furioso (quasi rubato sempre)
J. = 70

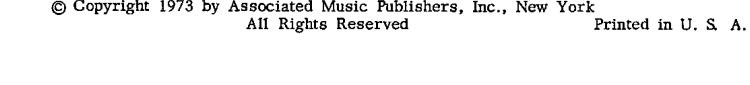
Duo I

Violin (I) 

Cello 

2

Violin (I) 

Cello 

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¹ <https://www.youtube.com/watch?v=7qQH6N37JpU>

² Harold C. Schonberg, "Carter, Cage, Reich...Speak to Me," *The New York Times*, February 4, 1973, sec. D.

Image 2.2. Pitch content from *Four Organs*.³

- A) Modules 0 and 1.
- B) Condensed pitch content from module 1.
- C) Pitch content from all four organs on one grand staff.
- D) Pitch content from (C) in root position.

A

Maracas

0 1

L.H. R.H.

Repeat 3-6 times until cue (ss)

B

Organ 1

Organ 2

Organ 3

Organ 4

Repeat 3-6 times until cue (ss)

f 3 + 8

C

Organ 1

Organ 2

Organ 3

Organ 4

8

D

Organ 1

Organ 2

Organ 3

Organ 4

8

³ Steve Reich, *Four Organs* (London: Universal Edition, 1980).

Image 2.3. The fusion process in the setup of *Four Organs*, modules 1, 2, 9, 10, 11, 17.⁴

The image shows a musical score for four organs, consisting of six staves. The staves are labeled 1 through 4 vertically from top to bottom. The score includes measures 2, 3, 9, 10, 11, and 17. Red boxes highlight specific notes in measures 2 and 3 of staff 1. A large red arrow points upwards from these highlighted notes towards measure 9 of staff 1, indicating the progression of the fusion process. Measure 9 features a single note on each staff. Measures 10, 11, and 17 show more complex patterns with multiple notes per staff. Measure 17 concludes with a final note on each staff.

⁴ Reich, *Four Organs*.

Image 2.4. The growing reentry figure from modules 4, 6, 8, and 11 in *Four Organs*.⁵

The image displays a musical score for 'Four Organs' in a 4x3 grid. Each row contains three staves of music. Measures are numbered above each staff: Row 1 (top) has measures 4, 6, and 7; Row 2 has measures 4, 6, and 7; Row 3 has measures 4, 8, and 11; Row 4 (bottom) has measures 8, 11, and 1. Blue boxes highlight specific measures in each staff: Row 1 highlights measure 4; Row 2 highlights measure 4; Row 3 highlights measure 8; Row 4 highlights measure 8. The music consists of six staves, likely representing different organs, with various note heads and stems.

⁵ Reich, *Four Organs*.

Image 2.5. An example of the increasing duration of the opening chord in the core of *Four Organs*: modules 18, 19, 20. The opening chord has four eighth-note beats in module 18, five in module 19, and six in module 20.⁶

The image shows a musical score with three staves, each representing a different module. Staff 18 starts with a 4+4+3 measure structure. Staff 19 starts with a 5 measure structure. Staff 20 starts with a 6 measure structure. Each staff begins with a complex opening chord consisting of eighth-note patterns. The staves are separated by vertical bar lines, and the measures are indicated by numbers above the staves.

⁶ Reich, *Four Organs*.

Image 2.6. Module 42 from the core shows pitch thinning in *Four Organs*. The arrow above the staff shows B4 dropping out while the two arrows below the staff show similar thinning in the left hand chord.⁷

A musical score for 'Four Organs' featuring two staves. The top staff is a treble clef staff with a key signature of one sharp. The bottom staff is a bass clef staff. A large blue arrow points downwards from the top of the page towards the top staff. Two smaller blue arrows point upwards from the bottom of the page towards the left hand's eighth-note chords on the bass staff. The score includes a tempo marking '24 + 20 + 16 + 14 + 12 + 10 + 9 + 8 + 9 + 10 + 7 + 8 + 9 + 8 + 9 + 9 + 10 + 12 + 5 + 14 + 6 + 16 + 20' and a instruction '42 Repeat 2-3 times until cue'.

⁷ Reich, *Four Organs*.

Image 2.7. Module 42 of *Four Organs* shows the reentry figure at its maximal length to the right of the green line with the thinning process to the left of the line.⁸

The image shows a musical score for four organs (Module 42 of *Four Organs*). The score consists of four staves, each with a treble clef and a key signature of one sharp. The music is in common time. The first staff begins with a measure of 24 followed by a plus sign, then 20, another plus sign, and so on, with various note heads and stems. The second staff starts with 24 + 20 + 16+14+12+10 + 9 + 8+9 + 10 + 7+8+9 + 8+9 + 9 + 10 + 12+(5 + 14)+(6+16)+20. The third staff continues the pattern with 24 + 20 + 16+14+12+10 + 9 + 8+9 + 10 + 7+8+9 + 8+9 + 9 + 10 + 12+(5 + 14)+(6+16)+20. The fourth staff follows the same structure. A thick green line starts from the beginning of the first staff and curves upwards and to the right, ending near the end of the fourth staff. Dashed lines connect the green line to specific notes in the third and fourth staves, highlighting the 'reentry figure' and the 'thinning process' mentioned in the caption.

⁸ Reich, *Four Organs*.

Image 2.8. Overview of module duration by beats in *Four Organs* with the setup, core, and outro delineated in red.

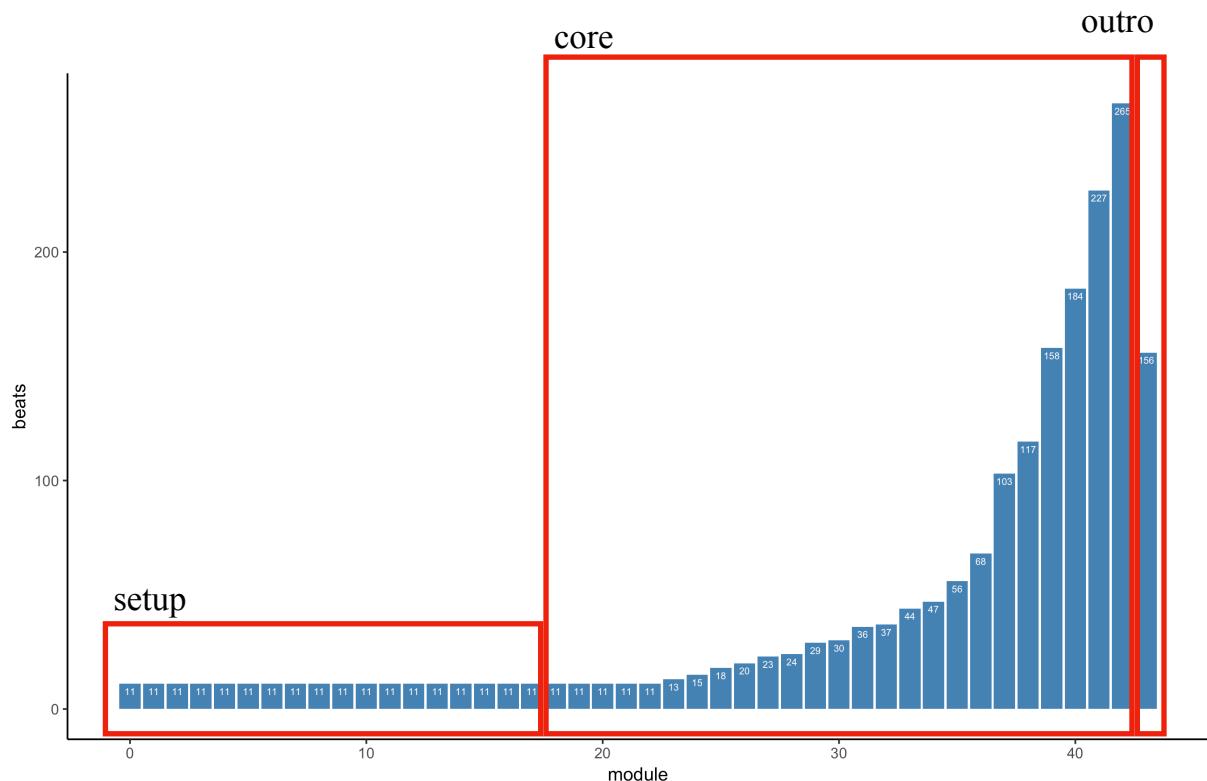
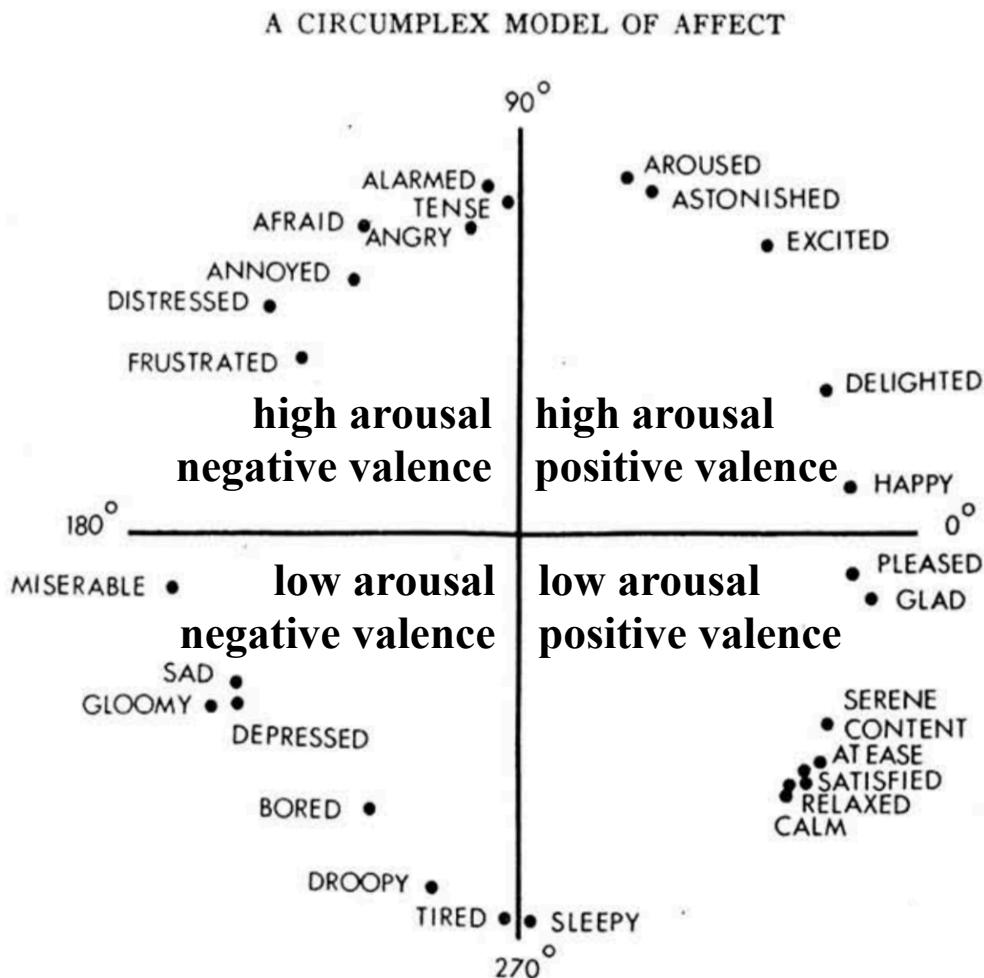


Image 2.9. Russell's circumplex model of affect.⁹

⁹ J. A. Russell, "A Circumplex Model of Affect," *Journal of Personality and Social Psychology* 39, no. 6 (1980): 1161–78.

Image 2.10. Carter's *Sonata for Cello and Piano*, movement 1, measures 6-16.¹⁰ With the piano churning out the quarter note pulse, the cello's off-beat note onsets make the two instruments sound independent.¹¹

To Bernard Greenhouse
C 328a
Sonata for Violoncello and Piano
I
Elliott Carter
(1948)

Moderato ($d = 112$)

Violoncello

Piano

Moderato (Tempo giusto) ($d = 112$)

mf ff mf *f* *p (un poco incisivo)*

mf

middle
espressivo - quasi rubato
mp cantabile

staccato sempre

vsare

simile

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¹⁰ https://www.youtube.com/watch?v=hLfF0ha_J6o

¹¹ Elliot Carter, *Sonata for Violoncello and Piano* (New York: G. Schirmer, 1953).

Image 2.11. Carter's *Sonata for Cello and Piano*, movement 1, measures 33-36.¹² The first metric modulation ("a way of moving from one speed to another by means of changes of time signature and redivision of the beat") in the piece continues the quarter-note pulse in the piano while imperceptibly making the cello's note onsets on the beat.¹³

¹² Carter, *Sonata for Violincello and Piano*.

¹³ Jonathan W. Bernard, "The Evolution of Elliott Carter's Rhythmic Practice," *Perspectives of New Music* 26, no. 2 (1988), 168. For more examples of metric modulation, see the third movement of the same piece (<https://www.youtube.com/watch?v=jDC551BUsUk>) and Bernard's analysis (p. 167-170).

Image 2.12. Carter's *Sonata for Cello and Piano*, movement 1, measures 57-59.¹⁴ The independence of the cello and piano is heightened when triplet quarter notes are set against the piano's quarter notes and off-beat note onsets (in measure 57) and heightened again as the cello's triplet eighth notes are set against the piano's quarter-note beats and triplet quarter notes in the upper staff (measure 59).

¹⁴ Carter, *Sonata for Violincello and Piano*.

Image 2.13. Carter's *Sonata for Cello and Piano*, movement 2, measures 57-64.¹⁵ The cello divides six-eight measures into two sets of quintuplet eighth notes while the piano uses a more traditional division into two sets of three eighth notes. The cello joins the piano's division of the meter in measure 63.¹⁶

¹⁵ <https://www.youtube.com/watch?v=7INFdYeDcRc>

¹⁶ Carter, *Sonata for Violincello and Piano*.

Image 2.14. Carter's *Sonata for Cello and Piano*, movement 4, measures 97-104.¹⁷ The two instruments sound distinct because of their relative registers (measure 98) and polyrhythms and off-beat note onsets (measure 100). they move closer to each other rhythmically in measures 101-104.¹⁸

¹⁷ https://www.youtube.com/watch?v=mucaC_6QkqY

¹⁸ Carter, *Sonata for Violincello and Piano*.

Image 2.15. Carter's *Sonata for Cello and Piano*, movement 4, measures 154, 159.¹⁹ Large-scale form elements surface towards the end of the fourth movement as performers return to the tempo of the first movement (measure 154) and retrace similar interval progressions as the opening movement (compare measure 159 with movement 1, measures 19-21).

46

The musical score consists of four staves of music for Cello and Piano. Measure 150: Cello has eighth-note patterns, dynamic 'cresc.', 'marc.', 'cresc.'. Piano has eighth-note patterns. Measure 155: Cello has eighth-note patterns. Piano has eighth-note patterns. Measure 159: Cello has eighth-note patterns. Dynamic 'ff'. Tempo marking 'Tempo of first movement'. Piano has eighth-note patterns. Measure 160: Both instruments have eighth-note patterns. Dynamic 'ff'.

¹⁹ Carter, *Sonata for Violincello and Piano*.

Image 2.16. Bernard's analysis of pitch content in the opening of Carter's *Sonata for Cello and Piano*, movement 1.²⁰ He demonstrated the prevalence of pitch-class set 5-11 [02347] and its "literal subsets," 4-14 [0237] and 4-17 [0347].

The musical score for Carter's Sonata for Cello and Piano, Movement 1, is shown in five staves. The instruments are Violoncello (Cello) and Piano. The score is divided into sections with dynamic markings and performance instructions.

- Moderato ($\text{J} = 112$)**: Cello part.
- Moderato (Tempo giusto) ($\text{J} = 112$)**: Piano part. Includes dynamics sf , ff , mf , f , p (un poco incisivo), and p .
- espressivo-quasi rubato**: Cello part. Includes dynamics mp cantabile.
- staccato sempre**: Cello part.

Pitch-class sets are identified by brackets and labels:

- 5**: Cello part at the beginning of the movement.
- 5-11**: Piano part in the first section, Cello part in the second section.
- 4-17**: Piano part in the first section, Cello part in the second section.
- 4-14**: Cello part in the second section.
- (5-11)**: Cello part in the third section.
- (4-14)**: Cello part in the fourth section.
- 5-11**: Cello part in the fifth section.
- 4-14**: Cello part in the fifth section.
- 10**: Measure number 10.
- 15**: Measure number 15.
- simile**: Measure number 15.

²⁰ Bernard, "Evolution," 170, 172.

Image 2.17. Carter's *Sonata for Flute, Oboe, Cello, and Harpsichord*, movement II (Lento), measures 87-96.²¹ While the flute, oboe, and cello (in notated order from the top staff) perform quietly in eighth and sixteenth notes, the harpsichord (in the bottom two staves) interjects with loud, aggressive, rhythmically-diverse figures.²²

²¹ https://www.youtube.com/watch?v=Z0qgZREnHCU&list=OLAK5uy_nLFHqU2H7nfART2H0wDxaaCZG5mitLHiA&index=2

²² Elliot Carter, *Sonata for Flute, Oboe, Cello, and Harpsichord* (New York: Associated Music Publishers, 1962).

Musical score for orchestra and piano, page 66, measures 94-95.

The score consists of six staves:

- Top staff: Treble clef, key signature of A major (no sharps or flats). Dynamics: *p*, *poco*.
- Second staff: Treble clef, key signature of A major.
- Third staff: Bass clef, key signature of A major. Measure 94 ends with a repeat sign and a bassoon solo.
- Fourth staff: Treble clef, key signature of A major. Measure 95 begins with a bassoon solo.
- Fifth staff: Treble clef, key signature of A major. Dynamics: *p*.
- Sixth staff: Bass clef, key signature of A major. Measure 95 begins with a bassoon solo.

Measure 95 starts with a dynamic of *p*. The bassoon part is marked *(f)* (fortissimo).

Image 2.18. Carter's *Sonata for Flute, Oboe, Cello, and Harpsichord*, movement III (Allegro), measures 211-228.²³ The cello and harpsichord juxtapose rhythmically disjunct lines (measures 215-219, these rhythmic figures return in measures 349-354 in the flute and cello). The flute, oboe, and cello accompany the harpsichord with unpredictably-placed note onsets (223-228).²⁴

²³ https://www.youtube.com/watch?v=NlqDYkalBAY&list=OLAK5uy_nLFHqU2H7nfART2H0wDxaaCZG5mitLHiA&index=3

²⁴ Carter, *Sonata for Flute, Oboe, Cello, and Harpsichord*.

Musical score for orchestra and piano, page 68, measures 225-226.

The score consists of two systems of musical staves. The top system shows the piano part in treble and bass staves, with dynamic markings *p*, *pp accomp.*, *p*, and *pp*. The bottom system shows the orchestra parts, including strings, woodwinds, and brass, with dynamic markings *p*, *p*, and *pp*. Measure 225 begins with a forte dynamic. Measure 226 starts with a crescendo, followed by a decrescendo. Measure 227 begins with a forte dynamic. Measure 228 concludes with a dynamic marking *mfp*.

Measure 225: *p*, *cresc.*, *mf*

Measure 226: *p*, *cresc.*, *mf*

Measure 227: *p*, *cresc.*, *mf*

Measure 228: *mfp*

Measure 229: *sempre ben in tempo*, *marc.*

Image 2.19. Carter's *Sonata for Flute, Oboe, Cello, and Harpsichord*, movement III (Allegro), measures 400-406).²⁵ The rhythms of measures 215-219 return in the flute and oboe, with cello adding groups of three sixteenth notes and the harpsichord adding a dotted sixteenth pattern and more rhythmically elaborate material in the solo section (starting in measure 404).²⁶

²⁵ https://www.youtube.com/watch?v=NlqDYkalBAY&list=OLAK5uy_nLFHqU2H7nfART2H0wDxaaCZG5mitLHiA&index=3

²⁶ Carter, *Sonata for Flute, Oboe, Cello, and Harpsichord*.

Musical score for orchestra and piano, page 70, measures 404-405.

Measure 404 (top half):

- Top staff: *ff ben marc.*, *p sub.*
- Second staff: *ff marc.*, *p sub.*
- Third staff: *f*
- Fourth staff: *Solo ben in fuori*, *I: Tutti (ff)*

Measure 405 (bottom half):

- Top staff: Measure number 405
- Second staff: *p sub.*
- Third staff: Measure number 405

Image 2.20. The opening three measures of Boulez's *Deuxième Sonate*, movement 1, containing the row for the work's twelve-tone row.²⁷

The musical score for piano shows the opening three measures of Boulez's *Deuxième Sonate*. The title "Extrêmement rapide (Tempo I)" is at the top, with a tempo marking of $(\text{♩} = 132)$. The piano part is indicated by a brace. Measure 1 starts with a forte dynamic (f) and includes a dynamic instruction " $\nearrow \searrow$ ". Measures 2 and 3 continue the rapid, rhythmic pattern, with measure 3 concluding with a dynamic instruction " $\nearrow \searrow$ ". The score is in common time.

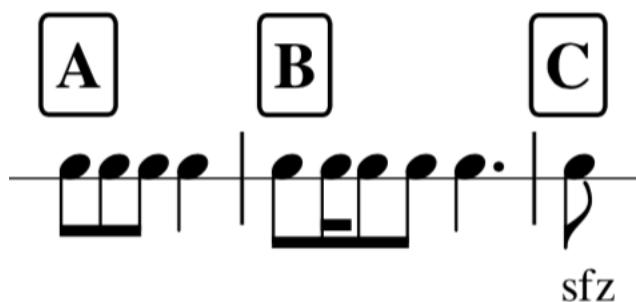
²⁷ Pierre Boulez, *Deuxième Sonate: Pour Piano* (Paris: Heugel, 1950).

Image 2.21. The fifth measure Boulez's *Deuxième Sonate*, movement 1, containing the BACH motive.²⁸



²⁸ See Arnold Schoenberg's Opus 25 for a related homage. Boulez, *Deuxième Sonate*.

Image 2.22. Leeuw's rhythmic cells and Boulez's *Deuxième Sonate*, movement 3, measures 1-19.²⁹ Leeuw explained how cells A, B, and C are part of an “exposition” in measures 1-2 (what he called 1a). Then, cell A is compressed and overlapped in the “faster movement” of measures 3-4 (1b). Cell B is shortened using a rest in the “slower movement” of measure 5 (1c). Leeuw then argued that a similar procedure unfolds in measures 6-10. New elements are introduced in measure 6 (thirty-second notes) and the triplet is cast as an irrational development of cell A (irrational in the mathematical sense). Measure 6 thus acts as section 2a. The “faster movement” (2b) is measures 7-8 where cells A and C overlap and the “slower movement” (2c) is measures 9-10 where cell A is interpolated with rests. Leeuw also noted that sections 1b and 2b feature crescendos while 1c and 2c feature diminuendos. This analysis pointed out the continuous variation or development unfolding in only the first ten measures. Leeuw went on to point out that cell A is rhythmically developed in measure 12 (as dotted-eighth notes), in measure 15 (as triplet quarter notes), and, I would add, in measure 18 (as a quintuplet).



²⁹ Boulez, *Deuxième Sonate*. Ton de Leeuw, *Music of the Twentieth Century: A Study of Its Elements and Structure* (Amsterdam: Amsterdam University Press, 2005), <https://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmx1YmtfXzE0MTg4M19fQU41?sid=6f0b5174-5c6e-45e9-ac76-a80281fa015f@pdc-v-sessmgr01&vid=0&format=EK&lpid=navpoint-11&rid=0>.

III

Modéré, presque vif ($\text{d} = 104$)

Sensiblement le même mouvement (légèrement au dessous)

en animant

crescendo

Image 2.23. Details of the twelve tempo markings in Pierre Boulez's *Deuxième Sonate*, movement three.³⁰ The original French tempo markings are in the right column, an English translation in the center column, and measure numbers of the tempo markings on the left.

Measure Number	Tempo Marking (English Translation)	Tempo Marking (Original French)
1	Moderately, almost lively	Modéré, presque vif (dotted-quarter = 104)
11	Approximately the same tempo (slightly slower)	Sensiblement le même mouvement (légèrement au dessous)
18	Animately	en animant
20	Very animatey	Animer beaucoup
24	Begin returning to tempo	revenir au Tempo
26	Return to tempo	au Mouvement
29	Moderately, almost lively	Modéré, presque vif
38	Always moderately (a little bit faster)	Toujours modéré (un peu au dessus)
56	Moderately, almost lively	Modéré, presque vif
65	Double time	Mouvement dedoublé (sixteenth note = eighth note)
76	Moderately, almost lively	Modéré, presque vif
84	Broad	Large

³⁰ Boulez, *Deuxième Sonate*.

Image 2.24. The opening of Boulez's *Éclat/Multiples*. Note the indications that "at a sign from the conductor, a little crescendo (corresponding in strength to the sign)" and "The conductor indicates the crescendo in one of the four following manners..."³¹

ECLAT MULTIPLES

Pierre Boulez
(1925–2016)

The musical score consists of three staves of music. The top staff shows piano (Pf.) and orchestra (Fl. en sol, C. a., Tpt. b, Tbn., Alto, Vc.). The middle staff shows piano (Pf.) and orchestra (Fl. en sol, C. a., Tpt. b, Tbn., Alto, Vc.). The bottom staff shows piano (Pf.) and orchestra (Fl. en sol, C. a., Tpt. b, Tbn., Alto, Vc.). The score includes dynamic markings such as *Librement*, *Excessivement rapide*, *Très large*, *laisser résonner très longtemps*, *Tenir très longtemps*, *Très rapide* (tempo 144), *J. = 144 ralentir jusqu'à*, *Modéré* ($J = 144 \times 132$), *Extremement flexible*, *Saccadé (selon la dynamique)*, *Saccadé*, and *Flexible*. There are also numerous performance instructions in French, such as "Garder cet accord pendant un temps beaucoup plus court que le précédent", "laissez résonner très longtemps", "Tenir très longtemps", "disparaître peu à peu, non simultanément des deux chœurs", and "Ce geste sera donné après que le piano aura commencé à jouer". The score is numbered 1, 2, and 3.

³¹ Si le piano a une grande résonance et si l'acoustique de la salle est favorable, on peut jouer cet accord "harmonique". En général, pour qu'il soit audible après la disparition de l'accord précédent, jouer cet accord "normalement", mais de telle sorte que son attaque passe complètement inaperçue.

³² Le chef indiquera les crescendos dans l'une des 4 possibilités suivantes :

1	2	3	4
p	f	p	f
p	f	f	p
p	f	f	f

Ces crescendos se succéderont assez rapidement à des intervalles très irréguliers. Le temps total de cette mesure doit comprendre aux exigences du piano. [L'orchestre fera moins en moins ample pour signifier la diminution de la distance.]

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UE 32746

³¹ Pierre Boulez, *Éclat/Multiples: Für Orchester* (Vienna: Universal Edition, 2016).

Image 2.25. The three kernels from *31 VII 69 10:26-10:49 pm*.³²

kernel A



A musical staff in bass clef. It consists of four measures. The first measure has a single note on the fourth line. The second measure has a note on the third line. The third measure has a note on the second line. The fourth measure has a note on the first line.

kernel B



A musical staff in bass clef. It consists of eight measures. The notes are as follows: measure 1: open circle (A), solid circle (B); measure 2: solid circle (B), open circle (A); measure 3: solid circle (B), solid circle (B), solid circle (B); measure 4: solid circle (B), solid circle (B), solid circle (B); measure 5: solid circle (B), solid circle (B), solid circle (B); measure 6: solid circle (B), solid circle (B), solid circle (B); measure 7: solid circle (B), solid circle (B), solid circle (B); measure 8: solid circle (B), solid circle (B).

kernel C



A musical staff in bass clef. It consists of three measures. The notes are as follows: measure 1: solid circle (B), open circle (A); measure 2: open circle (A); measure 3: solid circle (B), solid circle (B).

³² My transcriptions.

Image 2.26. Kernel analysis of the 63 modules in *31 VII 69 10:26-10:49 pm*. The top line lists the module number, and the color-coded rectangles name the kernel type. A tilde (~) means that this module only loosely fits kernel designation. Multiple kernel designations (listed vertically) list the kernel elements in that module (in order of appearance).

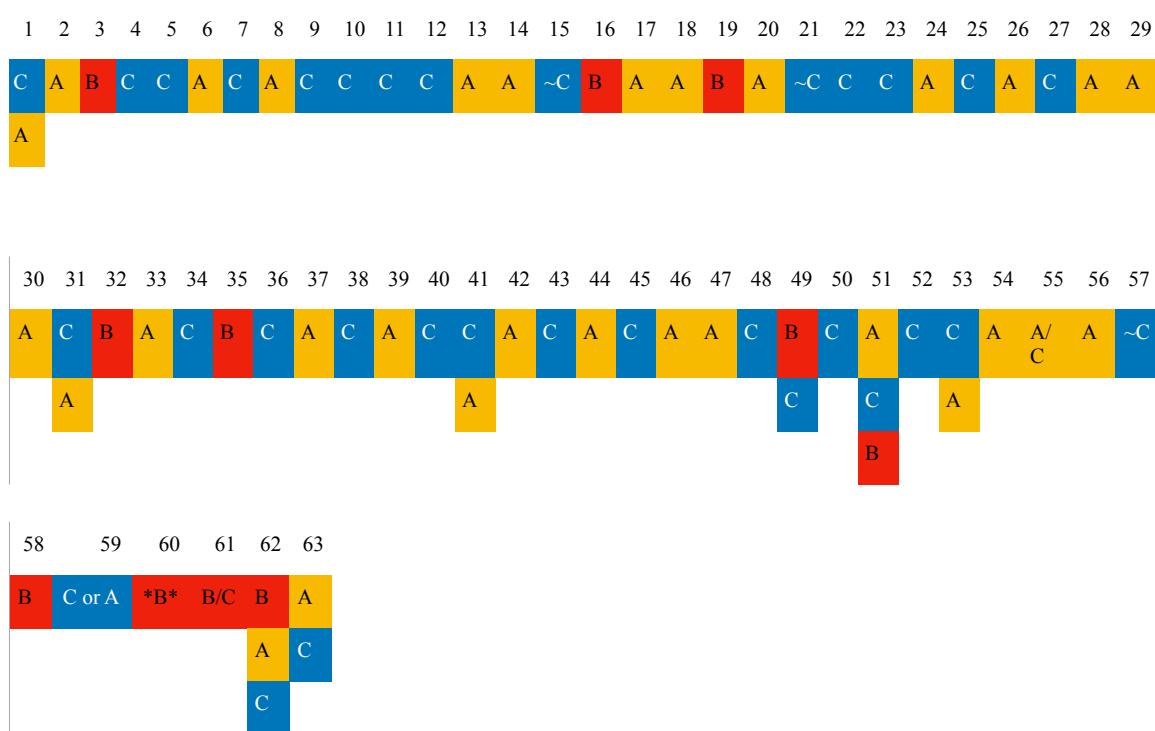
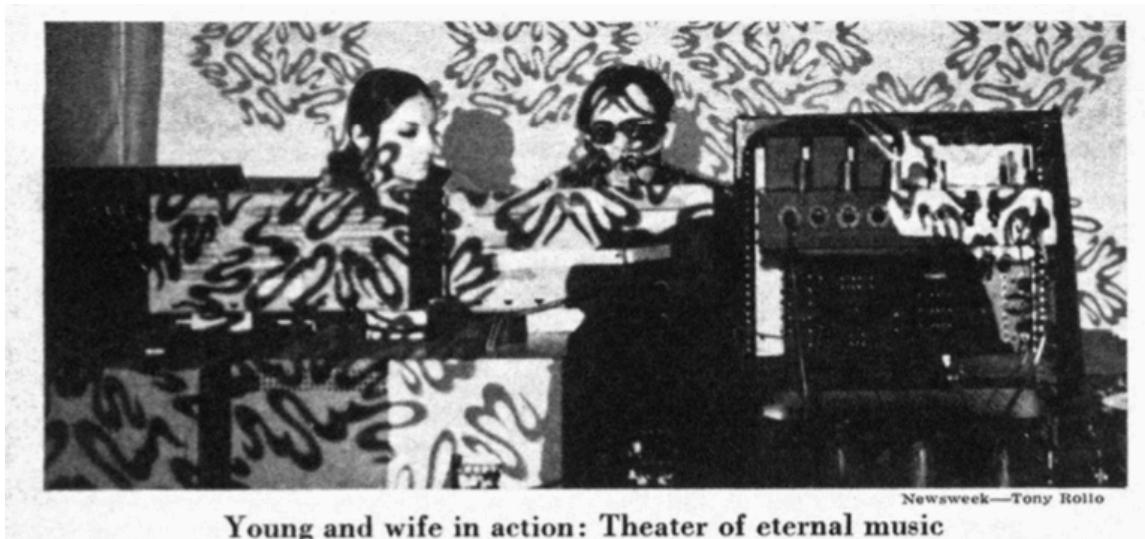


Image 2.27. Young and Zazeela performing in 1968.³³

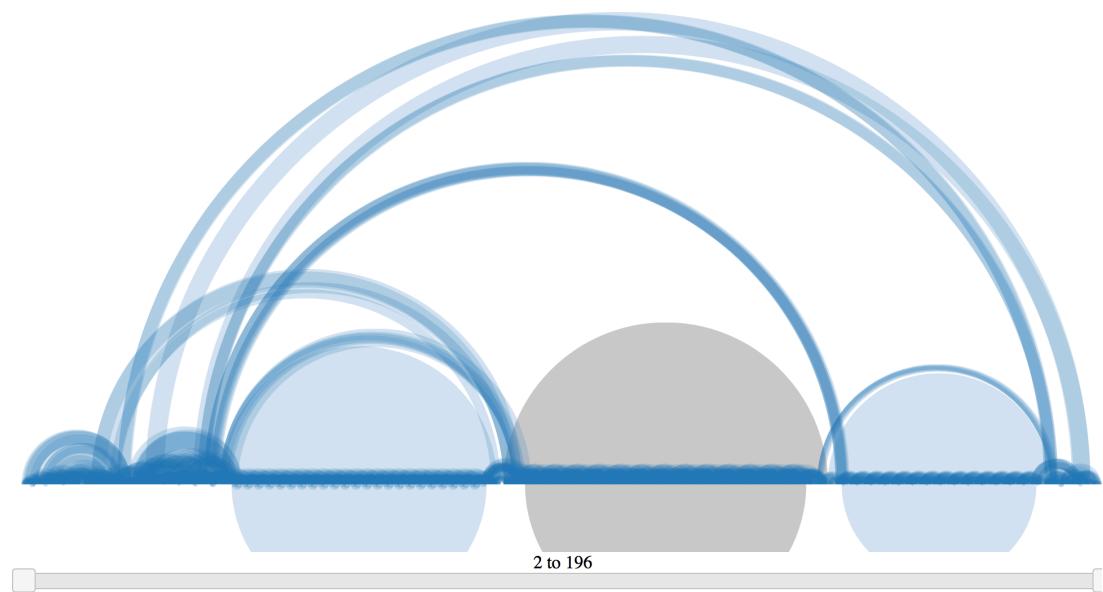


Newsweek—Tony Rollo

Young and wife in action: Theater of eternal music

³³ Howard Junker, "Johnny One-Note," *Newsweek*, March 4, 1968.

Image 2.28. An arc diagram of Philip Glass's *Two Pages*. Arcs connect note groups of identical pitch and rhythm content of any length between 2 and 196 notes.³⁴



³⁴ Martin Wattenberg, "Arc Diagrams: Visualizing Structure in Strings," *InfoVis*, 2002.

Image 2.29. Modules 1-2 and 38-39 from *Two Pages* by Philip Glass as examples of additive and subtractive processes.³⁵ The numbers in rectangles designate modules and the number in parentheses relates the number of repeats in an early seminal recording. The small “2” below module 38 indicates that the preceding three, beamed eighth notes should be played a total of two times.

The image shows two staves of musical notation. The top staff is labeled "Fast, steady". It contains two modules: module 1 (34 repeats) and module 2 (18 repeats). Module 1 consists of a single eighth note followed by a sixteenth note. Module 2 consists of a single eighth note followed by a sixteenth note, then another eighth note followed by a sixteenth note. The bottom staff contains two modules: module 38 (11 repeats) and module 39 (18 repeats). Module 38 consists of a single eighth note followed by a sixteenth note, then another eighth note followed by a sixteenth note. Module 39 consists of a single eighth note followed by a sixteenth note, then another eighth note followed by a sixteenth note. A small "2" is written below the first measure of module 38, indicating that the preceding three beamed eighth notes should be played a total of two times.

³⁵ *Two Pages* in Philip Glass, *Philip Glass: First Classics 1968-1969*, ed. Keith Potter (London: Chester Music, 2010).

Image 2.30. An analysis of Philip Glass's *Two Pages* showing (on the vertical axis) the number of notes that have sounded since that pitch was last heard. The analysis shows that complex, non-linear patterns emerge over the course of the piece. Below, a zoomed in image of the transition from module 1 to module 2, where the F occurs with less frequency than in module 1.

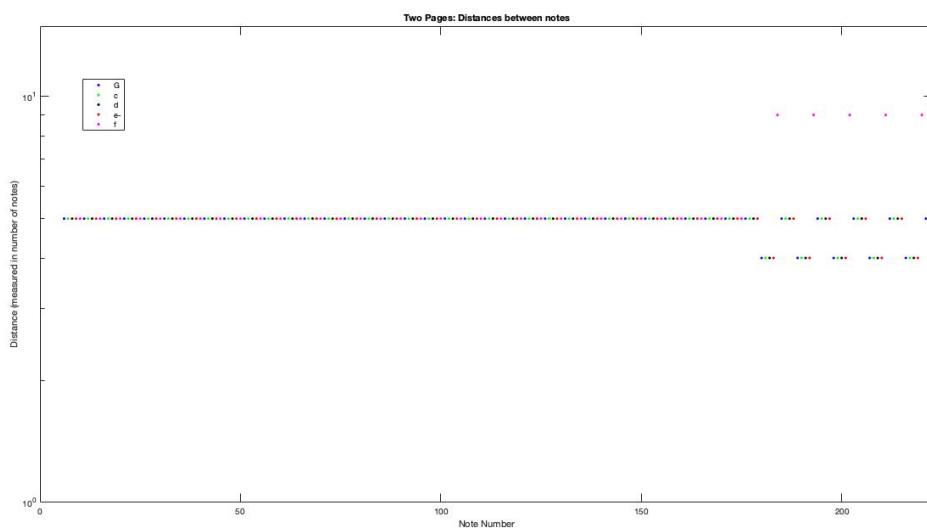
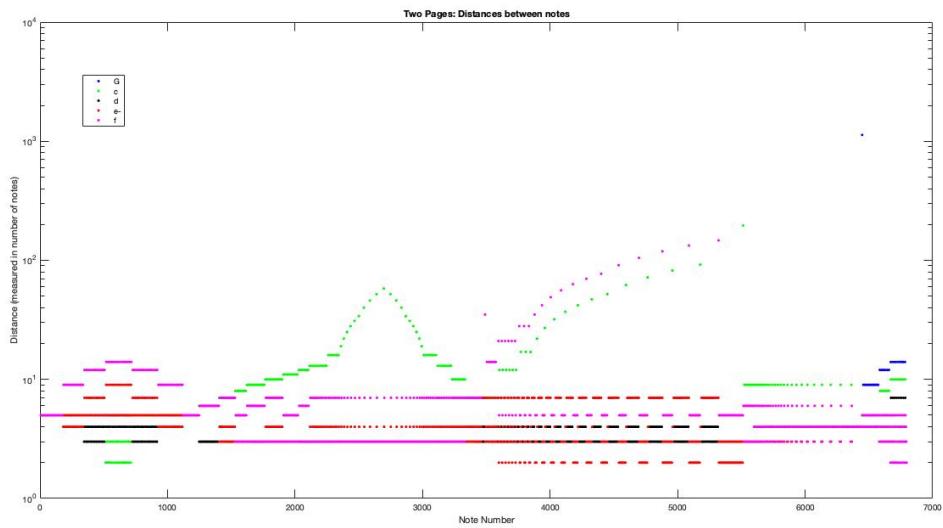


Image 2.31. William Miller's examples of serious versus popular music. He encouraged his readers to "Contrast the following."³⁶

Composer	Title	Movement
Sousa	Stars and Stripes Forever	
Berlioz	Fantastic Symphony, Op. 14	Fourth: March to the Scaffold
Strauss, O.	The Chocolate Soldier	My Hero
Brahms	Waltz, Op. 39, No. 12	
Handy	St. Louis Blues	
Gershwin	An American in Paris	Third Theme: Blues
Kern	The Song is You	
Carpenter	Gitanjali (Song Cycle)	Serenade
Joplin	Maple Leaf Rag	
Debussy	Children's Corner Suite	Golliwog's Cake Walk
Latin America	La Comparsa (Rumba)	
McDonald	Symphony No. 2	Rhumba
Morton, "Jelly Roll"	King Porter Stomp	
Liebermann	Concerto for Jazz Band and Symphony Orchestra	

³⁶ William Hugh Miller, *Introduction to Music Appreciation; an Objective Approach to Listening* (Philadelphia and New York: Chilton Book Co., 1961), 266-267.

Interlude A

Results from an EEG study of minimalism-inspired repetition

The composer and critic Tom Johnson offered a way of listening to minimalist pieces that focused on attending to small changes in the music:

The term ‘static’ is often used in reference to their music [the big four, Glass, Reich, Riley, Young], since it never leaves this one level and never seems to be moving toward anything. Traditionally this word has been considered derogatory when applied to music, and in many quarters it still is. But in listening to the music of these composers, one soon discovers that static does not necessarily mean boring, the way we always thought it did. Many interesting things happen all on one plane. A pitch changes slightly, a rhythm is altered, something fades in or out. They are not big changes, but they are changes, and there are more than enough of them to sustain one’s interest, provided that he can tune in on this minimal level.¹

Johnson’s comments suggest that a listener who is tuning in on a minimal level may bring their conscious attention to one of the many auditory processes that occur prior to the listener’s usual awareness of a sound, a turning of attention towards sensation and perception. What kinds of processes might afford such interactions with conscious attention?

Before becoming conscious of a sound in the environment, a cascade of processes from the inner ear through the brainstem to, among other regions, the auditory cortex categorizes the sound’s parameters (such as pitch) and passes this information along to so-called higher regions. One process along this chain is the detection of acoustic changes in the listener’s environment, a process that compares new, incoming sound information with very short-term memory information of previous sounds. This process, measured by the auditory N100 response, occurs whether the listener attends the sound (often called active listening) or is not specifically instructed to attend to the sound (often called passive listening; in such cases the listener is often reading or watching a subtitled and muted audio-visual stimulus). In this interlude, I give a brief overview of the neural activity reflected in EEG data before covering an experiment we conducted to investigate the effects of minimalist-like repetition at the early stages of the auditory processing indexed by the N100 response.

EEG may be most recognizable from the equipment used in data collection: nets of electrodes that cover a participant’s head commonly seen in lab settings and for human-computer interfacing. From the 1920s through today, it is also common to use individual electrodes either taped or otherwise adhered to the scalp to measure very small (millionths of a volt) electrical voltages originating in the brain’s neurons. The origin of these electrical voltages lies beneath multiple anatomical layers: the scalp, skull, and meninges.² Underneath these layers is the cortex,

¹ Tom Johnson, “La Monte Young, Steve Reich, Terry Riley, Philip Glass,” in *The Voice of New Music by Tom Johnson: New York City 1972 - 1982, a Collection of Articles Originally Published in the Village Voice*, ed. Tom Johnson and Paul Panhuysen (Eindhoven: Het Apollohuis, 1981).

² Steven J. Luck, *An Introduction to the Event-Related Potential Technique*, 2nd ed. (Cambridge, MA and London: The MIT Press, 2014), 12.

containing pyramidal cells that are the source of the electrical voltage measured by EEG. Each of these cells has the ability to release neurotransmitters which cause electrically charged ions to flow, creating current near the cell (postsynaptic potentials). These currents are called dipoles, and they consist of “positive and negative electrical charges separated by a small distance.”³ While postsynaptic potentials are conducted nearly instantaneously through the brain and up to the scalp, the dipole of a single neuron is not measurable at the scalp. It is only when the dipoles of thousands or millions of aligned pyramidal cells summate that the electrical voltage can be measured. The cortex’s pyramidal cells are largely perpendicular to the scalp, meaning that their alignment is advantageous for scalp recording. However, the high electrical resistance of the skull and to a lesser extent, the scalp, blurs the summated dipoles, making it difficult to pinpoint their precise origin, especially the deeper the origin of the dipole.⁴ The study I describe in this interlude investigated an event-related potential (ERP), a measurable brain response to a specific (in this case auditory) stimulus.

It is established in auditory neuroscience literature that repetition in an auditory stimulus leads to a gradual reduction in the neural resources devoted to processing that stimulus (often referred to as repetition suppression).⁵ One theory is that this reduction is explained by efficiency: when a stimulus repeats, extremely short-term memory (sensory memory) forms a predictive model of upcoming events (predictive coding theory). When incoming information confirms the model (in this case, by repeating), no neural resources are required to update the model. If incoming information contradicts the model, additional neural resources will be allocated to better model the stimulus.⁶ Most of the studies that have tested these hypotheses used relatively simple stimuli (single tones or pairs of tones, often separated from each other in time).⁷ In addition, in many experimental paradigms, repetition is treated as inherently predictable (and at the level of complexity used in many studies, it is). Our study used stimuli with sufficient complexity to allow for predictable repetition or unpredictable repetition.

The unpredictably repetitive stimuli were modeled on aspects of early minimalist pieces where a musical module may repeat many times but suddenly and unpredictably changes to the next musical module (see Chapter 2 for an example from Glass’s *Two Pages*). Our hypotheses were extensions of repetition suppression and predictive coding theory: over the course of

³ Luck, *Introduction*, 40.

⁴ Luck, *Introduction*, chapters 1-2; Buzsáki, György, Costas A. Anastassiou, and Christof Koch, “The Origin of Extracellular Fields and Currents—EEG, ECoG, LFP and spikes,” *Nature Reviews Neuroscience* 13 (05/18/online 2012), 407-20.

⁵ Torsten Baldeweg, “Repetition Effects to Sounds: Evidence for Predictive Coding in the Auditory System,” *Trends in Cognitive Sciences* 10, no. 3 (2006): 93–94, <https://doi.org/10.1016/j.tics.2006.01.010>.

⁶ Karl Friston, “A Theory of Cortical Responses,” *Philosophical Transactions of the Royal Society B: Biological Sciences* 360, no. 1456 (2005): 815–36, <https://doi.org/10.1098/rstb.2005.1622>.

⁷ See, for example Yi-Fang Hsu, Jarmo A. Hämäläinen, and Florian Waszak, “The Processing of Mispredicted and Unpredicted Sensory Inputs Interact Differently with Attention,” *Neuropsychologia* 111 (2018): 85–91, <https://doi.org/10.1016/j.neuropsychologia.2018.01.034>.

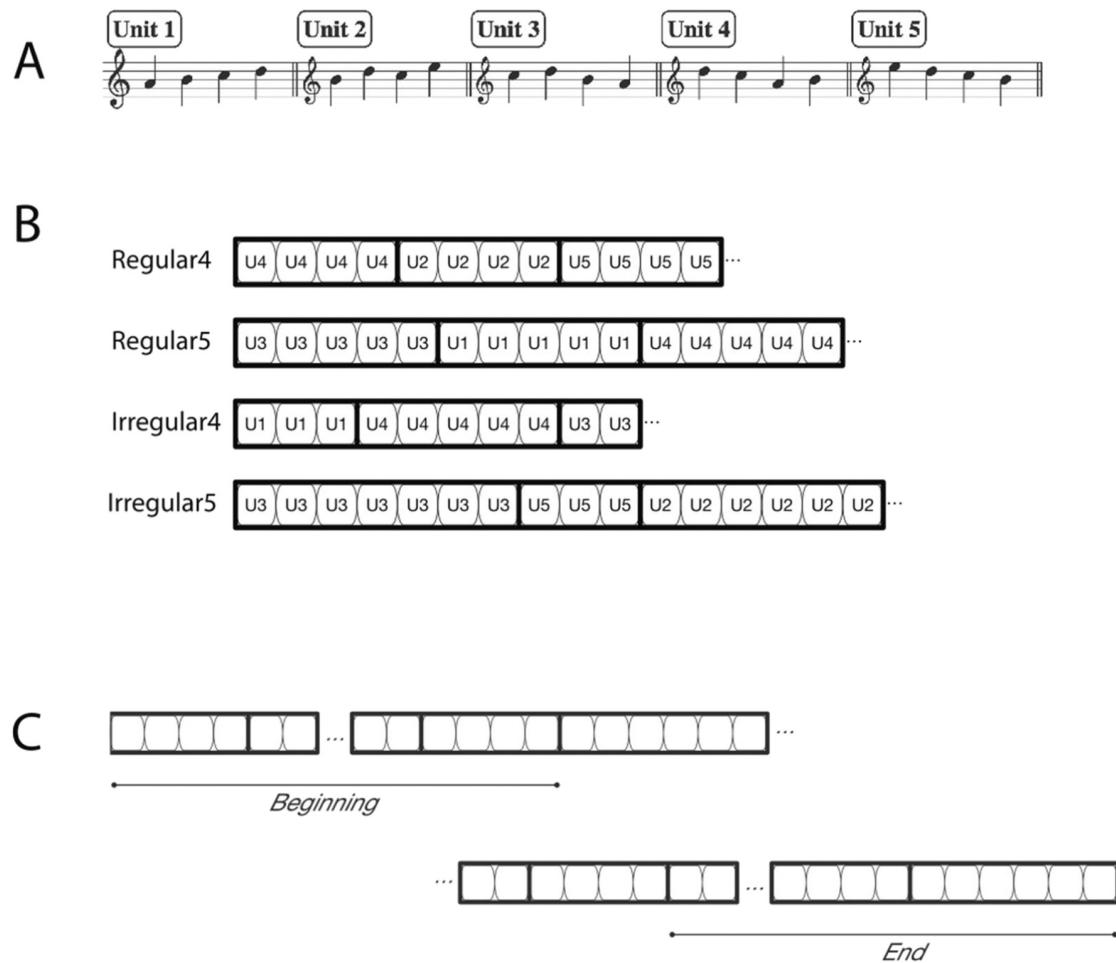
minutes-long stimuli, predictable repetition should be readily modeled, requiring fewer neural resources over time. In contrast, unpredictable repetition (like that found in minimalist compositions) should require constant updating, preventing a reduction in neural resource allocation.

We built our stimuli out of four-note musical modules or units (Image A.1). In order to more accurately measure the N100 response to change, we made sure that each unit started with a unique note. We then organized these units into sequences with predictable repetition (Regular) or unpredictable repetition (Irregular). Regular stimuli featured the same number of repetitions of a unit before a new unit was introduced. For example, a Regular4 stimulus may begin with four repetitions of Unit 2 followed by four repetitions of Unit 1 followed by four repetitions of Unit 4, etc. Irregular stimuli drew from the same units but with an unpredictable number of repetitions before the entrance of the following unit. For example, an Irregular4 stimulus could begin with two repetitions of Unit 1, followed by five repetitions of Unit 3, and so on, with the number of unit repetitions ranging between two and six, and averaging four. In both Regular and Irregular stimuli, we referred to local groups of identical units as phrases. In total, these sequences of units lasted six to eight minutes in duration. To track changes over time, we measured the N100 responses to the initial note of each phrase and compared averages of the responses from the first and final thirds of the stimulus sequences (which lasted six to eight minutes).

As hypothesized, we saw a significant reduction in the N100 response when comparing the beginning to the end of Regular conditions (i.e., the amplitude of the N100 response grew less negative over time, Image A.2). No such significant reduction was found for Irregular conditions. In addition, the amplitude of N100 was significantly more negative in the Regular Beginning condition than the Irregular Beginning condition. We attribute this to the known enhancement of N100 amplitude at moments of metric importance.⁸ In Regular conditions, the predictability of phrase length may create this metric enhancement. Because participants in the study listened passively, these results show how predictable repetition required a diminished amount of resources over time while unpredictable repetition steadily required a stable amount of resources, even in the absence of attention. Perhaps part of Johnson's "tuning in on a minimal level" is attending to the steady, subtle blip of processing power in reaction to unpredictably repeating music.

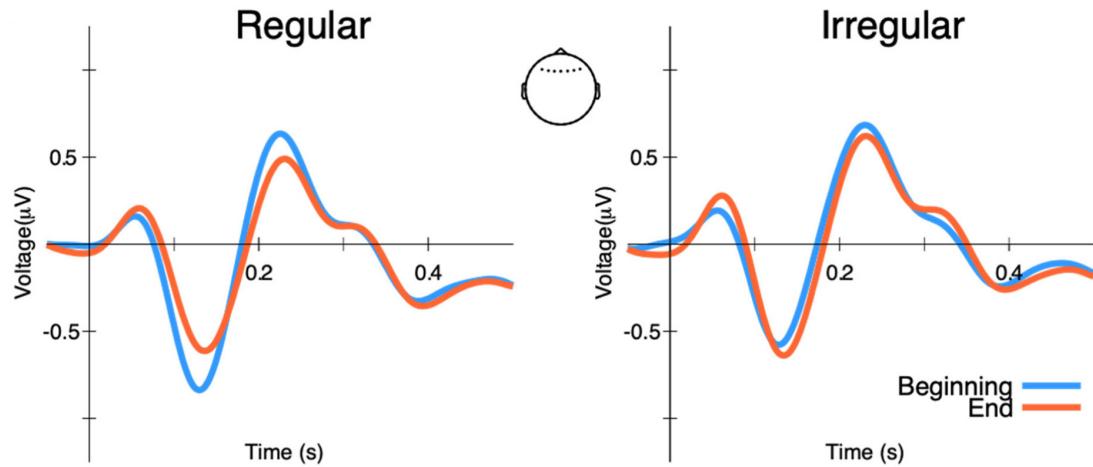
⁸ Ahren B. Fitzroy and Lisa D. Sanders, "Musical Meter Modulates the Allocation of Attention across Time," *Journal of Cognitive Neuroscience* 27, no. 12 (2015): 2339–51, https://doi.org/10.1162/jocn_a_00862.

Image A.1. Stimulus details. “Five melodies or “units” were used to construct our stimuli (A). Each unit (Unit 1 = U1, Unit 2 = U2, etc.) consists of four notes and starts with a unique pitch (U1 starts with A4, U2 starts with B4, etc.). The units were used to construct stimuli for four conditions (B). Regular stimuli repeated a pseudo-randomly selected unit a set number of times (Regular4 always repeated a unit 4 times, Regular5 always repeated a unit 5 times). Irregular stimuli repeated units within a set range (in Irregular4, units were repeated 2–6 times; in Irregular5, units were repeated 3–7 times). Sequential repetitions of a single unit constituted a “phrase” (designated by the rectangles). Each stimulus contained 100 phrases. To compare N1 amplitude changes over time we segmented (C) the first 35 phrases (Beginning) and the final 35 phrases (End).”¹



¹ Tysen Dauer, Barbara Nerness, and Takako Fujioka, “Predictability of Higher-Order Temporal Structure of Musical Stimuli Is Associated with Auditory Evoked Response,” *International Journal of Psychophysiology* 153 (2020): 53–64, <https://doi.org/10.1016/j.ijpsycho.2020.04.002>.

Image A.2. EEG Results. “Grand average ERP Waveforms (A) for the Regular (left) and Irregular (right) conditions each show the Beginning and End segments. Time zero denotes the onset of the first note of the phrase. The electrode locations used for these waveforms are shown in the center, inlay diagram (F5, F3, F1, Fz, F2, F4, F6).”²



² Dauer, Nerness, and Fujioka, “Predictability.”

Chapter 3

Minimalism as Brainwashing

“The Army had to, and I don’t say this really in a negative way, they had to kind of brainwash me.” In an interview, the former Missouri Secretary of State and former Army intelligence officer Jason Kander described the process of this purported brainwashing. “And, what I mean by that is, they had to say to me, over, and over, and over again, and this is true of every soldier[, t]hey had to get it across to me that somebody was doing something harder than me[, t]hat most people had it harder than me. And, that’s true no matter what your job in the Army. And that’s necessary.”¹ This recent use of the term brainwashing shows the term’s close association with repetition (“...they had to say to me, over, and over, and over again...”) and a radical ambivalence in its deployment. While an initial reaction to brainwashing of any sort is likely to be negative, Kander, and the word’s American users since at least the late 1950s have also described the usefulness (“The Army had to...,” the repetitive messages was “necessary”), even pleasures, of brainwashing.

But the *dangers* of brainwashing were at the top of many Americans’ minds at the beginning of the long Sixties. In the 1950s, as the Korean War wound down, more than twenty American prisoners of war chose to remain in Asia though they were offered multiple opportunities to return to the U.S.² With the Cold War taking form, the choices of these American soldiers seems inexplicable. In 1958 the psychologist James V. McConnell appeared on the film *Battle for the Mind* asking his curious American audience, “Why did hundreds of American soldiers in Korea denounce their native land, embrace communism and turn on their fellow prisoners?” How could anyone in their right mind choose to stay in Communist Asia? The only reasonable interpretation of events, for many, was that these soldiers were not in their right mind but had been brainwashed. A woman’s voice from the film *Battle for the Mind* put it plainly: “My estimation of this situation is brainwashing.” McConnell laid out three elements of the suggested brainwashing:

First there was the technique of fear [of punishment].... Coupled with this quite often there was the technique of hope [of future reward or escaping punishment].... And if this

¹ Chris Hayes, “Facing Trauma with Jason Kander,” Why Is This Happening?, accessed September 13, 2019, <https://www.nbcnews.com/think/opinion/facing-trauma-jason-kander-podcast-transcript-ncna1051946>.

² Most returned years later. Susan L. Carruthers, *Cold War Captives: Imprisonment, Escape, and Brainwashing* (Berkeley: University of California Press, 2009). For more on the Korean War and the prisoners of war, see Monica Kim, *Interrogation Rooms of the Korean War: The Untold History* (Princeton: Princeton University Press, 2020); Cheng Chang, *The Hijacked War: The Story of Chinese POWs in the Korean War* (Stanford: Stanford University Press, 2020); Bruce Cumings, *Korea’s Place in the Sun: A Modern History* (New York: W.W. Norton, 2005); Bruce Cumings, *The Origins of the Korean War* (Seoul: Yuksabipyeungsa, 2002).

didn't work another technique was self-confession. Make him confess to just a little sin, and then a bigger one and then a bigger one until finally he paints a monster of himself.³

The basic premise of such speculation was that America's enemies could manipulate human psychological vulnerabilities. In the film, Dr. McConnell continued, conversing with a Colonel Woodman:

“Well, tell me Colonel, and I think this is very interesting, if we get into another battle does the army expect that the men who are captured will be indoctrinated or brainwashed?”

“Very definitely so. We very definitely feel that we will be up against this new weapon.”⁴

With national security interests in play, dozens of psychologists and other scientists framed their work in the wide parameters of brainwashing. McConnell himself was researching behavior modification psychology and was perhaps most famous within the academic world for his work on memory transfer (his particular version hypothesized that memories might be encoded in RNA).⁵ Critically, his work, and the work of many behavior modification psychologists, extended from a long line of classical conditioning paradigms that included scientists like Ivan Pavlov and B. F. Skinner. Against the backdrop of the Cold War, the cultural, governmental, and scientific roots of brainwashing anxieties and their symbiotic relationships with literature, film, and television made the term a household topic.

The ubiquity of brainwashing rhetoric in America during the long Sixties even pervaded the Classical music subculture. Critics linked the supposedly simple repertoire of musical minimalism with a broad array of associated cultural, social, and political dangers. Because the music eventually gained a substantial following and influenced subsequent generations of classically-trained composers, the polemics lived on, perhaps especially for those who lived through minimalism's emergence. For example, when American modernist composer Elliot Carter was asked his “view of the popular trend of minimalism” in a 2003 interview, he replied “It's death.” “If you write one bar and then repeat it over again, the music ceases to have anything to do with the composer, from my point of view, anyway. It means a person's stopped living. It doesn't have anything to do with music.”⁶ Carter's “minimalism is death” comment came decades

³ The film was aired on the University of Michigan Television and was recently excerpted in Amanda Aronczyk and Kai Wright, “The History of Persuasion: Part 1,” The Stakes, accessed March 17, 2020, <https://www.wnycstudios.org/podcasts/the-stakes/episodes/the-stakes-history-persuasion-part-1>.

⁴ Quoted in Aronczyk and Wright, “Persuasion: Part 1.”

⁵ J. V. McConnell, “Memory Transfer Through Cannibalism In Planarians,” in *Readings in Animal Behavior*, ed. Thomas E. McGill (New York; Holt, Rinehart and Winston, 1965), 440–46. For the historical context of McConnell's work, see Larry Stern, “The Memory-Transfer Episode,” *Monitor on Psychology* 41, no. 6 (June 2010): 28.

⁶ Geoffrey Norris, “Minimalism Is Death,” *The Telegraph*, July 23, 2003, sec. Music.

after the so-called movement had passed.⁷ But it was only the latest in a long history of anxiety about musical minimalism as cultural barometer and societal drug.

In the 1960s and early 1970s, reviews of minimalist compositions drew on concerns about mindless, soulless, and hypnotic states that bubbled over from popular culture concerns about brainwashing, brainwashed automatons, and related concerns about free will.⁸ In 1962 a writer for the New York Herald Tribune assessed La Monte Young's *Composition 1960 #7*, a composition consisting entirely of two notes held for a long time (Image 3.1). The reviewer commented that the "purpose might be for that drone to enter one's psyche to the point where it stills one's restless mind and quickens such sensibilities one never dreamed one possessed. On the other hand... the purpose might just simply be to drive one utterly, completely and irrevocably BATS!"⁹ Either you transcend quotidian consciousness in a pleasant way or you are driven to unhealthy mental states by this music, and driven there with permanent damage. A 1969 review of a minimalist work gives listening advice based on a dichotomy between consciousness and unreal states: "If you don't allow yourself to respond with consciousness but daydream along, the music may draw you into its unreal but not uncomfortable world."¹⁰ Either you maintain your conscious state and have a miserable experience, or you let go of reality on the chance that you get a little pleasure from the music. A year before, in 1968, this same reviewer had witnessed a performance of La Monte Young's *Map Of 49's Dream The Two Systems Of Eleven Sets Of Galactic Intervals Ornamental Lightyears Tracery* or *Map* for short. On that occasion, the reviewer had compared hearing the music with being controlled by an outside force. "Experiencing 'Map' was like being held in an involuntary trance with time almost stopped. Just as it had no beginning, for the audience at least, so it felt that it would never end. Maybe it won't. It was still going on when I left."¹¹ Describing Young's music as never-ending, involuntary trance was not an endorsement of the music. For detractors, the music was regressive, pushing people away from thinking states

⁷ Kyle Gann, Keith Potter, and Pwyll ap Siôn, "Introduction: Experimental, Minimalist, Postminimalist? Origins, Definitions, Communities," in *The Ashgate Research Companion to Minimalist and Postminimalist Music*, ed. Keith Potter, Kyle Gann, and Pwyll ap Siôn (Surrey and Burlington: Ashgate, 2013), 19–38.

⁸ For an earlier example of musical intersections with hypnotism and mesmerism, see Heather Hadlock, "Mesmerizing Voices: Music, Medicine, and the Invention of Dr. Miracle," in *Mad Loves: Women and Music in Offenbach's Les Contes d'Hoffmann* (Princeton N.J.: Princeton University Press, 2000).

⁹ John Gruen, "Music: Zen and Contemporary," *New York Herald Tribune*, October 13, 1962.

¹⁰ Theodore Strongin, "Is Timelessness Out of Style?," *New York Times*, December 21, 1969, sec. D.

¹¹ Theodore Strongin, "Sound-Light Show Drags Slowly On," *New York Times*, February 19, 1968.

and towards fake mystical and false libidinal experiences, with lasting damage for listeners and, consequently, weakened political stamina.¹²

But even reviewers who tended to favor minimalist works deployed language that emphasized loss of control and believed that listeners might need to be “susceptible” to external influence on their consciousness in order to enjoy the music. One 1974 review of the same La Monte Young piece stated, “For all the acoustical and scientific terminology in the program notes, this is overtly mystical music. If you are at all susceptible to such experiences, the sound will seem to fill up every crevice of the room, and the intensity of the experience will make any nostalgia for such older Western musical expectations as shape, contrast and climax seem blissfully irrelevant.”¹³ Even with Young’s attempts to shroud the experience in scientific language via program notes, the non-thinking effects left a bigger impression for the reviewer. Another writer noted the “modal repetition” of Young’s performances made for a “gentle sonic massage.”¹⁴ But it is a quote from the British theater director Peter Brook in a 1966 issue of *Vogue* that most explicitly connected minimalism with contemporary political and social anxieties. “La Monte Young’s music is brainwashing if you succumb to it.”¹⁵

Strands of brainwashing rhetoric from science, artistic media, and journalism flowed into at least two interpretive vectors in the case of minimalist music. On the one hand, detractors observing other listeners in such states perceived the effects as non-thinking, even stupefying, and thus antithetical to the ideal Western enlightened citizen. On the other hand, advocates of the music often believed that the music connected them with a truer reality via an imagined universal conception of sensation and perception. This truer reality, heavily influenced by the American counterculture, contrasted strongly with the technocracy and its perceived negative social and

¹² The positive and negative vectors of reception I sketch here had resonances in the musical parameters as well. Repetition was already sworn off by most serious composers, but minimalism offered extreme amounts, a beat was uncouth, here they seemed clear to listeners. These contrasts in musical parameters have been well described. La Monte Young’s *Well-Tuned Piano* (begun in 1964) provides an interesting conceptual addition: for many in the American Classical music subculture, Young’s pursuit of just intonation tunings could have felt like a strange throwback, regressing into the days of Western Classical music before the equal temperament manifested in collections like J. S. Bach’s *Well Tempered Clavier*. For Young, the pursuit of just intonation in the *Well-Tuned Piano* and other works was viewed as a transcendence, a cosmic resonance with neural bases.

¹³ John Rockwell, “La Monte Young Plays at Kitchen: Sine Wave Creates a Mood With Voices, Viola, Horn,” *New York Times*, May 2, 1974.

¹⁴ Robert Palmer, “Trance Music--A Trend Of the 1970’s,” *New York Times*, January 12, 1975.

¹⁵ Jean Vanden Heuvel, “The ‘Fantastic Sounds’ of La Monte Young,” *Vogue*, May 1966.

psychological effects.¹⁶ Having established these interpretive vectors in chapter two, here I flesh them out in the narrower context of the specific low arousal, mostly positively valenced (LAP) space of brainwashing rhetoric. Mapping the scholarly territory of brainwashing reveals a place for music scholarship to address the ways that brainwashing concerns and their accompanying rhetoric played out in the reception of early American minimalism. For non-counterculture members of the American classical music subculture, the music could be linked with brainwashing because of musical structure, observed effects, Cold War Orientalist links with both of the above as well as visual elements at concerts and additional musical parameters, and parallels with popularized accounts and understandings of brainwashing. The other vector, for counterculture-influenced listeners, connected the same musical features and effects with valued efforts to de-emphasize rationality and re-connect with supposedly more basic, primitive, and “true” reality by redirecting conscious attention to sensation and perception. Even if an audience member listened passively, riding the mood of the room, this line of thought assumed automaticity of musical effects, connecting such a listening with the desired sort of mind washing. After exploring the cultural context of brainwashing rhetoric, I provide three sets of analyses of the reception of works by Glass, Riley, and Reich to show the overflow of this rhetoric into the reception of minimalism works.

The English term brainwashing was first deployed in 1950 by journalist Edward Hunter, also a CIA propaganda specialist and, before that, a member of the Office of Strategic Services (the OSS, a forerunner of the CIA).¹⁷ While he claimed he took the word from his research on Chinese communism, it was heavily influenced by the ideas and fiction of George Orwell and

¹⁶ Both positions grow from the idea that the music has quasi-automatic effects. Findings from an electroencephalography (EEG) study offer evidence that listeners do share similar responses to musical features of Reich's phase music, at least to *Piano Phase*. Using inter-subject correlation analysis of EEG data from twenty participants with no music education beyond high school and no history of private music lessons, we found a strong correlation between participants' neural responses when phasing sections of the work began and ended, that is, when phasing started and again when in-phase sections started (see Interlude B for more details). While Jacek Dmochowski and others argued that these correlated moments may index listener engagement, recent work has suggested that these inter-subject correlations may be better explained as change-monitoring responses modulated by attention. Even if these inter-subject neural correlations index change-monitoring responses, they also correlate strongly with behavioral data where participants self-reported about their real-time level of engagement and judgements of how pleasant, musical, well-ordered, and interesting a variety of stimuli were. This could mean that, at least for listeners similar to the participants in our study, aesthetic experience and judgements are tightly coupled to low-level psychological responses to small changes in the acoustic environment. Jacek P. Dmochowski et al., “Correlated Components of Ongoing EEG Point to Emotionally Laden Attention - a Possible Marker of Engagement?,” *Frontiers in Human Neuroscience* 6 (2012). Andreas Trier Poulsen et al., “EEG in the Classroom: Synchronised Neural Recordings during Video Presentation,” 2017, 1–9. Blair Kaneshiro et al., “Natural Music Evokes Correlated EEG Responses Reflecting Temporal Structure and Beat,” *NeuroImage* 214 (2020): 116559, <https://doi.org/10.1016/j.neuroimage.2020.116559>.

¹⁷ Timothy Melley, “Brain Warfare: The Covert Sphere, Terrorism, and the Legacy of the Cold War,” *Grey Room*, no. 45 (2011): 28. John Marks, *The Search for the “Manchurian Candidate”: The CIA and Mind Control* (New York: Times Books, 1979).

Ayn Rand. In his 1958 testimony before the U.S. House of Representatives Committee on Un-American Activities, Hunter summarized the threat of supposed “communist psychological warfare” abroad and domestically. The synopsis of his testimony begins with the assertion that the “Red bloc will not need to employ direct military force against us in order to win the total war which they are waging...”¹⁸ Instead, argued Hunter, America’s political enemies would use brainwashing and other mind control techniques to win over unwitting democratic citizens. Hunter argued that left-leaning American university professors were part of the problem: their political leanings and pedagogical methods inadvertently or consciously softened the American mind, making citizens vulnerable to brainwashing. The twenty-one POWs who chose to stay in their country of capture after the Korean War were a frequent point of comparison for these even more tenuous accusations of brainwashing.

Hunter’s bombastic testimony was part of his long history of journalism cum popular propaganda that assessed the threat of various aspects of mind control, focusing heavily on Asia. In 1951 he published *Brain-washing in Red China: The Calculated Destruction of Men’s Minds*, beginning with a dramatic but thin connection between communist “mind attack” techniques in China and the States’ neighbor, Cuba.¹⁹ Hunter presented a broad definition of brainwashing that included hypnosis, “post-hypnotic suggestion,” induced trance states, and indoctrination via textbooks. With his typical flair, Hunter summarized the shift that made brainwashing a sudden threat: “Our age of gadgets and electronics had discovered the brain, and we were learning how to manipulate it. This was something drastically new, like the splitting of the atom, that had come upon this earth in the middle of the twentieth century. Such discoveries can be utilized, like primitive fire, for good or for evil, to help bring our earth closer to paradise than man has ever expected or to destroy it in an ultimate holocaust.”²⁰ While Hunter left open the possibility that these new-found powers might be used for good, the rest of the book described its nefarious uses by communists and brief discussions of admirable human qualities that allowed some to successfully resist these mind assaults.

Before Hunter’s next book hit the shelves, Dutch psychoanalyst Joost Meerloo came out with a similar tale but contextualized brainwashing or “menticide” (murder of the mind) in psychoanalytical terms rather than political. After opening with a verse from the gospel of Matthew warning against those who can kill the soul, he wrapped the recent brainwashing scare in language that pits the “free human mind” against its transformation into an “automatically

¹⁸ “Communist Psychological Warfare (Brainwashing)” (Washington: U.S. Govt. Print. Off., 1958).

¹⁹ Edward Hunter, Foreword to *Brain-Washing in Red China: The Calculated Destruction of Men’s Minds* (New York: Vanguard Press, 1951).

²⁰ Hunter, *Brain-Washing*, 11.

responding machine.”²¹ He argued that this transformation could be induced by “cultural undercurrents in our present-day society” as well as by political groups.

Hunter followed up on his earlier publishing success in 1956 with a hope-filled case study of resisting brainwashing in his book *Brainwashing: The Story of Men Who Defied It*, and an enlarged 1965 edition that emphasized the scientific underpinnings of brainwashing entitled *Brainwashing, from Pavlov to Powers*. In these extensions of his earlier prose, Hunter used language that would show up in dozens of reviews of minimalist works. He described soldiers in the Korean war who, “spoke and acted as if they were under a *hypnotic spell*.”²² Importantly, he also noted the importance of repetition in effective brainwashing: “What appears indisputable is that a form of trance state has been widely induced in Red China by *repetitive interrogation* and political learning within a controlled government. Fatigue and confusion demonstrably create the same state the hypnotist strives to achieve.”²³ Hunter used this section to connect one-on-one brainwashing with “mass hypnotism” and examples from the Third Reich.

Hunter’s *Black Book on Red China* offers up rhetoric that would similarly infiltrate mainstream American culture despite its thin argumentation. In his book, discussions of brainwashing are often butted up against depictions of drug use.²⁴ The term brainwashing is used liberally to describe a wide variety of phenomena, including education, purportedly weak and misguided students “lured” into China, and even Japanese soldiers involved in the peace movement.²⁵ Hunter deeply and repeatedly connected brainwashing with communism.²⁶ Supposedly brainwashed individuals are cast as beyond-human and sub-human. For example, Hunter drew on the poet Chan Ko-tsa’s declaration that “There are no friends here!” (during the Hundred Blossoms moment of relaxed censorship), to compare brainwashed people with robots and insects: “In the enormity of the living death of the spirit that it reflects, we catch a plain view of a society of flesh-and-blood robots, an insectivized world.”²⁷ Links between brainwashing and repetition are frequent and linked to the repetitions of Pavlov’s conditioning techniques (the “‘new Soviet man’...is conditioned like a dog.”).²⁸ Hunter argued that religion and rituals are also deployed as brainwashing techniques, covertly steering believers towards dialectical materialism

²¹ Joost Abraham Maurits Meerloo, *The Rape of the Mind: The Psychology of Thought Control, Menticide, and Brainwashing*, 1st ed. (Cleveland: World Pub. Co., 1956), 13.

²² Edward Hunter, *Brainwashing: The Story of Men Who Defied It* (New York: Farrar, Straus and Cudahy, 1956), 12.

²³ Hunter, *Brainwashing*, 236.

²⁴ Edward Hunter, *The Black Book on Red China: The Continuing Revolt* (New York: The Bookmailer, 1958), 17, 118-127.

²⁵ Hunter, *Black*, 17, 18, 131. In Hunter’s effort to narrate the importance of counter-communist forces within China, he is also forced to admit the limits of the government’s brainwashing abilities: “The Red hierarchy cannot, for all its mind-probing activities, look within the brains of these people and tell whom among them is giving lip loyalty while nursing hate.” Hunter, 34-35.

²⁶ Hunter, *Black*, 20, 143.

²⁷ Hunter, *Black*, 23, 130.

²⁸ Hunter, *Black*, 45, 129, 150.

in a process of “mass hypnosis.”²⁹ In offering a dictionary of coded communist doublespeak, Hunter “translated” the word “Reliable” as “Indoctrinated, or rather brainwashed so thoroughly in communist ideology as to react...under all circumstances, in accordance with communist line, and to be immune to any other form of logic or persuasion.”³⁰ Repetition and “sameness” as indoctrination and brainwashing would come to be a cornerstone of opposition to its aesthetic use as well. Hunter portrayed the operation of the brainwashed mind in terms of linguistic association: “A normal mind—not brainwashed—thinks of ‘y’ when ‘x’ is mentioned, or perhaps ‘w,’ but it can never be a signal for ‘d’ or ‘j.’ This is reasoning, the spirit and function of negotiation. When the sound ‘x’—or whatever word or phrase is employed in his ideology—strikes the ears of a brainwashed individual, the response is automatically whatever it stands for as a symbol in Newspeak.”³¹ While what Hunter described as a reasonable individual can move between associated concepts, the brainwashed can only hear and think the conditioned response. In the case of minimalist music, the brainwashed victim of the music can only sense the sounds, never connecting this moment with larger formal structures. While a “normal mind—not brainwashed” might become bored or disturbed by the repetition, the “brainwashed individual” stays tuned in to the stream of meaningless notes, deepening their conditioned, brainwashed state. Hunter also linked brainwashing with hypnotism, noted the “national neurosis” that would result from brainwashing “an entire population,” and included an article translating brainwashing as “remolding.”³²

Hunter helped fan a new sub-flame of Cold War paranoia and many authors jumped on the bandwagon. Psychiatrist Robert Lifton interviewed POWs and others who escaped from China after 1951 and published his findings in his 1961 book *Thought Reform and the Psychology of Totalism: A Study of “Brainwashing” in China*.³³ An anecdote from George Romney’s presidential campaign demonstrates the depth of the terror even the informal use of the term brainwashing could produce during that time.

‘I have been brainwashed,’ declared Michigan governor George Romney in 1967 upon returning from his VIP tour of the South Vietnamese battlefields. That unfortunate choice of words was fatal to Romney’s efforts to win the Republican Presidential nomination. Within a few weeks adverse reaction forced him to give up his campaign. Governor Romney did not literally mean that his reason had been overcome by coercion, and the American public did not understand him that way. Romney meant that he, like other Americans, had been deliberately misled by his government’s optimistic propaganda on

²⁹ Hunter, *Black*, 66, 129, 150. Hunter also recounts the brainwashing of earnest missionaries. Hunter, 76-77. Orientalist language also implied an exclusively Christian West: “While the West has been able to learn of...excesses against Christians, it is in no position to find out what goes on in Buddhist circles, *with whom it has no contacts*” [emphasis added]. Hunter, 85.

³⁰ Hunter, *Black*, 102.

³¹ Hunter, *Black*, 103.

³² Hunter, *Black*, 131, 134, 171.

³³ Robert Jay Lifton, *Thought Reform and the Psychology of Totalism: A Study of Brainwashing in China* (New York: W. W. Norton, 1963).

the progress of the war. But Romney could not escape the emotional impact of the word; ever since the 1950s ‘brainwashing’ has conjured up visions of programmed zombies, individuals who could not stand up under pressure, men whose free will had been captured by sinister foreigners. The public did not want to take chances with a man who seemed to imply that he was not strong enough to maintain the integrity of his own mind. If that integrity could be breached by mere propaganda, so much the worse. Such a man *could* be brainwashed. George Romney, the public decided, was not the stuff of which presidents are made. Romney’s slip of the tongue illustrates an important fact about brainwashing; it is a term little understood but greatly feared...³⁴

Images of “programmed zombies” and individuals with weak psyches resonates with the way music critics and composers deployed the terms brainwashing and hypnotism in describing early American minimalism.

By the 1970s, writers began distinguishing between more and less threatening mind manipulation. Alan Scheflin laid out a “wide breadth” of mind manipulation methods, including new examples from Evangelical Christianity and voodoo. But he focused “on the threats to freedom of the mind rather than on its exercise.”³⁵ Where earlier writers like Hunter were blinded to the possibility that some examples of “brainwashing” could be harmless or, at least, not a political threat, more conceptual space slowly invaded the discourse. By the 1980s, authors like Denise Winn wrote Hunter out of the story, suspicious because of his work for the CIA as a propaganda specialist. Winn even referred to brainwashing as an “emotional scare word” and sought to illuminate the working of healthy minds by demystifying brainwashing.³⁶ The critical distance that marked later decades of scholarship, however, was noticeably absent in the popular discourse of the 1950s and 1960s.

Brainwashing rhetoric in the mid-twentieth century drew on decades of scientific research and psychological theories. Already in 1879, American academic William James penned the article “Are We Automata?” arguing that a tiny drop of human free will sits on top of a mountain of automatic mental processes.³⁷ In 1920, in the midst of growing behaviorist psychology, John Watson and Rosalie Rayner published their “Little Albert” research that claimed to demonstrate the ability to inculcate irrational fear in a young child.³⁸ Scraps of research from the CIA-sponsored experiments appear as early as 1957, when Woodburn Heron reported on the effects of sensory deprivation on brainwaves and visible behavior.³⁹ And in 1963, Stanley Milgram’s experiments demonstrated participants’ willingness to follow orders, even when they

³⁴ Alan W. Scheflin, *The Mind Manipulators: A Non-Fiction Account* (New York: Paddington Press: distributed by Grosset & Dunlap, 1978), 22.

³⁵ Scheflin, *Mind*, 19.

³⁶ Denise Winn, *The Manipulated Mind: Brainwashing, Conditioning, and Indoctrination* (London: Octagon Press, 1983), 2.

³⁷ William James, “Are We Automata?,” *Mind* 4 (1879): 1–22.

³⁸ John B. Watson and Rosalie Rayner, “Conditioned Emotional Reactions,” *Journal of Experimental Psychology* 3, no. 1 (1920): 1–14.

³⁹ Woodburn Heron, “The Pathology of Boredom,” *Scientific American*, 1956, 52–56.

involved harming others.⁴⁰ This accumulation of evidence that human behavior was malleable and could be used to get average citizens to willingly inflict harm dovetailed with Vance Packard's 1957 book *The Hidden Persuaders*, which argued that advertisers were effectively using psychological insights to subliminally and coercively get customers to buy their products.⁴¹

The specifics of some of this research reveals isomorphisms with early readings of minimalism. A prime example comes from CIA-funded research conducted by Canadian psychologist Ewen Cameron.⁴² Working on therapies for mental illnesses including schizophrenia, Cameron experimented with a two-part process to wipe clean an individual's psyche before rebuilding it for "normal thinking."⁴³ The first part, called depatterning, involved electroshock treatment, barbiturates, and induced sleeping for days in order to disrupt and ultimately remove the subject's "space-time image." Subjects would eventually reach a state in which they had no knowledge of who and where they were.

During this stage the patient may show a variety of other phenomena, such as loss of a second language or all knowledge of his marital status... At this stage all schizophrenic symptomatology is absent. His communications are brief and rarely spontaneous, his replies to questions are in no way conditioned by recollections of the past or by anticipations of the future. *He is completely free from all emotional disturbance save for a customary mild euphoria. He lives, as it were, in a very narrow segment of time and space.* All aspects of his memorial function are severely disturbed. He cannot well record what is going on around him. He cannot retrieve data from the past. Recognition or cue memory is seriously interfered with and his retention span is extremely limited [emphasis added].⁴⁴

While getting to this stage took days, the italicized part of the quotation makes for easy comparison with some responses to minimalism: particularly the mention of an LAP affective state and the focusing of time and space awareness.

In addition to depatterning, Cameron developed a technique of psychic driving in which subjects were exposed to repetitions of short, five to seven second-long "key statements" meant

⁴⁰ Stanley. Milgram, *Obedience to Authority: An Experimental View*, 1st Perennial Classics (New York: Perennial Classics, 2004).

⁴¹ Vance Packard, *The Hidden Persuaders* (New York: D. McKay Co., 1957).

⁴² Thanks to Jeff Nagy for bringing Cameron, depatterning, and psychic driving to my attention after reading a draft of this chapter. Anne Collins, *In the Sleep Room: The Story of the CIA Brainwashing Experiments in Canada* (Toronto: Key Porter Books, 1997). Gordon Thomas, *Journey into Madness: Medical Torture and the Mind Controllers* (London: Corgi Books, 1989).

⁴³ D. Ewen Cameron, John G. Lohrenz, and K. A. Handcock, "The Depatterning Treatment of Schizophrenia," *Comprehensive Psychiatry* 3, no. 2 (April 1, 1962): 72, [https://doi.org/10.1016/S0010-440X\(62\)80015-7](https://doi.org/10.1016/S0010-440X(62)80015-7).

⁴⁴ Cameron, Lohrenz, and Handcock, "Depatterning," 67.

to force them to deal with a psychological “dynamic.”⁴⁵ The repetitions of the key statements or “cue” varied from a few minutes, to thirty minutes, to hours, to days and could be accompanied by drugs, prolonged sleep treatment, hypnosis, and isolation.⁴⁶ A variety of defense mechanisms may arise to protect the subject from engaging with the cue, wrote Cameron, but usually the repetition would break down such defenses. One patient, for example, received a cue consisting of her own words about her mother: “That’s what I can’t understand—that one could strike at a little child.”⁴⁷ To help her deal with feelings of “inadequacy” and “profound ambivalence toward her husband,” she heard the cue fifteen times on loop.⁴⁸ Cameron reported that after ten repetitions the subject spoke of physiological responses (wet hands, goosebumps) and felt dizzy, “queer,” and tearful. After fifteen repetitions the patient reportedly stated that she wanted to tell Cameron to stop the playbacks and in conversation immediately following the psychic driving, she had a breakthrough about her treatment in childhood and her present-day feelings.⁴⁹ The efficacy of psychic driving came, thought Cameron, through the technique’s ability to break down defenses, in his practice, defenses surrounded neuroses. The gradual “wearing down” of defenses that take great effort to maintain reminded him of the POW stories. “Analogous to this [overloading defenses] is the breakdown of the individual under continuous interrogation.”⁵⁰ While brainwashing could destroy relatively mentally healthy individuals, in Cameron’s logic, it could also rebuild mentally unwell patients. Counterculture embrace of brainwashing-related techniques shifted the defenses as well: for them drugs, hypnotic states, etc. could overload the encrusted layers of technocratic culture and help supposed true selves break free.⁵¹

Years after these research publications, when the U.S. senate held hearings on the CIA project MK-ULTRA that funded Cameron’s research (and work at eighty-five other universities and institutions), documents that the CIA had failed to destroy came to light.⁵² They revealed that MK-ULTRA included 149 subprojects, including eight on hypnosis, nine on human behavior,

⁴⁵ D Ewen Cameron, “Psychic Driving,” *American Journal of Psychiatry* 112, no. 7 (1956): 502–509. In this article, Cameron cited previous, related techniques that influenced his work, including the following articles on sensory deprivation and repetitively reading prepared scripts aloud to patients in narcosis. W. H. Bexton, W. Heron, and T. H. Scott, “Effects of Decreased Variation in the Sensory Environment,” *Canadian Journal of Psychology/Revue Canadienne de Psychologie* 8, no. 2 (1954): 70–76, <https://doi.org/10.1037/h0083596>. Richard M. Brickner et al., “Direct Reorientation of Behavior Patterns in Deep Narcosis (Narcoplexis),” *Archives of Neurology & Psychiatry* 64, no. 2 (1950): 165–95, <https://doi.org/10.1001/archneurpsyc.1950.02310260003001>.

⁴⁶ Cameron, “Psychic,” 502.

⁴⁷ Cameron, “Psychic,” 504.

⁴⁸ It is worth noting that every patient in his article is female.

⁴⁹ Cameron went on to note less successful cases that required far more repetition.

⁵⁰ Cameron, “Psychic,” 508.

⁵¹ Ken Kesey offers a good example. While his experiences at the Stanford Research Institute (SRI) led to the critiques of clinical psychology in *One Flew Over the Cuckoo’s Nest*, the same site of experiences made him an early advocate of LSD.

⁵² Daniel Inouye and Barry Goldwater, “Project MK-ULTRA, The CIA’s Program of Research in Behavioral Modification,” § Select committee on intelligence, and subcommittee on health and scientific research of the committee on human resources (1977).

sleep, and psychotherapy, six on behavior modification, twenty-three on motivational studies (including defection), and work on electroshock treatment and ESP. Over 180 researchers and research assistants were involved in brainwashing research inspired by fears of being overtaken by Soviet and Chinese research. While the senate hearings were focused on using human subjects without their consent, the rationale for the entire research enterprise also surfaced. “The late 1910s [sic] and early 1950s were marked by concern over the threat posed by the activities of the Soviet Union, the People's Republic of China, and other Communist bloc countries. United States concern over the use of chemical and biological agents by these powers was acute. The belief that hostile powers had used chemical and biological agents in interrogations, brainwashing, and in attacks designed to harass, disable, or kill Allied personnel created considerable pressure for a ‘defensive’ program to investigate chemical and biological agents so that the intelligence community could understand the mechanisms by which these substances worked and how their effects could be defeated.”⁵³ Statements like this reveal the overlap between brainwashing and Orientalism in the context of Cold War politics.

Scott Selisker has recently argued that American political fears about communist brainwashing in and after the 1950s combined Freudian models of the human mind (involving uncontrollable deep psychological forces) with emerging scientific findings that this inner self could be manipulated. This view of the human mind and its challenges was adopted by the American left, with figures from the Frankfurt school diaspora, Betty Friedan, Ken Kesey, Ralph Ellison and others situating not communist countries but American institutions as the oppressive, brainwashing forces. For example, Adorno's 1951 essay “Freudian Theory and the Pattern of Fascist Propaganda” argues for something similar to, though more complex than brainwashing: a willful, suspended disbelief in the face of unwelcome political realities.⁵⁴ And Adorno's Frankfurt School colleague, Erich Fromm, relatedly contrasted human automatons with the expression of free will in lectures such as his 1966 work “The Automaton Citizen and Human Rights.”⁵⁵ Selisker assembles an “aesthetics of automatism” where the word aesthetics means perception (the meaning of the Greek root for aesthetics). Selisker argues that the boundaries of what counts as truly human is shaped by aesthetics in a way similar to Jacques Rancière's argument that delimiting political communities relies on training perception around categories of inclusion and exclusion.⁵⁶ The aesthetics of automatism is about understanding how constituting what is human depends on aesthetics, the categories that we use to train perception. To this end, Selisker

⁵³ Inouye and Goldwater, “Project,” 72.

⁵⁴ Theodor Adorno, “Freudian Theory and the Pattern of Fascist Propaganda,” in *The Essential Frankfurt School Reader*, ed. Andrew Arato and Eike Gerhardt (New York: Continuum Publishing Company, 1982), 118–37.

⁵⁵ Erich Fromm, “The Automaton Citizen and Human Rights,” *Fromm Forum* 12 (2008 1966): 11–16.

⁵⁶ Scott Selisker, *Human Programming: Brainwashing, Automatons, and American Unfreedom* (Minneapolis; London: University of Minnesota Press, 2016), 16–20. Selisker references Rancière's *Disagreement: Politics and Philosophy*.

investigates novels and film from the Cold War to the War on Terror as part of an omnidirectional, interdisciplinary “conversation through which the automaton image emerged.”⁵⁷ *Human Programming* “sets out to understand how and why totalitarians and other ‘enemies of freedom’ have been imagined so readily through the human automaton’s unfree ‘state of mind.’”⁵⁸ Historian Daniel Pick and film historian Ian Christie have surveyed the ways that culture, film, and psychology were viewed as tools and weapons during the Cold War. In addition to short analyses of brainwashing in a variety of films and TV shows, Pick and Christie connect brainwashing fears with critiques of Benjamin Spock’s advice for mothers and the menace of “momism” (mom-ism), the belief that a mother’s influence can produce breakable, soft individuals, susceptible to brainwashing.⁵⁹ Minimalism’s advocates were often cast as some of these soft, susceptible types.

Music critic Tim Page would later draw on a quotation from Glass to present the division of audiences, including those whom the music “transfixed.” “[Glass:] ‘We’d be lucky if we attracted an audience of twenty-five, luckier still if half of them stayed for the entire concert.’ [Page:] Then, as later, audience response was mixed. Some listeners were transfixed by the whirl of hypnotic musical patterns created by the ensemble, while others were bored silly, hearing only what they considered mindless repetition.”⁶⁰ Minimalism’s advocates drew on the language of cybernetics, the positive psychology movement, and Americanized versions of Asian spiritual traditions to frame their mind-intrusive music as a human psychological good. Here, for example, is minimalist composer Steve Reich describing one of his 1960s compositional techniques: “I believe there are human activities that might be called ‘imitating machines,’ but that are, in reality, simply controlling your mind and body very carefully as in yoga breathing exercises. This kind of activity turns out to be very useful physically and psychologically, as it focuses the mind to a fine point.”⁶¹ Reich’s comment suggests the twist that many other minimalist composers and audience members subscribed to: ways of turning potential mind-manipulation into psyche strengthening, ironically the positively-valanced space Hunter had opened up but not pursued in his early writings.⁶² Reich’s language contrasts strikingly with

⁵⁷ Selisker, *Human*, 6.

⁵⁸ Selisker, *Human*, 5.

⁵⁹ Daniel Pick and Ian Christie, “Hidden in Plain Sight: Uncovering the Secret History of Brainwashing - A Dialogue,” in *Where Is History Today? New Ways of Representing the Past*, ed. Marcel Arbeit and Ian Christie (Olomouc: Palacky University Olomouc, 2015), 55–70.

⁶⁰ Philip Glass et al., *Philip Glass: Two Pages, Contrary Motion, Music In Fifths, Music In Similar Motion*, vol. 9 79326-2 (Beverly Hills: Elektra Nonesuch, 1994), liner notes.

⁶¹ Steve Reich, “Come Out - Melodica - Piano Phase (1966-67),” in *Writings on Music, 1965-2000*, ed. Paul Hillier (Oxford: Oxford University Press, 2009), 24.

⁶² Kerry O’Brien has pursued the details of Reich’s personal interest in yoga and overlaps with technology. See Kerry O’Brien, “‘Machine Fantasies into Human Events’: Reich and Technology in the 1970s,” in *Rethinking Reich* (New York: Oxford University Press, 2019), 323–43.

Hunter's descriptions of the terrible powers of the "Party machine" in China that in his mind controlled ever more of an individual's life.⁶³

Brainwashing rhetoric in America during the Cold War coexisted with persistent Orientalism that also overflowed into discussions of minimalism: from Hunter's early incredulity that mentally healthy POWs would choose to stay in "an extremely backward, dreadfully impoverished country" to Scheflin's example of less harmful brainwashing such as "the young woman who wants to cloister herself in an Eastern religious cult."⁶⁴ Such language would also show up in reviews of minimalism, partly facilitated by minimalist composers' appropriations of a variety of non-Western musical traditions. "The use of deliberate, organized rhythmic and modal repetition by composers working in a variety of genres [including Young, Reich, and Glass] suggests that this oldest non-chemical path to *satori* is becoming one of the most significant musical trends of the seventies," wrote the reviewer Robert Palmer.⁶⁵ Throughout the article, Palmer placed examples of minimalism music alongside Indian, Mongolian, and Moroccan examples of trance.⁶⁶ Trance music of multiple types (minimalist, "Third World," and pop) operates, he wrote, "...through the absolute control of limited musical means [rhythmic and modal repetition] to induce relaxation, contemplation, euphoria, and other psychological states..." Palmer went out of his way to describe these effects in terms of neural activity in the human cortex (perhaps unknowingly, he merely described the auditory pathway from the inner ear to the auditory cortex before making vague causal assertions about biological effects—effectively passing off a basic process as somehow novel and profound).⁶⁷ *The New York Times* interspersed images of what appears to be neural oscillations throughout the article, including as a frame for a photo of Young and Zazeela with the header, "Trance Music: Its Spell Is Hypnotic" (Image 3.2).

Closer to the American classical music subculture, art historian Branden W. Joseph has argued that "biomusic" researcher Manford L. Eaton unwittingly "played out...the underlying logic and aims of the agendas of 'brainwashing' and 'mind control' that motivated so much

⁶³ Hunter, *Black*, 105.

⁶⁴ Hunter, *Brainwashing*, 11. Scheflin, *Mind*, 18.

⁶⁵ Palmer, "Trance."

⁶⁶ He also drew out parallels with "black discotheque" and "European electronic" groups like Tangerine Dream.

⁶⁷ "At its simplest, in the form of shamanist ritual drumming, trance music involves the rhythmic stimulation of motor and sensory areas of the brain. Drumbeats, which occupy a broad frequency spectrum, stimulate a relatively large portion of the pitch-sensitive basilar membrane in the inner ear and are transmitted simultaneously along associated neurons to the cerebral cortex. If these drumbeats are regularly spaced in time they can become a kind of pacemaker for the shaman, regulating his brain-wave rhythms and determining breathing patterns which produce a high level of carbon dioxide in the blood (an indicator of altered states of consciousness) and other biochemical changes."

postwar physiological and psychological research.”⁶⁸ Eaton’s biomusic was a cybernetic system for inducing specific psychological states by comparing subjects’ physiological responses to the composer/operator’s desired/intended state and changing acoustic, visual, haptic, and other feedback to bring the subjects’ states closer and ultimately into the desired state (Image 3.3): “It is possible to program psychic and physiological states of powerful, predictable and repeatable nature.”⁶⁹ Eaton, clearly aware of the ongoing research in various methods of brainwashing and mind control, discussed sensory bombardment and sensory deprivation as techniques for preparing subjects for psychological states both pleasant and unpleasant, including “ecstasy,” “peace,” “anxiety,” “austerity,” “anguish,” and “fear.”⁷⁰

Musicologists Kerry O’Brien and Theodore Gordon have excavated how composers Steve Reich and Pauline Oliveros (among others) sought to use logics similar to Eaton’s for positive ends.⁷¹ For such composers, “...EEG [electroencephalography] and other means of monitoring biopotentials represented a way to access further levels of subjectivity for the purposes of greater (and more complete) self-expression.”⁷² Some of these composers and audience members acknowledged the inhumane uses of such technologies and hoped to steer them instead towards connecting individuals with interior processes that they would not normally be able to access. In the cases below, we are dealing with an outgrowth of these ideals that viewed musical techniques and induced, for some, psychological effects with brainwashing and mental control resonances but without measuring audience members’ responses or purely electronic stimuli. (Many of the works discussed below did include electronic instruments and amplification, but were a far cry from Eaton’s electronic-only stimuli and physiological measurement systems (Image 3.4). Eaton was interested in inducing “...exactly the same psychological states in each listener” and believed he could confirm their sameness using “signals

⁶⁸ Branden W. Joseph, “Biomusic,” *Grey Room*, no. 45 (2011): 140. Joseph frames his article as an extension of Suzanne Cusick’s work on more contemporary uses of sound and music in torture and the investigation of “the possible impact of such developments on the discipline of music itself” (p. 131). See, Suzanne G. Cusick, “You Are in a Place That Is out of the World. . . : Music in the Detention Camps of the ‘Global War on Terror,’” *Journal of the Society for American Music* 2, no. 1 (February 2008): 1–26, <https://doi.org/10.1017/S175219630800012>.

⁶⁹ Quoted in Joseph, “Biomusic,” 135.

⁷⁰ Joseph, “Biomusic,” 137, 138. Note the similarities between sensory bombardment and Fred Turner’s descriptions of the “new multimedia environments” of the Sixties counterculture. My emphasis is on musical expressions that tended towards sensory deprivation and inducing similar states in audiences, rather than diverse reactions. See Fred Turner, Introduction in *The Democratic Surround: Multimedia & American Liberalism from World War II to the Psychedelic Sixties* (Chicago; London: University of Chicago Press, 2013).

⁷¹ Theodore Barker Gordon, “Bay Area Experimentalism: Music and Technology in the Long 1960s” (PhD diss., The University of Chicago, 2018), <https://search.proquest.com/pqdtglobal/docview/2111350819/199D06234657458FPQ/1?accountid=14026>; Kerry O’Brien, “Experimentalisms of the Self: Experiments in Art and Technology, 1966–1971” (PhD diss., Indiana University, 2018); O’Brien, “Machine.”

⁷² Joseph, “Biomusic,” 142.

from the body” such as galvanic skin response, EEG, electrocardiogram, etc.⁷³ As things stood at the time, Eaton believed that the variability of human responses to sound arose from an ambiguity “...of the significance of the various [sonic] symbols (...[their] intended sensorial effect).” While such a situation may be “fun,” wrote Eaton, it “doesn’t help us transmit ideas from one person to another. Instead, it creates a musical Tower of Babel.”⁷⁴ (Eaton would subtly acknowledge that his ability to “predict, repeat, and change [psychological states] at will” would not actually be automatic, working only “in the *majority* of subjects” [emphasis added].)⁷⁵ Eaton’s work and its resonances with North American brainwashing research show how powerful music’s effects were believed to be, researchers’ belief in their ability to control and deploy those powers (what Alred McCoy termed the “seductive illusions of omnipotence”), and the assertion of a unidirectional stream of influence from music or sound to listener amidst mounting evidence to the contrary.⁷⁶ It also demonstrates the functionality of music, to the extent that the acoustic or visual stimuli could eventually be done away with, according to Eaton. The system was effective if it induced the desired psychological state, and a wide variety of stimuli, across modalities, could achieve this goal.⁷⁷

The desirable functionality of pieces like Oliveros’s *Sonic Meditations* (where music was a “welcome byproduct”) show a glimmer of a parallel. As far as the belief in the ability of music to induce a single psychological state, the multiple vectors of brainwashing terminology is an example of its inaccuracy. What one side feared, another side desired and the existence of multiple sides proved the automatically-induced-state thesis false. In other words, the very fact that audience members’ reactions ranged from leaving the concert, to boredom, to ecstasy, to fears of fascist aesthetic takeover reveal the folly of placing musical effects solely at the feet of musical parameters. Joseph argues that composers and researchers like Eaton entertained similar logics of brainwashing. But his arguments also shed light on audience’s use of brainwashing rhetoric: similarly divided between hope-filled deployment to connect with a truer self and fear of losing reason. Eaton’s writings also show the political dimensions of the positive spin: he prefaced his 1971 book, *Bio-Music (Biological Feedback Experiential Music Systems)*, with the note, “This book is Supra-Political and is to be distributed freely and without government interference to the PEOPLE.” He then listed his residences as Kansas City Missouri and Bratislava, CSSR (Czechoslovakia).⁷⁸ The reference to “the PEOPLE,” a supposed second residence in the communist satellite state of the Czechoslovak Socialist Republic, and even the global,

⁷³ Joseph, “Biomusic,” 139.

⁷⁴ Joseph, “Biomusic,” 139.

⁷⁵ Joseph, “Biomusic,” 140.

⁷⁶ Joseph, “Biomusic,” 143.

⁷⁷ Joseph, “Biomusic,” 139.

⁷⁸ Joseph, “Biomusic,” 136.

emancipated ring of the phrase “Supra-Political” align Eaton with both Leftist politics and counterculture values.

To trace the overflow of brainwashing rhetoric in the reception of minimalist works, I now connect this language in reviews of works by Glass, Riley, and Reich with the associated musical parameters and perceived effects.

Reviewers frequently designated Philip Glass’s compositions from this time as hypnotic. “Mr. Glass,” wrote a *New York Times* critic in 1970, “belongs to the neo-primitive school... The music of [Glass, Reich, and Riley] consists of incessantly repetitive and gradually additive mosaics of sound that are either hypnotic or boring, depending on one’s reaction to that sort of thing.”⁷⁹ With the critic’s position already hinted at in describing the repetition as “incessant,” he went on to describe how Glass’s *Music In Fifths* “consisted simply of five notes played simultaneously by five instruments at an unvarying dynamic level but in different groupings and with alternating rhythmic emphases. The effect is rather like trying to rub your stomach and pat your head at the same time and the results are just about as rewarding.” The piece’s pitch content is slightly less elementary than Davis described (Image 3.5): two independent lines each with five-note ranges, overlapping on C5 (Potter described them as C minor and F minor, co-creating the F-Dorian mode).⁸⁰ The piece draws almost exclusively on what has come to be called the additive process, where a Basic Unit, or module of musical material, gradually accumulates more and more notes. In *Music In Fifths*, the Basic Unit can be found in module 13 (Image 3.6). The twelve preceding modules act as an introduction, offering two deconstructed versions of the Basic Unit alongside the Basic Unit itself in incrementally longer iterations (Image 3.7). From module 13 to the final module 35, the Basic Unit undergoes a strictly additive process, at first accumulating deconstructed fragments of the Basic Unit either on the ascending or descending portions of the Basic Unit and from module 19 on accumulating such fragments on both portions in the same module.⁸¹ The resulting “sheer relentlessness” (Potter) was described by Reich as “a freight train.”⁸²

Additional factors beyond macro form considerations may have contributed to the “freight train” effect. First, the melodic lines (both upper and lower) are overwhelmingly comprised of step-wise motion (major and minor seconds, ascending and descending) (Image 3.8). The largest intervallic skips are perfect fourths, and they are the least commonly occurring

⁷⁹ Peter G. Davis, “3 Pieces by Glass Probe the Sonic Possibilities,” *The New York Times*, January 17, 1970.

⁸⁰ Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge, UK: Cambridge University Press, 2000), 292.

⁸¹ Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge, UK: Cambridge University Press, 2000), 293. The first recording of the piece can be found here: <https://www.youtube.com/watch?v=vzRHX4cjOhI>.

⁸² Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge, UK: Cambridge University Press, 2000), 292-293.

intervals. It is also clear from Image 3.9 that patches of predictable pitch content emerge in-between unexpected shifts in pitch content between modules.⁸³ Finally, in Glass's initial recording of the piece, the length of the module content turns out to be a poor predictor of the number of repetitions it will undergo (Image 3.10). Perhaps these factors are at the heart of Davis's hypnotic versus boring binary: when attended to or heard with minimal expectation, close motion, extensive sections of predictable material, and seemingly random numbers of module repetitions may be hypnotic; when expecting more thoroughgoing variety at melodic and formal levels and "rational" repetition schemes, one may quickly choose to stop listening, bored by the seemingly meaningless freight train of eighth notes. As Davis noted later in the same review, discussing the two other Glass compositions with similar compositional principles: "Perhaps such static and uneventful music might serve as a useful accompaniment to some other activity, but sitting and listening to it in a concert hall seems rather a waste of time."⁸⁴

As mentioned earlier, brainwashing rhetoric drew power from scientific enquiry. While many such researchers, including Skinner and McConnell, advocated for the use of their research for the public good, McConnell, as we have already seen, also noted its potential use for what would be perceived as negative control of individuals.⁸⁵ The ambivalence mirrored the idea that behaviorist models, critical to much brainwashing research, were neutral sets of tools. By breaking down a task or desired behavior into small steps, Skinner trained a variety of animals to perform tasks such as pigeons playing a version of ping pong with each other. The reinforcement schedule or timeline in such trainings (food for rats after pressing a lever, for example) can vary in multiple ways. In its simplest form, the rat would receive food each time it pressed the lever, eventually becoming satiated and stopping. But the schedule can also be made unpredictable, that is, food is given after every three or five or two presses of the lever.⁸⁶ In such an unpredictable

⁸³ This Image and the related "last note" visualization of *Two Pages* from Chapter 2 await a more detailed analysis. Additional insights are obscured from zooming out to include all of the data.

⁸⁴ Peter G. Davis, "3 Pieces by Glass Probe the Sonic Possibilities," *The New York Times*, January 17, 1970. Davis referenced *Music in Eight Parts* and *Music in Similar Motion*. For more on the "abandoned piece" *Music in Eight Parts*, see Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge, UK: Cambridge University Press, 2000), 300. *Music In Similar Motion* features five distinct instrumental or vocal lines and relatively greater complexity than *Music In Fifths* but Davis's comment likely refers to the additive process and extreme repetition shared by both (Image 3.11).

⁸⁵ For more on the potential positive uses of behavioral modification in the long Sixties as well as critiques of such efforts, see part 2 of "The History of Persuasion" (Amanda Aronczyk and Kai Wright, "The History of Persuasion: Part 2," The Stakes, accessed March 19, 2020, <https://www.wnycstudios.org/podcasts/the-stakes/episodes/the-stakes-history-persuasion-part-2.>) and B. F. Skinner, *Walden Two*, Reprint/reissue (New York: Macmillan, 1967). Angela Davis and others' critiques often orbited the following text and related attempts to implement behavior modification in prisons: James V. McConnell, "Criminals Can Be Brainwashed—Now," *Psychology Today* 3, no. 11 (1970): 14–18.

⁸⁶ B. F. Skinner and C. B. Ferster, *Schedules of Reinforcement* (B. F. Skinner Foundation, 2015).

case, the rat will continue to press the lever “forever,” according to Alexandra Rutherford, a professor of psychology specializing in the history of the discipline.⁸⁷

This variable reinforcement schedule shares features with Tom Johnson’s listening strategy of “tuning in on a minimal level” and the musical features of many early American minimalist works. Small changes to musical parameters like pitch or rhythm occurring at unpredictable times act as a parallel to variable reinforcement schedule. Take, for example, Philip Glass’s *Music In Fifths*, built from short, repeated modules that (mostly) grow in duration via an additive process. The repetition is only superficially monotonous, shifting unpredictably to the next module often with strongly related and only slightly changed content (Images 3.7, 9-10). Using what David Huron called a “variation strategy,” the repetition may be pleasurable because it is predictable but that pleasure likely habituates in the short term when a module continues to repeat unchanged. This habituation could make subtle changes at module shifts small sparks of pleasure.⁸⁸ If we are listening closely to such changes, they could draw a listening into deeper and sustained focus. But in the context of the long Sixties, such a parallel with classical conditioning techniques would have strong overtones of mind manipulation and menacing psychological control, all associated with brainwashing. As present-day reporter Amanda Aronczyk dramatically put it, “you don’t have to be strapped to a chair to be manipulated. In fact...psychological manipulation...can actually be much more powerful when it’s subtle, when you hardly know it’s happening at all.”⁸⁹

Three reviews of early works by Glass from John Rockwell reveal more positive takes on the music and, simultaneously, conceptual ammunition used by its detractors. Discussing *Music with Changing Parts*, a piece Glass wrote in the early 1970s and related rhythmically to earlier compositions but with the addition of harmonic and textural interest via drones and thicker texture, Rockwell noted that the “overall effect was formally chaste yet extraordinarily inclusive in mood” and connected the composer’s music with that of Riley and Reich “in that it is hypnotic, repetitive and extends over long time periods.” Rockwell described the concert as “beautiful and important.”⁹⁰ Speaking of Glass and Reich, Rockwell wrote in another review of the source of the fundamental difference of opinion between advocates and detractors: “For its [sic] admirers, it sounds hypnotic and highly colored; for its detractors, it is maddeningly repetitive and simplistic. ... Trained musicians generally recoil from their ‘primitivism,’ and critical response has tended to

⁸⁷ Alexandra Rutherford, *Beyond the Box: B.F. Skinner’s Technology of Behavior from Laboratory to Life, 1950s-1970s* (Toronto: University of Toronto Press, 2009). Also, see her discussion in Amanda Aronczyk and Kai Wright, “The History of Persuasion: Part 3,” The Stakes, accessed March 20, 2020, <https://www.wnycstudios.org/podcasts/the-stakes/episodes/the-stakes-history-persuasion-part-3>.

⁸⁸ David Huron, “A Psychological Approach to Musical Form: The Habituation-Fluency Theory of Repetition,” *Current Musicology* 96 (2013): 7–35.

⁸⁹ Aronczyk and Wright, “Persuasion: Part 2.”

⁹⁰ John Rockwell, “Composer Glass in Pasadena Program,” *Los Angeles Times*, April 17, 1972. For more on the piece, see Potter, *Four*, 307-311.

range from the puzzled to the hostile. A sizable minority, outraged at the repetitiveness and aggressive loudness, can be counted on to walk out of a Glass or Reich concert before it is half over. But for those who stay to the end, the typical reaction is wild enthusiasm, with an emotional expression of pleasure more suggestive of a rock concert than of the typical new-music event, coldly and politely received. Those who love this music find it totally engulfing, akin to Indian ragas but peculiarly American in its energy, amplitude and clarity.⁹¹ It was visual artists who embraced the music from early on, argued Rockwell, because of aesthetic similarities. He quoted Richard Serra's take on Glass: "The extraordinary thing for me is that this music is built on structures that create something other than the raw elements that are being organized. The result is an experience, a potential for joy, unlike anything else, and we happen to call it music." Another review from Rockwell connected the mythos of arational, quasi-automatic responses to the music with a brainwashing-susceptible population: teen-agers. While Rockwell found positive value in the broad audience, detractors of the music could point out that these lesser educated, not fully-formed audience members had a purely visceral response.

Mr. Glass's music—Tuesday's program consisted of parts two through five of his *Music in Twelve Parts*—is harmonically static and superficially repetitious in a way that can actively offend the traditional musical audiences. But the 11th Street band shell, often the site of rock concerts, would appear to be something of a haven for neighborhood teenagers. They seemed to respond to the complex but infectious rhythmic impetus of Mr. Glass's music with a quite spontaneous pleasure, and even when some of them looked indifferent, they were not hostile about it. It was an instructive experience.⁹²

For naysayers, minimalist compositions controlled listeners by external force, pushing out reason. For yeasayers, the music offered pleasure by connecting individuals with the Real, sensation, the external world. Back to the basics in a way.

Live performances and a famous 1968 recording of Terry Riley's *In C* offer another example of how listeners used the word "hypnotic" in both negatively-valenced, brainwashing-associated ways and as praise. The piece hypnotized, paralyzed, and absorbed listeners. As noted in the previous chapter, critic Donal Henahan with the *New York Times* used *In C* as a core example of how, to a "traditionalist," "...such music may seem a subversion of the hard-won Western ideals of the separate self, the organic personality, the mastermind and the masterpiece."⁹³ The key descriptors that Henahan used to describe the piece (and Reich's *Violin Phase*) were intricate, long, and *hypnotic*. Without clear, predefined form and with extreme amounts of repetition, the listener could lose touch with will, with their own controlled consciousness. Describing the first recording of *In C*, Theodore Strongin wrote that the piece felt

⁹¹ John Rockwell, "Sound of New Music Is Likened to Art," *New York Times*, January 3, 1973.

⁹² John Rockwell, "Philip Glass Works to Broaden Scope beyond 'In' Crowd," *New York Times*, June 28, 1973.

⁹³ Donal Henahan, "Who Dreams of Being a Beethoven?," *The New York Times*, June 29, 1969, sec. D.

“directionless” and “soothingly hypnotic.... You are surrounded by the sound, absorbed into it. It doesn’t go anywhere. It just exists, always the same, never the same.”⁹⁴ His primary critique of the recording was that its existence as a recording, heard in a home, made it easy to get distracted: “...the human consciousness or human distractability [sic] gets in the way, not the human ear.”⁹⁵ A reviewer for the socialist periodical *The New Leader* wrote that a listener has to be willing to let go of sanity itself to enjoy the music: “For the listener who is willing to risk 43 minutes of his ‘sanity,’ *In C* offers one of the most revelatory experiences in experimental music.”⁹⁶ The piece was also compared with water torture: “They called it, for some reason, ‘the All-American Dream Concert.’” wrote Martin Bernheimer with the *LA Times*.

I'm not so sure about the dream part.... There also was a lot of Charles Ives, plus a clutch of more recent, if not more modern, modernists.... This led into Terry Riley's 'In C,' the 'Bolero' of the far-out set. A small rockish group called Ambrosia did most of the work here— very hard work for the dauntless fellow who tapped out the basic rhythm for a relentless 30 minutes ([the conductor] Foss opted for a mercifully abbreviated version). Connoisseurs of this bit of fascinating musical water-torture (Foss said one should not listen to it but *be part of it*) tell me the performance was rather primitive.... I confess to some uncertainty as to whether any of the final part made sense. I was unusually close to it. But at least I was there.⁹⁷

Riley's score and the 1968 Columbia recording demonstrate the musical features at play in these effects (Image 3.12).⁹⁸ Fifty-three modules or phrases, mostly short, make up the score. Players repeat them as many times as they like before proceeding to the next module. “The result,” wrote Strongin, “is like hearing the same music in independent orbits, intersecting at random....” “The phrases lap over the ear again and again....” The modules range in duration from one eighth note (modules 10 and 34) to thirty-two quarter-note beats (module 35).⁹⁹ The rhythmic content of the modules is similarly diverse.¹⁰⁰ Zooming out still further, an analysis by Robert Carl of Riley's score shows trends in the duration of modules: cresting waves, symmetric waves, and intermittent spikes (Image 3.13).¹⁰¹ Cresting waves, such as modules 1-8 and 9-14, display longer duration before suddenly dropping off. Symmetric waves, like modules 15-34, unfold by growing and then lessening in duration at similar rates. Finally, intermittent spikes of relatively higher duration show up in modules 35-53. The density of pitch classes also varies within its

⁹⁴ Theodore Strongin, “Recordings: Too Loud? Too Soft? Sometimes You Can’t Win,” *New York Times*, November 10, 1968.

⁹⁵ Strongin, “Recordings.”

⁹⁶ John Goodman, “On Music: Facing the Past,” *New Leader*, June 23, 1969.

⁹⁷ Martin Bernheimer, “5-Hour Enduro Concert at Bowl,” *Los Angeles Times*, August 20, 1971, sec. F.

⁹⁸ See also Dora Hanninen’s analyses of this and later recordings. Dora A. Hanninen, “Riley, In C,” in *A Theory of Music Analysis: On Segmentation and Associative Organization* (Rochester: University of Rochester Press, 2012), 309–30.

⁹⁹ Robert Carl, *Terry Riley's In C* (Oxford: Oxford University Press, 2009), 58. Carl wrote that module 35 contains thirty beats, but the Celestial Harmonies edition has thirty-two.

¹⁰⁰ Figure 4.2 from Carl, *Riley*, 62.

¹⁰¹ Carl, *Riley*, 63.

limited total set (Image 3.14). The visualized data from Carl in Image 3.14 shows how variable the pitch class content of a module can be even when the total range is small (aside from module 35, all the modules contain five or fewer pitch classes). Larger formal devices also appear when examining harmonic shifts in the piece. Starting in C Ionian, a transition to E Aeolian begins at module 18 and becomes most striking in modules 22-26 where Carl heard a rising *urlinie* as each note of the pentachord is emphasized in succession (one-third of the way through the piece, whether measured by number of beats or number of modules).¹⁰² After a return to C in modules 29-30, a shift to G Mixolydian begins in module 31 — close to two-thirds of the way through the piece (with a shift to G Dorian in module 49).¹⁰³ Carl argued that Riley created “a texture that is mutable but also stable,”¹⁰⁴ by maintaining either modal material or rhythmic profiles while subtly transforming the other. Relatedly, proximate modules often change only slightly, allowing the music to progress while creating the sensation of staying in the same place. Carl also pointed out the near symmetry placement of identical modules (modes 10 and 41, 11 and 36, 18 and 28).¹⁰⁵

Donal Henahan’s review of a 1967 performance shows the variety of effects of the compositional elements of Riley’s piece within a single individual’s experience. At the December 19th concert, speakers in the concert space and halls allowed and encouraged listeners to move about the space during the performance. “Most of the listeners did so, and a few kept right on walking.” The performing ensemble, wrote Henahan, “plunked and hammered away at simple intervallic patterns, creating gamelanlike sonorities that were overlaid in complex ways.”¹⁰⁶ He went on, “Mr. Riley’s effort produced a happy din, which was a work hypnotic and often fascinating in its multilayered rhythms and sound patterns.” The mix of negative and almost resentfully positive remarks is striking here and occurred in numerous reviews. Plunking and hammering away at “simple” patterns hardly seems like praise, nor does describing the resulting sound as a din, even if it was a “happy” one. The work is simultaneously hypnotic and fascinating, perhaps a cue that listeners could become blinded to non-*In C* events but gain heightened sensory contact with the work. Henahan’s comment about patterns overlapping in “complex ways” is at the heart of Carl’s analysis of the 1968 recording of the work, including a visualization of how the modules unfold over each other across time.¹⁰⁷ In addition to the module-to-module similarities, Carl’s mapping shows how complicated and unpredictable real-time sonorities are even as the piece glacially glides between large-scale formal sections delineated by mode.

¹⁰² Carl, *Riley*, 65.

¹⁰³ Carl, *Riley*, 67-69.

¹⁰⁴ Carl, *Riley*, 65.

¹⁰⁵ Carl, *Riley*, 65-66.

¹⁰⁶ Quoted in Carl, *Riley*, 79.

¹⁰⁷ See Carl, *Riley*, 90-92

On the back of the 1968 Columbia recording, Paul Williams (a rock magazine publisher and editor) wrote how music listening draws on ears, memory, and soul, making it a “magical matrix that, passing over the scattered pieces of our consciousness, can make us as individuals (and groups) inexpressibly whole...”¹⁰⁸ The piece is, “a ‘trip,’ a voluntary, unpredictable, absorbing experience, one which brings together parts of one’s self perhaps previously unknown to each other.” He explained how *In C*, specifically, managed this feat: “...it starts at the origins, it starts with sound and pattern-of-sound and motion-of-pattern and then texture-of-sound and aesthetics-of-motion and the art of interaction... Most of the prime components of the music experience are expressed here, and expressed in such a basic way that one’s awareness of these components is totally unimportant, unnecessary: There they are all before you, for you to dig; and nobody’s asking you to file them into categories.” Riley’s composition has this power because it gets at musical primitives or primes and gradually builds them up upon each other, connecting with listeners, even if they do not pay attention. These musical fundamentals, according to Williams, connect unconsciously. Their basic nature and seemingly natural evolution mirror a host of countercultural urges to connect with the primal, the universal, origins. “The music is close to the nitty-gritty;” wrote Williams, “you can go into it with no assumptions whatsoever and come out of it with no assumptions and still be very certain that you heard something, that it was refreshing, and that it was incredible.” As I will show in later chapters, minimalism’s supposed ability to make an individual whole and renew groups of people would be many advocates’ most preached defense but also evidence of detractors’ greatest concerns: that the music controls people, changing them if they are weak, and potentially altering society itself. Janet Rotter, writing for *Glamour*, described the piece as ““the global village’s first ritual symphonic piece.””¹⁰⁹ Rotter, and many other reviewers, took note of “the pulse,” a continuous octave of c’s played on piano in a high register. For Rotter, the pulse, “creates a spine of energy...” and “sends out the kind of energy excitement that electrifies a pop-concert audience or a political crowd hearing a victory speech or football fans seeing the last-minute touchdown in a tie game.”¹¹⁰ Rotter cast these descriptions of the entrained attention of large groups of people in a positive light but many listeners and cultural observers had more nefarious associations with such situations. Terry Riley might not be as popular as the Beatles, wrote Rotter, but “he has written in his own way to that audience. *In C*, I believe, celebrates with honesty and guts the mass life we live today.”¹¹¹ Goodman also cited the importance of the pulse, even deeming it worthy of capitalization: “the driving, drumming Pulse provides much of the hypnotic sensation.”¹¹²

¹⁰⁸ Quoted in Carl, *Riley*, 86.

¹⁰⁹ Quoted in Carl, *Riley*, 95.

¹¹⁰ Quoted in Carl, *Riley*, 95.

¹¹¹ Quoted in Carl, *Riley*, 95.

¹¹² Goodman, “Music.”

Alfred Frankenstein's review of the recording for *High Fidelity* argued that Riley's *In C* "define[d] a new aesthetic," one with "endless repetition...and...very slow and gradual change over a considerable length of time."¹¹³ Importantly, even for Frankenstein, a supporter of the piece since its premiere, the effects are a mix of potentially dangerous and immensely pleasurable. "The repetition both numbs one's sensibilities and makes them more alert. The subtlest, smallest variation, such as might pass unnoticed in another context, takes on monumental meaning; the hearer is thrown into a kind of trance and at the same time made infinitely more alert than ever before to what sound is all about." Here again, notice that the trance blocks out non-musical events (other things in general) but heightens attention to the composition's details. Also, note the connection with the supposed basic-ness of music, the primal elements are what are on offer here for advocates: "what sound is all about." The turning of perception towards supposedly universal sensations made for the easy on-boarding of other essentializations, mostly Orientalism. In his review of the premier, Frankenstein noted how he felt that the "primitivistic music goes on and on... At times you feel you have never done anything all your life long but listen to this music and as if that is all there is or ever will be, but it is altogether absorbing, exciting, and moving, too. One is reminded of the efforts of Carlos Chavez to reconstitute the ceremonial music of pre-Columbian Mexico. Terry Riley may have captured more of its spirit than Chavez did."¹¹⁴ This is, for Frankenstein and others, a musical portal to an imagined indigenous past. Perhaps he was thinking of Chávez's *Xochipilli*, the composer's "most systematic attempt to evoke the character of pre-Conquest music."¹¹⁵ The composer even subtitled the piece for winds and percussion "An Imagined Aztec Music."¹¹⁶ With Riley's piece, hypnotic states (associated with the pulse) are once again noted alongside heightened attention, this time by Goodman: "...the driving, drumming Pulse provides much of the hypnotic sensation. It is the shifting relationship of the repetitive figures, however, that constantly exhorts one's attention, while at the same time blurring awareness of the formal outline. Listening to the 43

¹¹³ Quoted in Carl, *Riley*, 95-96.

¹¹⁴ Quoted in Carl, *Riley*, 53. He goes on to backpedal in a way, saying, "Not that the pre-Columbian analogy is Riley's ultimate value."

¹¹⁵ Robert Parker, "Chávez (y Ramírez), Carlos (Antonio de Padua)," in *Grove Music Online*, 2001, <https://doi.org/10.1093/gmo/9781561592630.article.05495>.

¹¹⁶ Robert Parker summarized the piece this way: "When Chávez wrote music evocative of pre-Hispanic culture, he made a careful study of indigenous instruments and of the accounts of ancient music encountered by early Spanish historians. He employed an array of folk instruments – most of them percussive, but including primitive flutes – in the Indian ballets. But his most systematic attempt to evoke the character of pre-Conquest music was in the brief *Xochipilli* (1940), subtitled 'An Imagined Aztec Music', for four winds and six percussion players. It requires various Indian drums, among them the teponaxtle, a two-tongued wooden slit- drum, and the huéhuetl, a large upright drum, as well as rasps made of wood and of bone, and a trombone simulating the conch trumpet." Parker, "Chávez." <https://www.youtube.com/watch?v=voCdmkEzr6s>.

minutes of this record induces both paralysis and a prodigious awareness of incremental variations of sound.”¹¹⁷

Where Frankenstein heard Indigenous music, critic John Rockwell heard sounds from an imagined East in *In C*. Noting the piece’s divisive reception at the Claremont Music Festival (“fiercely controversial” and a range from “indignation or despairing walkouts to full-volume conversation to rapt attention to cheers at the end”), the work, wrote Rockwell, “sounded unusually delicate and Oriental” because of rhythmic blurring and the “mellow” acoustics of the hall.¹¹⁸ This is not the only time that Rockwell described Riley’s work in such terms. Describing a concert featuring Riley’s *Keyboard Studies*, *Rainbow in Curved Air*, and *Poppy Nogood and the Phantom Band*, Rockwell began his discussion of the composer with a statement linking his musical techniques with the “Orient”: “Avant-garde composer Terry Riley of San Francisco, a preeminent exponent of a kind of repetitive, hypnotic, improvisatory musical style reminiscent of the music and thought of the Orient, will appear...”¹¹⁹ Rockwell went so far as to say that one’s attitude towards Riley’s music depends on one’s thoughts about the “Orient”: “How one responds to Riley is inextricably bound up with how one responds to the music, arts and thought of the Orient...” After mentioning the complex effects of simple musical compositional techniques like “hypnotically repeating arpeggios,” he set out three key elements of his perception of the music and its audience: (1) he found it to be low-arousal, slightly negatively valenced, (2) he found it to be an effective piece only when he detached his conscious listening from both memory and future thoughts (i.e., it was effective only when he focused on the present), and, tellingly, (3) who found themselves enjoying it.

...[T]he emotional range, once one has accustomed oneself to the medium, becomes extraordinarily all-encompassing. For me, there remains a persistent aura of distant sadness about it. This is music which must obliterate both memory and expectation if it is to succeed. These continually changing works are, really, more processes than pieces, and all of them form part of the larger process which is Riley’s life. The audience — a prime example of the young, hip, informed and unspecialized cross-section which obviously does exist in this city for the arts of today—responded with lively curiosity and warm sympathy.¹²⁰

In another concert of Riley’s improvisations, Harold Schonberg extended this Orientalist rhetoric to the composer himself, dovetailing seamlessly into the related effects of compositional technique:

Unsmiling, he sat crosslegged before his equipment... Like a guru he lost himself in extended musical meditations. His thing is repetition of pattern to the point of hypnosis.

¹¹⁷ Goodman, “Music.”

¹¹⁸ John Rockwell, “Terry Riley’s ‘In C’ Offered at Festival,” *Los Angeles Times*, July 28, 1970.

¹¹⁹ John Rockwell, “Music News: Richard Strauss on Two Programs,” *Los Angeles Times*, April 11, 1971.

¹²⁰ John Rockwell, “Music Review: Terry Riley at Beckman,” *Los Angeles Times*, April 20, 1971.

... His art is an art of repetition, and it evokes a highly visceral response. Mr. Riley achieves his point somewhat as the Indian musicians do. Time is suspended.¹²¹

The links between Orientalized perceptions of the music, its effects, and the composer mutually reinforce each other and emphasize supposedly non-rational or unthinking aspects of the music. Schonberg's description of the boring and dangerously loud elements of the music also surface brainwashing concerns: "Mr. Riley's music courts dullness with its constant repetition of pattern. Dullness is part of its basic aesthetic... Pain is also part of his esthetic. At times the volume was so far up that eardrums started to flap and it was not a pleasant experience. It hurt. Too much of this, and total environment could degenerate into total deafness."¹²² As we have seen, loudness, boredom, and pain in repetitive environments echo descriptions of brainwashing research preceding this concert. The composer's ideas are, wrote Schonberg, "either ingenious or Machiavellian."¹²³ Don Heckman's critique of the album in *Stereo Review* mentions some of these feared effects. The piece has "a vaguely hypnotic effect," and is "ultimately wearing."¹²⁴

Reich's music is "absolutely spellbinding." It is "perceived as intensely visceral and frequently almost hallucinogenic in impact." "For the listener, this is not cerebral but gut music, involving him at the most basic levels of mind, body, and sense."¹²⁵ These quotations from critic Alan Kriegsman position Reich's music as non-thinking, and, later in the same review, associates it with "distant cultures" and "exotic sonorities." Yet, at another level, wrote Kriegsman, the works are founded on "highly abstract," "mathematical concept[s]." But it is the nonthinking elements that win out as the main take away from this music, here and in many other reviews. The rhythmically pulsing, "pure noise" at the end of *Come Out* "is hypnotic."¹²⁶ Strongin went further, writing: "As music, "Come Out" is so hypnotic that it loses the strong indignation of protest."¹²⁷ As we saw in the previous chapter, *Four Organs* was also caught up in this rhetoric. "Steve Reich's music has a way of getting under people's skin. Last winter in Carnegie Hall his 'Four Organs' drove an otherwise respectable audience into a paroxysm of boos and catcalls. At the end (the music is so loud that one couldn't really hear the boos while it was going on) the hall erupted into screaming, both positive and negative. The reason for the anger is that Mr. Reich, of

¹²¹ Harold C. Schonberg, "Music: The Medium Electric, the Message Hypnotic," *New York Times*, May 15, 1969.

¹²² Schonberg, "Medium."

¹²³ Schonberg, "Medium."

¹²⁴ Quoted in Carl, *Riley*, 93. Other reviews took the piece's hypnotic effects less seriously: see Thomas Willis's endorsement of Riley's "hypnotic" ostinati, harmonies, and densities as an "offbeat Christmas gift suggestion." The music's "simple patterns," an "easy-to-take crazy quilt." Thomas Willis, "Offbeat Christmas Gift Suggestions," *Chicago Tribune*, December 14, 1969.

¹²⁵ Alan M. Kriegsman, "New Music: Reich's New Music," *The Washington Post, Times Herald*, February 24, 1972.

¹²⁶ Robert Censori, "Music in the Round: Discus," *Harper's Magazine*, March 1, 1968.

¹²⁷ Theodore Strongin, "When Teen-Agers Get to College...", December 10, 1967.

all the composers who write in static, repetitive idioms, has attained the most widespread public exposure. ‘Four Organs,’ which is built upon a gradual, hypnotic, mystical protraction of individual notes within a single reiterated chord, has its complex elements. But it sounds simple-minded on the surface, and conventional concert audiences are terribly afraid of being put on.”¹²⁸ “Respectable” people, read: sane and with reasonable expectations, ended up screaming for the music to stop, the hypnotic, mystical protraction of repeated chords “getting under their skin.” This could also mean driving them insane, on the brink of brainwashed false confession, as in this story reported by Hubert Saal in 1973: “When the Boston Symphony, under Thomas, played Reich’s ‘Four Organs,’ which repeats a single chord endlessly, someone in the balcony screamed, ‘Stop! I’ll confess.’”¹²⁹

Hypnotism was one category of brainwashing, but reviewers deployed additional brainwashing-tinged terms. Describing *Piano Phase* and *Four Organs*, Donal Henahan described the effects as “lulling, if not exactly anodyne in effect.”¹³⁰ Anodyne drugs lessen pain by reducing the sensitivity of the brain and nervous system.¹³¹ It conjures Hunter’s rhetoric of “mind-enervating indoctrination” used on laborers in China.¹³² Far from a compliment, Henahan’s rhetoric placed Reich’s pieces in line with a long tradition of Frankfurt school, Adorno-driven critiques of musical styles that, for such writers, appeared to deaden the thinking capacity of listeners. Reports of brainwashing with drugs added to the fears of art that could apparently induce such non-thinking states. An anonymous review in the *Bay State Banner* echoed the language of “hypnotic effect” and “primitive directness,” and quoted a then-recent interview in which “Reich stated, ‘A performance for us is a situation where all of the musicians, including myself, try to set aside our individual thoughts and feelings of the moment and try to focus our minds and bodies clearly on the realization of one continuous musical process.’”¹³³ While Reich casts this setting aside of “individual thoughts and feelings” as a positive, for listeners with brainwashing notions in the backs of their minds, such efforts sounded minimally like a bad goal and maximally like an attack on reason. Describing Reich’s output as a “bizarre byway” in contemporary music, John Miner, like so many critics, called out the music’s “hypnotic” quality

¹²⁸ “Records: Roiling Work: Reich’s ‘Four Organs,’ Which Created a Stir at Concert, Is on Angel Disk,” *New York Times*, October 31, 1973.

¹²⁹ Saal Hubert, “Music: Out of Tune With Today?,” *Newsweek*, December 24, 1973.

¹³⁰ Donal Henahan, “Steve Reich Presents a Program of Pulse Music at Guggenheim,” *New York Times*, May 9, 1970.

¹³¹ T.S. Baynes, ed., “Anodyne,” in *Encyclopædia Britannica* (New York: Charles Scribner’s Sons, 1878), 90.

¹³² Hunter, *Black*, 37.

¹³³ “Steve Reich’s Music Called Spellbinding,” *Bay State Banner*, October 12, 1972.

before more specifically describing *Four Organs* as “dizzying,” “an exercise in boredom,” and *Phase Patterns* as “a virtuos [sic] display of calculated musical anarchy.”¹³⁴

Brainwashing-linked terminology sat alongside associations with projected “Oriental” culture. Miner wrote that a marimba entrance in *Drumming* sounded “for all the world like Oriental wind-chimes.”¹³⁵ Henahan noted that the electronic organs from *Four Organs* were “hammered like a gamelan.”¹³⁶ The previous year the same critic wrote how Reich “carries his celebration of repetition to lengths that we have known previously only at second hand, from Oriental music.”¹³⁷ The comment reveals two things. First, the “we” of the statement demonstrates that Henahan, at least, the American classical music subculture did not imagine that it included Asians. Second, that of all the musical traditions that emphasize repetition, Reich’s use resonated with an imagined “Oriental” use. All of the pieces on the program, for Henahan, could be characterized “as electronically assisted ragas.”¹³⁸ Punning Reich’s piece *Pendulum Music*, he described listening to *Violin Phase* as “as much fun as watching a pendulum.” Speaking of Reich’s “manifesto,” “Music as a Gradual Process,” Schwarz noted that the composer’s goal of writing music in which the processes were audible for the listener would result in long-duration compositions with extraordinary amounts of repetition. As Schwarz summarized in 1996:

To a listener brought up on the passion and climactic sweep of Beethoven and Tchaikovsky, this new minimalist music must have seemed like the sonic equivalent of Chinese water-torture. But to listeners weaned on the kinetic repetitions of jazz and rock, or the lengthy time-frames of non-Western music, it was surprisingly accessible. In fact, minimalist works can have the quality of a slowly unfolding, ecstatic ritual, and if you submit yourself to that ritual the result can be exhilarating. ‘My own feeling is that if people aren’t carried away to heaven, I’m failing,’ said Young in 1966. ‘Obviously music should put all within listening range into a state of ecstasy,’ said Reich in 1969. When before had twentieth-century classical music, previously so dour and alienating, spoken in such user-friendly terms?¹³⁹

The machine-like nature of Reich’s phase pieces raised the specter of mind as computer, programmable by ill-intentioned forces. At the same time, the kind of attention Reich and the music’s advocates believed this music afforded (a way to “set aside our individual thoughts and

¹³⁴ It is unclear to me where the anarchy lies. Potentially (1) in the phasing process sections of the piece or (2) as stylistic anarchy, viewing this level of repetition as a bold move against the norms of the time. John Miner, “Overlays of Color and Sound: Reich’s ‘Organs,’” *Boston Globe*, October 12, 1972.

¹³⁵ John Miner, “Overlays of Color and Sound: Reich’s ‘Organs,’” *Boston Globe*, October 12, 1972.

¹³⁶ Henahan, “Reich.”

¹³⁷ Donal Henahan, “Repetition, Electronically Aided, Dominates Music of Steve Reich,” *New York Times*, October 24, 1971.

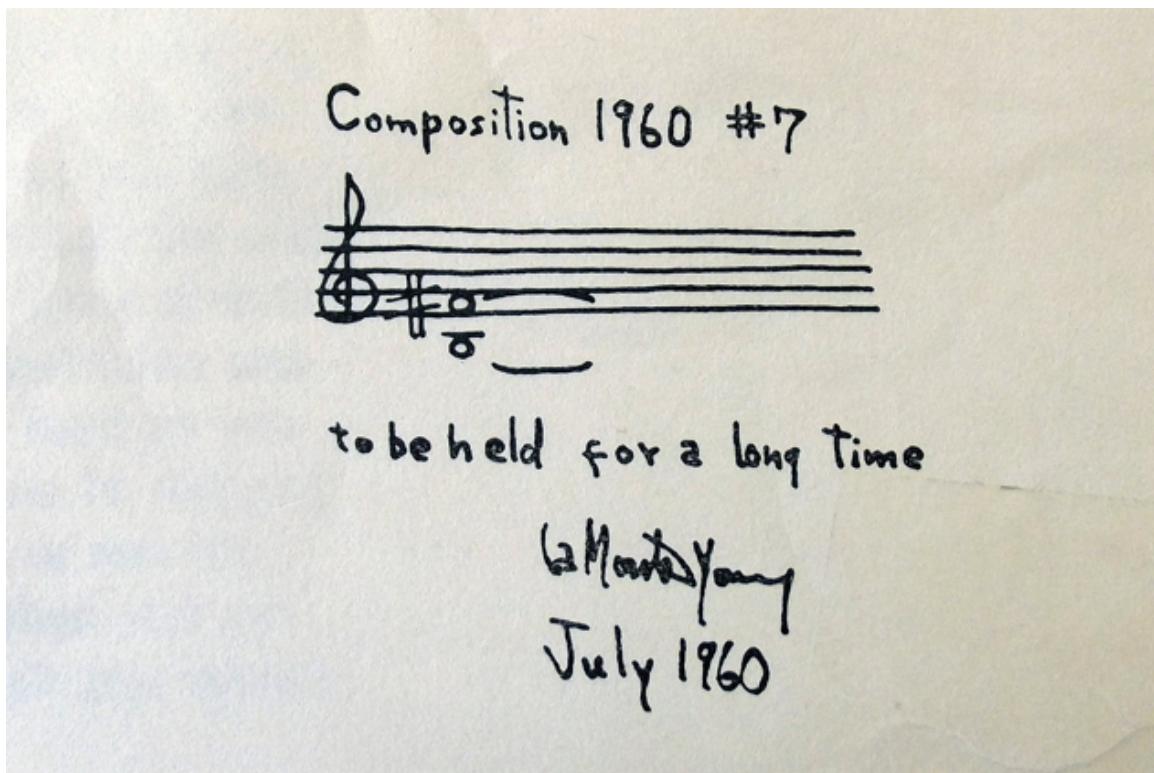
¹³⁸ The pieces included *Four Log Drums*, *Pulse Music*, *Pendulum Music*, and *Violin Phase*. In the final piece, Henahan misunderstood violinist Paul Zukofsky’s role in the composition, believing correctly that he not only added selected patterns to the four pre-determined lines of music (what Reich called Resulting Patterns), but also, incorrectly, that Zukofsky added the three non-live lines himself.

¹³⁹ K. Robert Schwarz, *Minimalists* (London: Phaidon, 1996), 12.

feelings of the moment”) was a way to transcend and ultimately solve the problems of the moment, reconnecting listeners with a supposed primitive truth from which to rebuild.¹⁴⁰

¹⁴⁰ “Steve Reich’s Music Called Spellbinding,” *Bay State Banner*, October 12, 1972.

Image 3.1. The score of La Monte Young's *Composition 1960 #7*.¹



¹ La Monte Young and Jackson Mac Low, eds., *An Anthology of Chance Operations* (Bronx: La Monte Young & Jackson Mac Low, 1963), 117.

Image 3.2. Graphics from Robert Palmer's article on trance music: Young and Zazeela surrounded by neural oscillations and a telling header.²

Trance Music: Its Spell Is Hypnotic

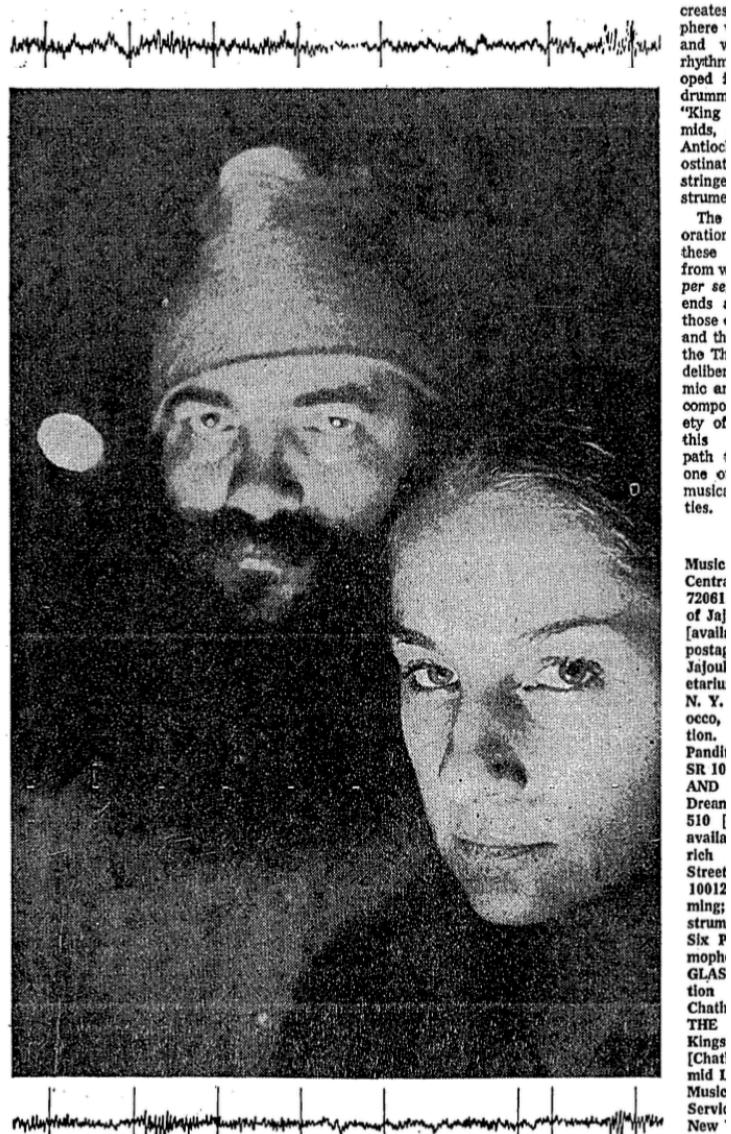
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whistling, and piccolo, builds up a mesmerizing chain of overlapping rhythmic phrases for 90 minutes. Phase relationships shift; beats and rests are substituted for one another; timbres change, while tonality remains constant.

Phillip Glass's "Music in Similar Motion and Music in Fifths" employs organs and wind instruments and achieves an hypnotic effect by very gradually elaborating and developing unison rhythmic and melodic motifs.

The most systematic and subtle variety of traditional trance music is undoubtedly that of India. Pandit Pran Nath, the Hindu vocalist who counts LaMonte Young and Terry Riley among his disciples, achieves his generally calming effects with remarkably pure intonation and with modal rather than rhythmic repetition. His rigorously sequential alternation of the tones which make up specific ragas has the effect of a gentle sonic massage, while the overtones provided by his carefully tuned tamboura accompaniment covers a broad frequency spectrum.

LaMonte Young's music sounds superficially similar, but the carefully controlled, slowly shifting harmonic relationships of his partially electronic, partially vocal and partially instrumental drone "accompaniment" are actually the focus of the proceedings; the composer's singing is primarily decorative. For Young, "as interesting and exciting as drumming is, it's difficult for it to deal with the spiritual truths one can experience when very profound pitch relationships are executed perfectly in tune."

The repetition of sustained melodic and rhythmic patterns (ostinatos) and modal (as opposed to harmonic) improvisational structures became a part of the jazz vocabulary with John Coltrane. On "Sama Layuca" Coltrane's former pianist McCoy Tyner



Composer/performers LaMonte Young and Marian Zazeela.

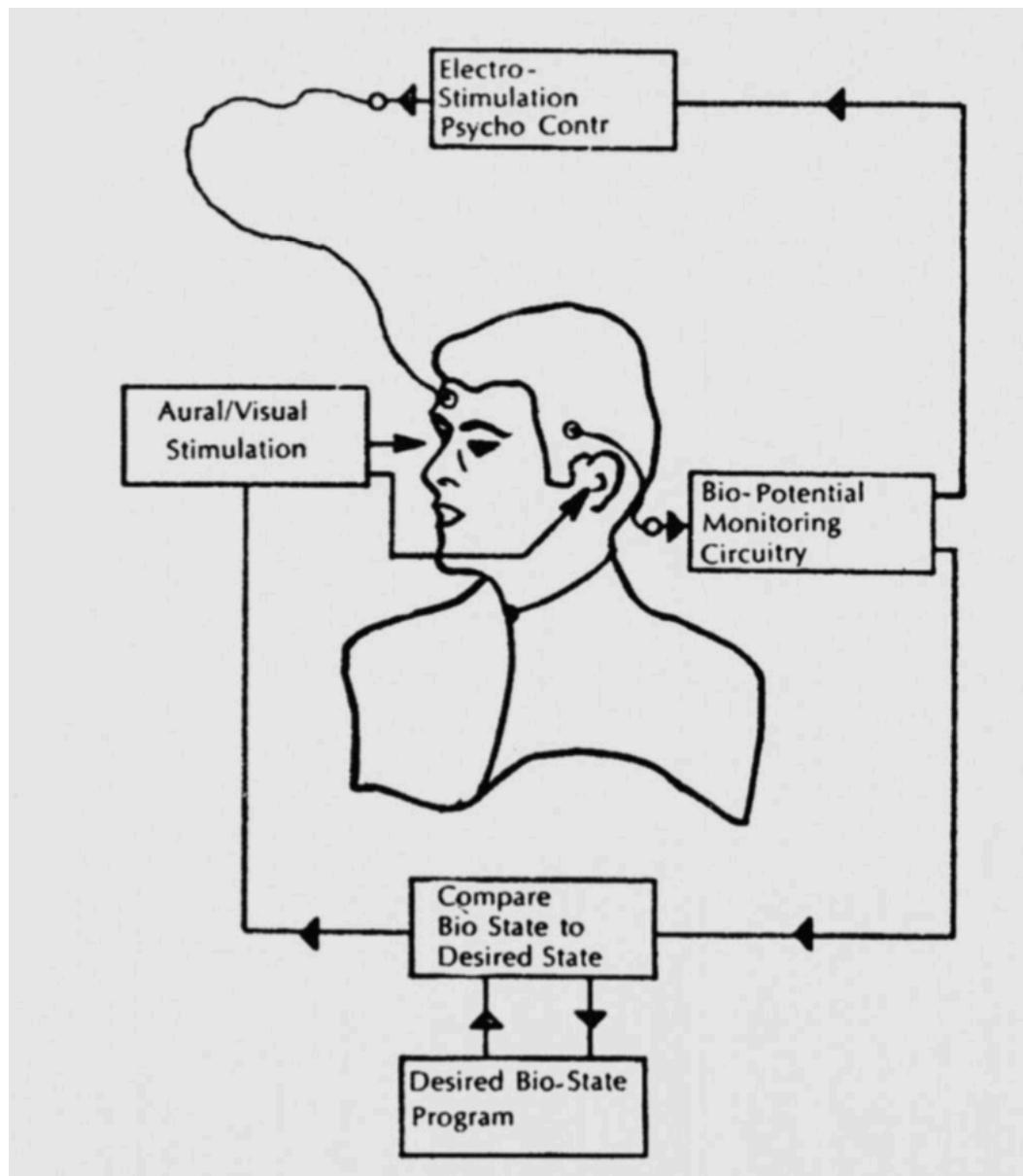
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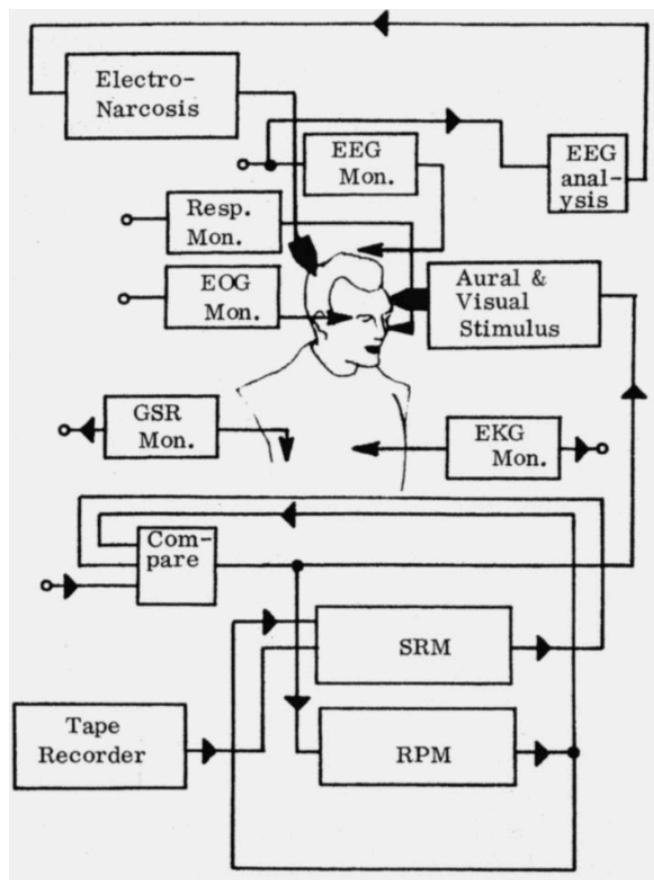
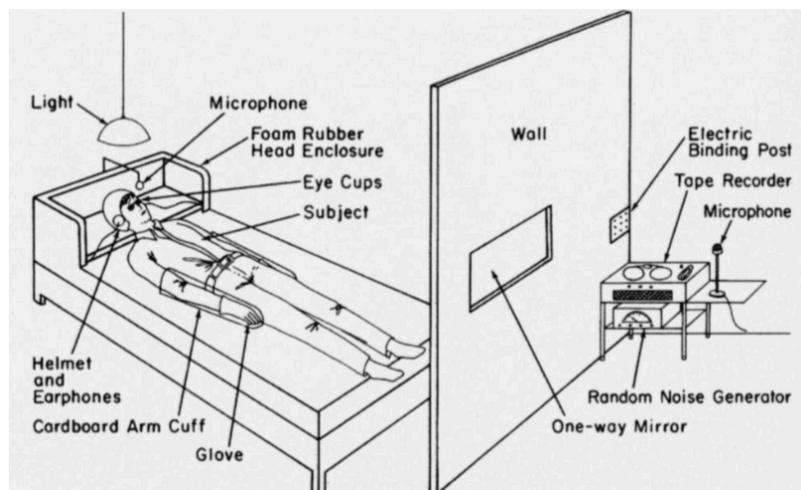
² Robert Palmer, "Trance Music--A Trend Of the 1970's," *New York Times*, January 12, 1975.

Image 3.3. One of Eaton's biomusic setups. The “subject” receives sound and visual information as well as electric stimulation, some of their physiological responses are measured and compared to the “desired” psychological state. The comparison informs adjustments to the ongoing stimulation in order to bring the subject into the desired state.³



³ Reprinted in Branden W. Joseph, “Biomusic,” *Grey Room*, no. 45 (2011): 128.

Image 3.4. An example of an experiment room and technical set up from Eaton.⁴



⁴ Reprinted in Joseph, "Biomusic," 137, 138.

Image 3.5. The pitch ranges of Glass's *Music In Fifths*, with the relative frequency of each pitch in bars to the right of the note. The key signature for the piece includes Bb, Eb, and Ab.

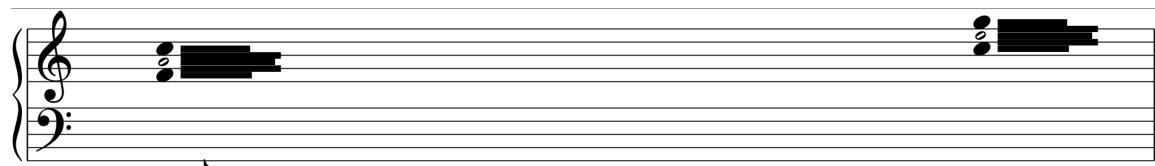


Image 3.6. The Basic Unit from Glass's *Music In Fifths* (module 13). The key signature for the piece includes Bb, Eb, and Ab.⁵



⁵ *Music in Fifths* in Philip Glass, *Philip Glass: First Classics 1968-1969*, ed. Keith Potter (London: Chester Music, 2010).

Image 3.7. Analysis of the opening of Glass's *Music In Fifths*.⁶ On the left, the Basic Unit and two versions of the Basic Unit (Version 1 and Version 2) are shown. On the right, we see how these versions of the Basic Unit join together with the tailing Basic Unit which accumulates repetitions with each module starting in module 4 (salmon coloring). In blue is a short lasting back and forth between these accumulating repetitions and a growing pattern of Version 1 and the Basic Unit. The key signature for the piece includes Bb, Eb, and Ab.

Basic Unit (BU)	Module #	Content
	1	V1 V2
	2	V1 V2 BU
	3	V1 BU
Version 1 (V1)	4	V1 V2 BUx2
	5	V1 BUx2
	6	V1 V2 BUx3
	7	V1 BUx3
Version 2 (V2)	8	V1 V2 BUx4
	9	V1 V2 BUx5
	10	V1 V2 BUx6
	11	V1 V2 BUx7
	12	V1 V2 BUx8

⁶ *Music in Fifths* in Philip Glass, *Philip Glass: First Classics 1968-1969*, ed. Keith Potter (London: Chester Music, 2010).

Image 3.8. Melodic interval (MINT) content of *Music In Fifths*. Minus (-) designates descending, plus (+), ascending, and interval designations are as follows: M2 (major second), m2 (minor second), M3 (major third), m3 (minor third), P4 (perfect fourth).

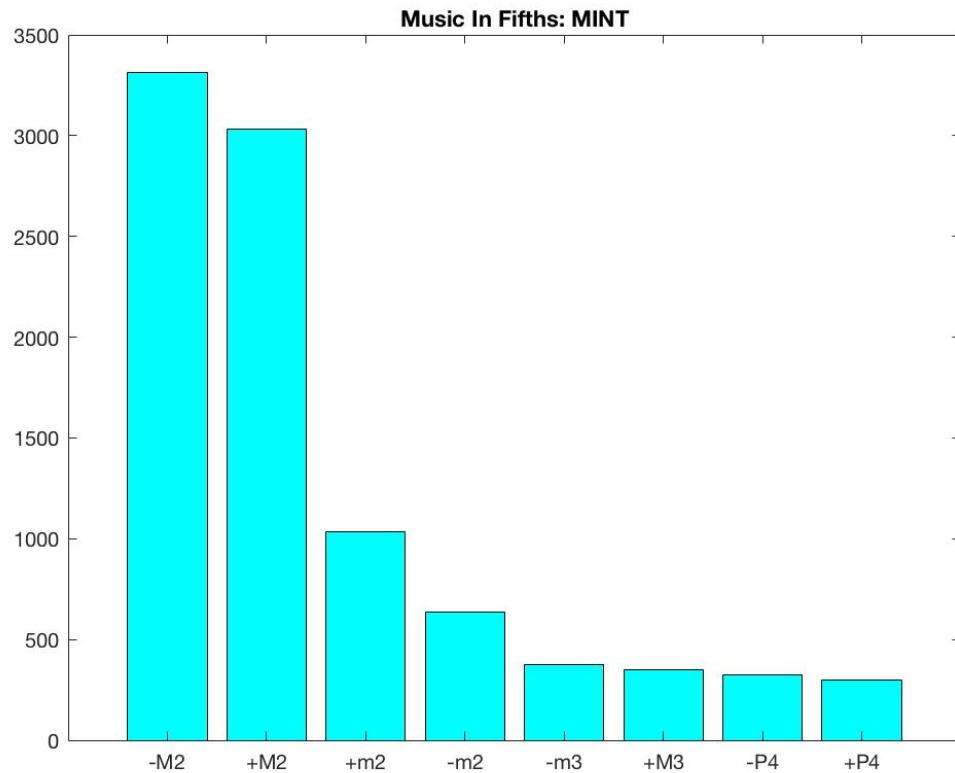


Image 3.9. The distance between iterations of the same note for *Music In Fifths*.

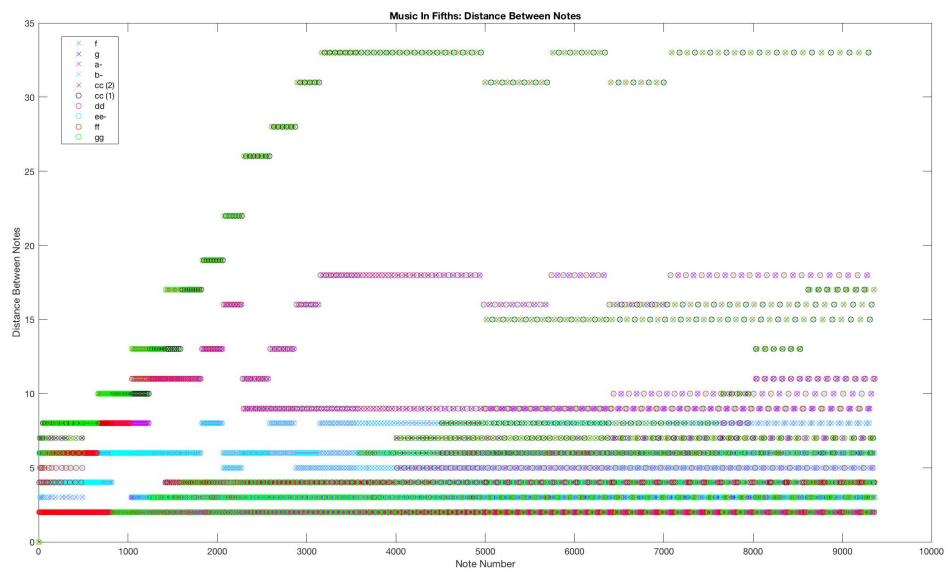


Image 3.10. The number of notes in a module on the x-axis versus the number of repetitions of the module on the y-axis for *Music In Fifths*.

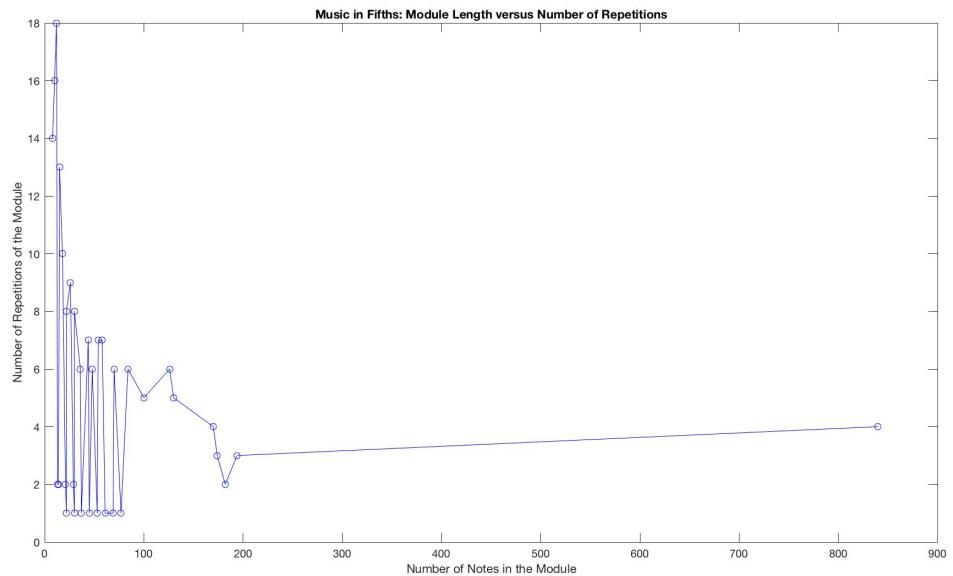


Image 3.11. Melodic intervals and module repetitions versus module note count for *Music In Similar Motion*. Note the greater intervallic range and similarly unpredictable module repetition when compared with *Music In Fifths*.

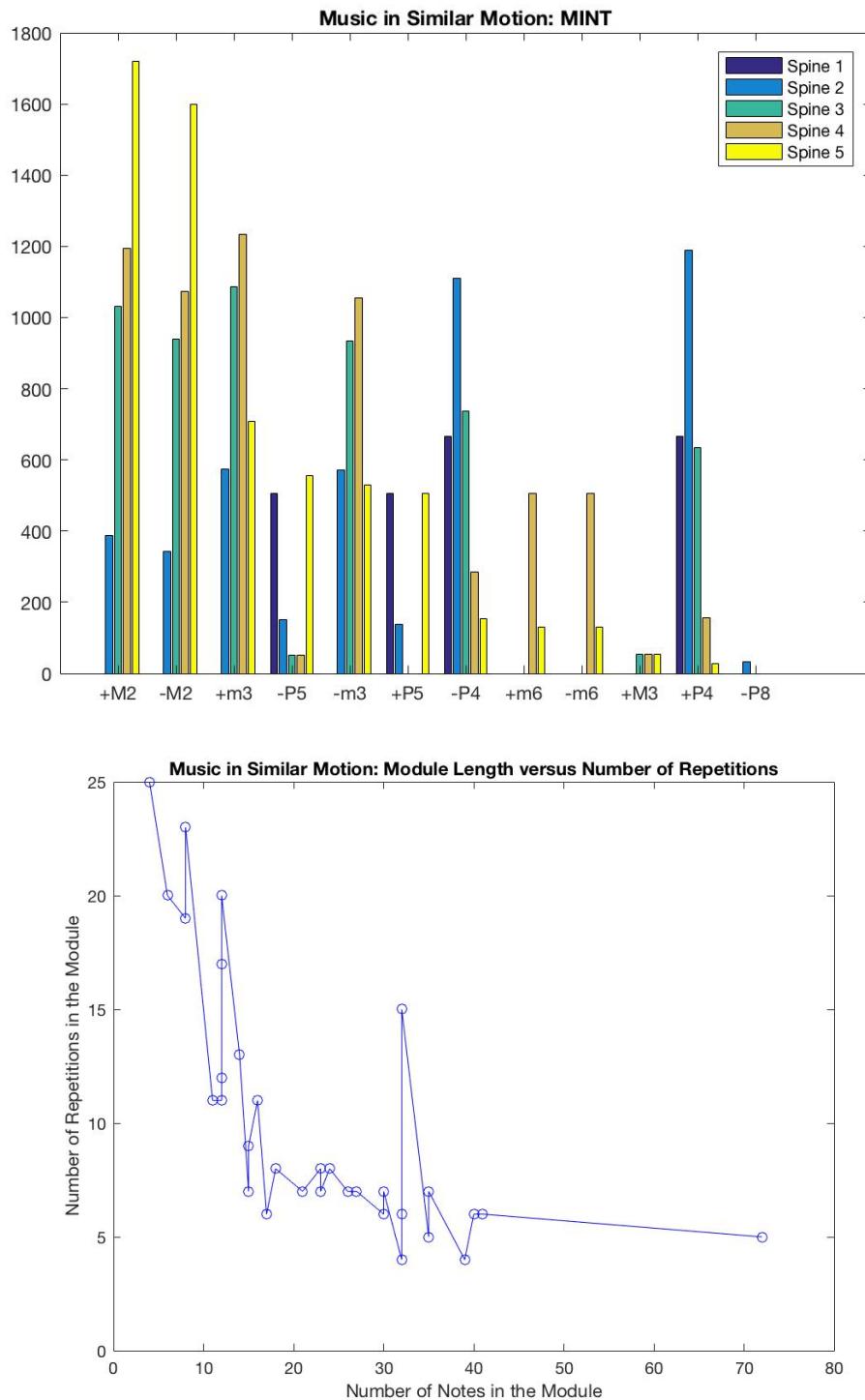


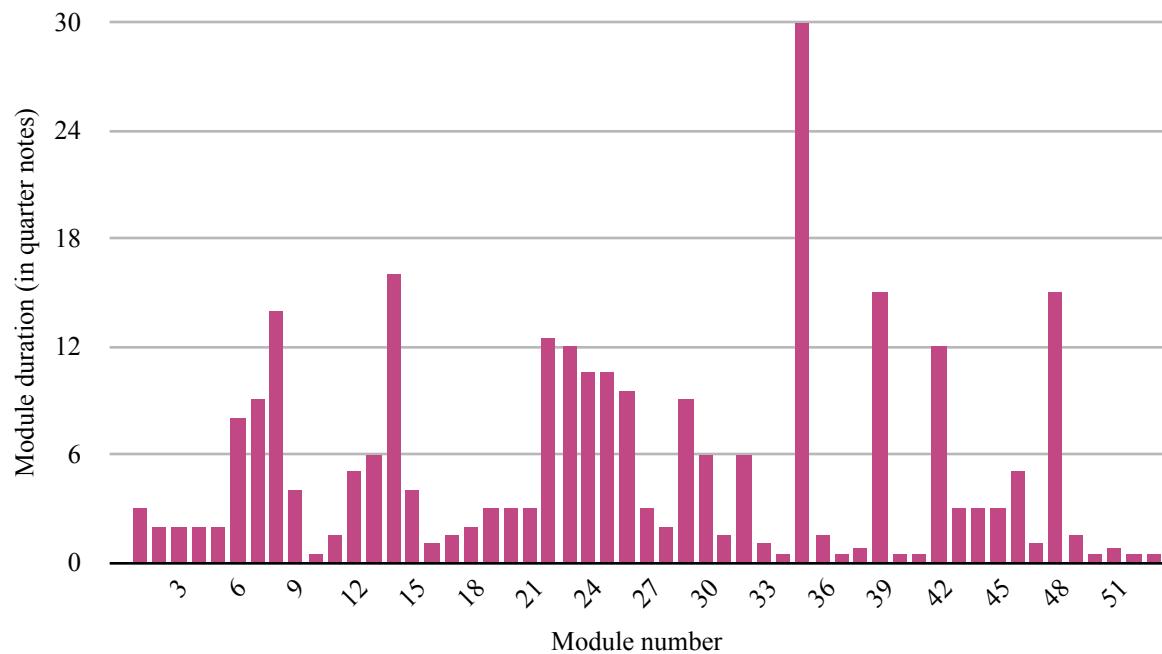
Image 3.12. The score of Terry Riley's *In C*.⁷

in C.

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 7. 8. 9. 10.
 11. 12. 13. 14. 15.
 16. 17. 18. 19. 20. 21.
 22. 23. 24.
 25. 26. 27. 28.
 29. 30. 31. 32. 33. 34.
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 48. 49. 50. 51. 52. 53. © 1964
 Terry Riley
 © 1989
 Celestial Harmonies

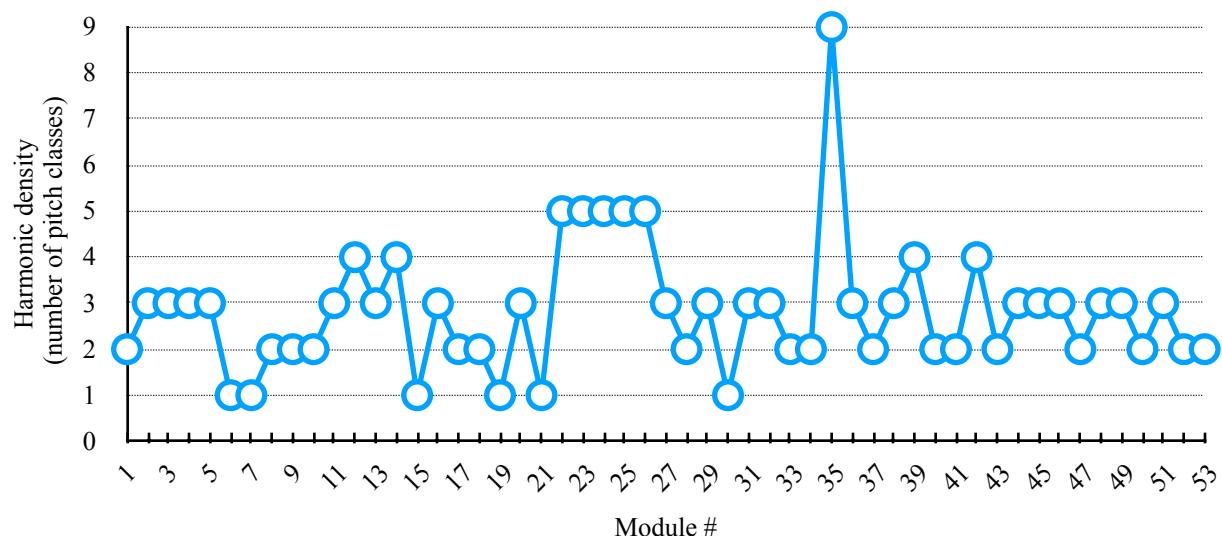
⁷ Terry Riley, *In C* (Berlin: E.R.P. Musikverlag Eckart Rahn, 2005).

Image 3.13. Module durations from *In C*, based on data from Robert Carl's analysis.⁸



⁸ Robert Carl, *Terry Riley's In C* (Oxford: Oxford University Press, 2009), 63.

Image 3.14. Sequence of harmonic densities (measured as the number of different pitch class sets) in the modules of *In C*, based on data from Robert Carl's analysis.⁹



⁹ Carl, *Riley*, 61.

Interlude B

Inter-subject correlation in neural responses to Steve Reich's *Piano Phase*

Some in the long Sixties feared that minimalist compositions could brainwash listeners (see Chapter 3). If such effects were possible, it would presumably leave measurable traces at the neural level: if you and I are brainwashed by the same stimulus, our entrainment to the stimulus should be similar or the same. The experiment described in this study did not investigate brainwashing, but it did examine the underlying premise, the strength of correlation between participants' neural activity while listening to minimalist stimuli. Recently, studies using excerpts from films, commercials, and audio recordings as stimuli have tracked the similarity of neural responses between participants and argued that moments of greatest correlation between subjects indexes engagement (defined as emotionally laden attention).¹ Some of the data from early inter-subject correlation (ISC) studies revealed an alternative hypothesis; that ISC result from stimulus change processing, modulated by attention.² In our study, we used the compositional technique of phasing to expand the use of ISC for auditory stimuli and explore its debated meaning.³

In the process of phasing, two (or more) voices or instruments begin by playing the same musical idea in temporal unison (in-phase), then one of the instruments accelerates slightly, triggering a temporally complex section we can call phasing that lasts until the two instruments are once again playing in temporal unison but now with a new alignment (a new in-phase section).

Using an excerpt from *Piano Phase* and controlled manipulations of the composition, I hypothesized that if engagement is driving ISC, we should see, compared with musically less interesting manipulations of the original stimulus, a higher percentage of significant ISC in the original stimulus, primary during the phasing sections. Alternatively, if acoustic change was driving ISC, manipulations of the original stimulus designed to maximize acoustic change in a variety of ways would give a higher overall percentage of significant ISC.

We found that manipulated stimuli had overall higher percentages of ISC (Image B.1). Moreover, in the original *Piano Phase* stimulus, moments of transition surrounding phasing

¹ Jacek P. Dmochowski et al., "Correlated Components of Ongoing EEG Point to Emotionally Laden Attention - a Possible Marker of Engagement?", *Frontiers in Human Neuroscience* 6 (2012). Uri Hasson, Rafael Malach, and David J. Heeger, "Reliability of Cortical Activity during Natural Stimulation," *Trends in Cognitive Neuroscience* 14, no. 1 (2009): 40–48.

² Jacek P. Dmochowski et al., "Audience Preferences Are Predicted by Temporal Reliability of Neural Processing," *Nature Communications*, 2014. Andreas Trier Poulsen et al., "EEG in the Classroom: Synchronised Neural Recordings during Video Presentation," 2017, 1–9. Andreas Trier Poulsen et al., "EEG in the Classroom: Synchronised Neural Recordings during Video Presentation," *Scientific Reports* 7 (2017).

³ For previous use of ISC with music, see Blair Kaneshiro et al., "Natural Music Evokes Correlated EEG Responses Reflecting Temporal Structure and Beat," *NeuroImage* 214 (2020): 116559, <https://doi.org/10.1016/j.neuroimage.2020.116559>. Blair Bohannan Kaneshiro, "Toward an Objective Neurophysiological Measure of Musical Engagement" (PhD diss., Stanford University, 2016).

sections aligned with the significant ISCs. This suggests that lower-level processes may undergird ISCs. Interestingly, questionnaire responses from the same participants showed that ratings of how pleasant, musical, well-ordered, interesting, and engaging the stimuli were, roughly mirrored the rankings of significant EEG ISCs, suggesting that lower-level neural responses may drive preference for listeners (our participants had little to no music education or background). We also created a continuous behavioral response interface where participants rated how engaged they found the stimulus to be in real time (Image B.2). This interface allows close analyses of individual differences in responses as well as comparisons (using ISCs or Upham's activity analysis).⁴

⁴ Finn Upham and Stephen McAdams, "Activity Analysis and Coordination in Continuous Responses to Music," *Music Perception* 35, no. 3 (2018): 253–94.

Image B.1. Time-resolved ISCs for Steve Reich's *Piano Phase* ("Original") and other stimulus manipulations.

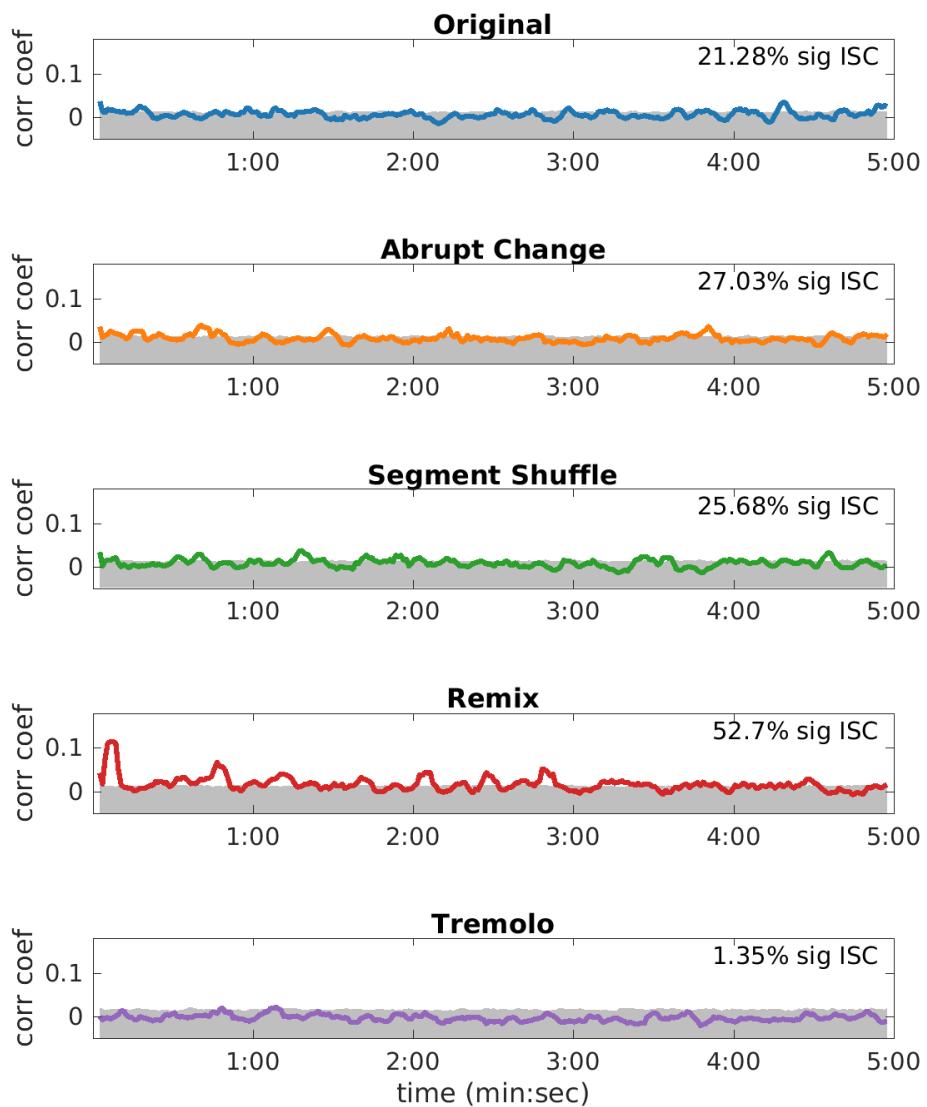
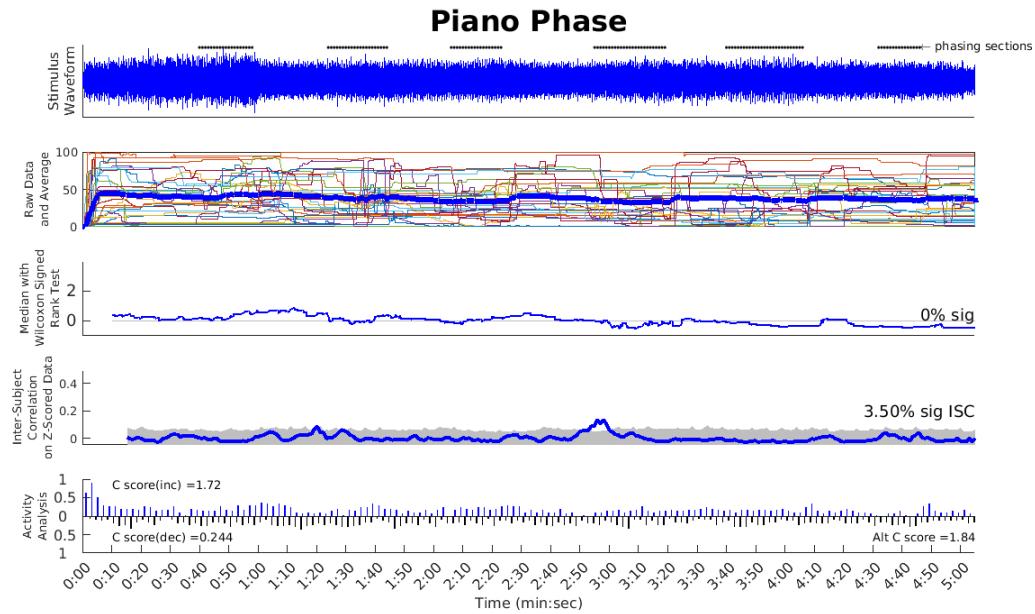


Image B.2. An example of data and analyses from the continuous behavioral response interface. The top line shows the audio waveform for our except of Reich's *Piano Phase* followed by raw data from the interface (with the dark blue line showing the average), median response, ISC analysis, and Upham's activity analysis of the data.



Chapter 4

A Microhistory of Pauline Oliveros's 1973 Meditation Project

“My life is a story of the self-realization of the unconscious...”

—Carl Jung¹

Introduction

Kerry O'Brien's dissertation has recently connected Oliveros's work in the late long Sixties with Fred Turner's concept of New Communalism (the countercultural embrace of science and technology for anti-technocratic ends). In her work, O'Brien briefly mentioned Oliveros's 1973 Meditation Project, an experiment to test the ability of a variety of meditative practices (including Oliveros's *Sonic Meditations*) to improve participants' meditative states and creativity. O'Brien noted that, “Today, in Oliveros's archive in San Diego, what now remains of these experiments are a few journal entries and a collection of faded and folded EEG [electroencephalography] readouts, meters long, a visual charting of those experiments in meditation and biofeedback.”² The second half of this dissertation unpacks those experiments and journals, providing a detailed look into the countercultural embrace of drones and repetition. Oliveros's Meditation Project offers an unusually detailed glimpse because of the frankness of the project participants. Because of the sensitive nature of some disclosures I have anonymized their names and refer to them using the pronouns they/their/them. What we stand to gain from this granular level of inquiry is an understanding of how desires for music-induced LAP states could be motivated by a dehumanizing Orientalism. More specific to the time and place of the Meditation Project, we see how the language of cybernetics intersected with racially-charged, Jung-inspired notions of the unconscious in experiences of Oliveros's *Sonic Meditations*. My intent is not to barricade LAP states or end the performance of the *Sonic Meditations*. Rather, I think it is important to interrogate motivations for interest in them and beliefs about them.³ In addition, perhaps because the compositions, and Oliveros herself, has meant so much to so many

¹ C. G. Jung, *Memories, Dreams, Reflections*, Rev. ed. (New York: Pantheon Books, 1973), 3.

² Kerry O'Brien, “Experimentalisms of the Self: Experiments in Art and Technology, 1966-1971” (PhD diss., Indiana University, 2018), 183.

³ My interest ultimately stems from being made aware of my own harmful Orientalist presumptions, especially when I lived in Mongolia for two years. My interest in the *Sonic Meditations* also plays a role here: I have had memorable experiences with the compositions and many of Oliveros's writings, encounters that frankly changed the way I think about the importance of music and my relationship with classical music and its subcultural norms. At the same time, I also had uncomfortable glimmers about representations of texts and ideas from various Asian and American Indian ethnic groups. In addition, I found myself in disagreement with some of Oliveros's statements about topics like ESP or the sonosphere. See Douglas Kahn, “Pauline Oliveros: Sonosphere,” in *Earth Sound Earth Signal: Energies and Earth Magnitude in the Arts* (Berkeley: University of California Press, 2013), 194–208, <http://ebookcentral.proquest.com/lib/stanford-ebooks/detail.action?docID=1337907>. Ultimately this project deemphasizes Oliveros's personal beliefs and intentions (well-researched by other scholars) and begins to examine how those in her orbit interacted with her work.

in the music studies community, we infrequently examine critiques of her work from those close to her, including participants in the Meditation Project. The scholarly goals I aim for do not remedy the wrongs of Orientalism or effectively decolonize a conceptual space let alone actual land and material.⁴ However, in light of recent moves to uncover the impacts of colonialism (settler and otherwise) on music scholarship, I hope this work can offer readers an opportunity to consider how such forces have shaped music experiences and judgements in the past.⁵ Such an effort may leave us in a better position to grapple with how similar forces function today and how they might be dismantled. En route to understanding the beliefs and behaviors of project participants, we will encounter a number of outdated, offensive, and poorly researched texts that influenced many in the American counterculture and surface in the Meditation Project. I use them to contextualize participants' beliefs and experiences and hope the reader will not take this as an endorsement of their use or content. To debunk or handle the problematic assumptions of each of these texts would be its own undertaking.

Connecting individual's beliefs, behaviors, and experiences with societal forces has been a key focus of microhistories for decades. The most succinct definition of the approach to writing history may come from Magnússon and Szijártó: "Microhistory is...the intensive historical investigation of a relatively well defined smaller object, most often a single event..."⁶ Giovanni Levi, a historian associated with a so-called Italian school of microhistory, elaborated on the "common questions and positions that characterize microhistory": focus on small scale events, embrace of cultural relativity and heterogenous representations of meaning within a culture, small clues able to point towards larger societal truths, clearly narrating how you are constructing the historical narrative (including when information is lacking), clearly defining context in order to reveal differences and contradictions, and the rejection of "absolute relativism" (instead, allowing that individual lives and events have the potential to reveal general phenomena).⁷ Carlo Ginzburg, the author of the most famous microhistory, *The Cheese and the Worms*, emphasized that microhistory involves "the minute analysis of a circumscribed documentation."⁸ A review of

⁴ Eve Tuck and K Wayne Yang, "Decolonization Is Not a Metaphor," *Decolonization: Indigeneity, Education & Society* 1, no. 1 (2012): 1–40.

⁵ Tamara Levitz, "Decolonizing the Society for American Music," *The Bulletin of the Society for American Music* XLIII, no. 3 (2017). Tamara Levitz, "The Musicological Elite," *Current Musicology* 102, no. Spring (2018), https://currentmusicology.columbia.edu/article/the-musicological-elite?article=the-musicological-elite&post_type=article&name=the-musicological-elite.

⁶ Sigurður Gylfi Magnússon and István M. Szijártó, *What Is Microhistory?: Theory and Practice* (London: Routledge, 2013), 4, <https://searchworks.stanford.edu/view/10228949>. Magnússon has also written against linking microhistories with macrohistories (or grand narratives, as he called them): Sigurdur Gylfi Magnússon, "The Singularization of History: Social History and Microhistory within the Postmodern State of Knowledge," *Journal of Social History* 36, no. 3 (2003).

⁷ Giovanni Levi, "On Microhistory," in *New Perspectives on Historical Writing*, ed. Peter Burke (Cambridge: Polity Press, 1991), 93–113.

⁸ Carlo Ginzburg, John Tedeschi, and Anne C. Tedeschi, "Microhistory: Two or Three Things That I Know about It," *Critical Inquiry* 20, no. 1 (1993), 22. Carlo. Ginzburg, *The Cheese and the Worms: The Cosmos of a Sixteenth-Century Miller* (Baltimore: Johns Hopkins University Press, 1980).

Ginzburg's book added a central reason to deploy this approach for the Meditation Project: "it is on this reduced scale, *and probably only on this scale*, that we can understand, without deterministic reduction, the relationships between systems of belief, of values and representations on one side, and social affiliations on another."⁹

Having focused on the negative reception of minimalist works by the big four—the Orientalist devaluation of low arousal, positively valanced states (LAP) and American Cold War fears of brainwashing—I turn to the music's advocates. What attracted listeners in and beyond the American art music subculture to extreme repetition and drones? Pauline Oliveros's 1973 Meditation Project at the University of California, San Diego (UCSD) offers a detailed look into the positive reception of these musical techniques. Although Oliveros was exploring drones in the late 1950s alongside Young and Riley in the Bay Area, scholarship on minimalism has marginalized her contributions and many do not consider her to be a minimalist composer.¹⁰ The diversity of her compositional output may be one reason. In addition, Sumanth Gopinath has argued that composers like Meredith Monk and Pauline Oliveros may have themselves avoided associations with the term because "the world of musical minimalism was, to use James Brown's words, 'a man's world.'"¹¹ More recent work by Kerry O'Brien has reasserted and explored fruitful connections between Oliveros and composers typically associated with American minimalism.¹² This included overlapping interests in technology-inspired compositions and Asian spiritual traditions (shared with Reich), and associations with Experiments in Art and Technology (E.A.T.), where Oliveros and her colleagues (including Young, Zazeela, Reich, and John Cage) conducted what O'Brien called "psychospiritual experiments." This chapter builds from those connections to position responses to Oliveros's *Sonic Meditations* in her Meditation Project as part of the reception history of early American minimalism. Originally designed to explore the effects of practicing her *Sonic Meditations*, the Meditation Project involved UCSD students,

⁹ Quoted in Ginzburg, Tedeschi, and Tedeschi, "Microhistory," 22.

¹⁰ Edward Strickland mentioned that Oliveros was at a performance of Young's *Trio*, that she performed in the premiere of Riley's *In C*, that she used "sustenance" (drones) as a musical technique, that she was in Tom Johnson's list of "Original Minimalists," and a brief biographical sketch ending with a note about Young's "manifest" influence. Edward Strickland, *Minimalism—Origins* (Bloomington: Indiana University Press, 1993), 121, 143, 174, 251, 252, 258. Keith Potter narrated events similarly, always revolving Oliveros's tale around Young and Riley. Keith. Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge, UK: Cambridge University Press, 2000), 42, 89, 95, 108. K. Robert Schwarz's *Minimalists* makes one mention of Oliveros, in connection with the première of Young's *Trio*. K. Robert. Schwarz, *Minimalists* (London: Phaidon, 1996), 24. Michael Nyman's *Experimental Music* and Wim Merten's *American Minimal Music* make no mention of Oliveros and Robert Fink made only a passing reference to Oliveros in *Repeating Ourselves* when handling utopian liberation fantasies of the 1960s. Robert Fink, *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley: University of California Press, 2005), 70.

¹¹ Sumanth Gopinath, "Contraband Children: The Politics of Race and Liberation in the Music of Steve Reich, 1965-1966" (PhD diss., Yale University, 2005), 17.

¹² O'Brien, "Experimentalisms." Kerry O'Brien, "'Machine Fantasies into Human Events': Reich and Technology in the 1970s," chap. 14 in *Rethinking Reich* (New York: Oxford University Press, 2019).

members of the ♀ *Ensemble*, and community members over the course of the ten-week winter quarter in 1973. The approximately twenty participants practiced a wide variety of meditation practices in addition to Oliveros's *Sonic Meditations*: US Asianist religious practices, body awareness, dreams, fantasy techniques, and quantitative approaches including Clynes's sentics, self-report data about states of consciousness, alpha activity, and biofeedback. The Meditation Project reveals how, for participants, these various systems of thought aimed at the same goal: tuning into sensation and perception to connect with an imagined universal self. That is, all of these psychospiritual tools sought to uncover more authentic selves underneath the dross of Western technocracy. After exploring the main categories of activities in the Meditation Project, I turn to participants' reactions to sound in the project and conclude with an analysis of the project's semi-public performance of *Phantom Fathom*, an evening-long ritual and theater piece involving *Sonic Meditations*.

The rhetoric of cybernetics helps explain this array of practices and participants' responses to Meditation Project activities. The term cybernetics, coined by mathematician Norbert Wiener in the late 1940s (drawing on the Greek word for governance (*kybernaytikay*), in the sense of steering, navigating, controlling), referred to the study of communication systems in machines and living beings (Image 4.1). As American Studies and Science and Technology scholar Ronald Kline has recently narrated:

Weiner explained the central analogy of cybernetics in terms of generalized feedback control system. This system could model animals and automatic machines because they both have sensors, effectors, brains, and feedback paths with which to communicate (exchange information) the outside world and operating in and on that world.¹³

The study of such communication systems was of interest to social scientists as well as engineers because of its usefulness in theorizing human behavior.

Wiener explained how control systems behaved in a purposeful manner by feeding back the negative value of a system's output to its input. The circular flow of information allowed the system to compare its current state with a preset goal and take action to achieve that goal. The principles apply to living organisms, as well, such as the self-regulation of body temperature. The group's leaders referred to this process as *circular causality*.¹⁴

While Weiner and many other mathematicians and engineers associated with cybernetics argued that there was not yet enough data to apply these concepts to human psychology and sociology, social scientist affiliated with cybernetics developed the psychological and social implications of

¹³ Ronald R. Kline, *The Cybernetics Moment, or, Why We Call Our Age the Information Age* (Baltimore: Johns Hopkins University Press, 2015), 12.

¹⁴ Kline, *Cybernetics*, 39.

key cybernetic concepts.¹⁵ Gregory Bateson was one of the key figures working in this arena and was seen as one of the progenitors of second-order cybernetics, an epistemology that sought to incorporate the observer into the cybernetic feedback loop (Image 4.2).¹⁶ In his work from the early 1970s, Bateson not only included the physical body of the observer in the feedback loop, he “...extended cybernetics to create a theory of mind ‘imminent in the total interconnected social systems and planetary ecology,’ connected th[r]ough pathways completing a circuit between the individual’s mind and the ‘larger mind’ of God.”¹⁷ Bateson argued that cybernetics could not only explain information flowing through computers, but also ever more encompassing feedback loops including human consciousness and the cosmos.¹⁸

But even Bateson’s expansive feedback loops left room for further integration: even more than the human body and human consciousness could be integrated. Writers from the counterculture and humanistic psychology, drawing on the work of Carl Jung and others, brought the human unconscious into play as well.¹⁹ While Freud had emphasized and popularized a rather menacing role for the unconscious, his younger protégé Carl Jung would provide what clinical psychologist Frank Tallis called an “attractive, semi-mystical, alternative.”²⁰ Jung divided the human psyche into three parts, the conscious, the personal unconscious, and the collective unconscious.²¹ This collective unconscious contained not only the “unconscious of the entire

¹⁵ Weiner did, however, speculate about the implications of cybernetics while leaning into the need for more data and ground-up analysis. So, for example, he emphasized neurophysiology in his 1948 text *Cybernetics*, and began his chapter on cybernetics’s potential implications for psychopathology and psychiatric with a disclaimer. “...our knowledge of the normal performance of the brain and the nervous system, and *a fortiori* our knowledge of their abnormal performance, is far from having reached that state of perfection where an *a priori* theory can command any confidence.” Norbert Wiener, *Cybernetics; or, Control and Communication in the Animal and the Machine*, 2nd ed. (Cambridge, Mass.: M.I.T. Press, 1961), 144. Weiner did speculate about the role of cybernetics for society in his 1950 text *The Human Use of Human Beings*: “...society can only be understood through a study of the messages and the communication facilities which belong to it; and that in the future development of these messages and communication facilities, messages between man and machines, between machine and man, and between machine and machine, are destined to play an ever-increasing part.” Norbert Wiener, *The Human Use of Human Beings; Cybernetics and Society* (Boston: Houghton Mifflin, 1950), 9.

¹⁶ Kline, *Cybernetics*, 197.

¹⁷ Kline, *Cybernetics*, 198.

¹⁸ Bateson published a collection of his writings, *Steps to an Ecology of Mind*, in 1972. Gregory Bateson, *Steps to an Ecology of Mind* (New York: Ballantine Books, 1972).

¹⁹ Mockus brought out the centrality of Jung’s thinking for Oliveros by quoting a letter from Annea Lockwood to the composer in the 1970s: “This summer, finally, I picked up some Jung. Don’t know why now and not before. Remembering very clearly your saying that if I was to understand your work, I’d need to read and understand Jung.” Martha Mockus, *Sounding out: Pauline Oliveros and Lesbian Musicality* (New York: Routledge, 2008), 156.

²⁰ Frank Tallis, *Hidden Minds: A History of the Unconscious* (London: Profile, 2002), 76. For more on Freud and the unconscious as the “third blow” to humans’ “self-love,” that the “ego...is not even master in its own house, but must content itself with scanty information of what is going on unconsciously in its mind,” see Sigmund Freud, “Fixation to Traumas—The Unconscious,” chap. XVIII in *Introductory Lectures on Psychoanalysis*, trans. James Strachey (New York: Norton, 1966), 273-285.

²¹ For more on Jung’s concept of the unconscious, see C. G. Jung, “Confrontation with the Unconscious,” chap. VI in *Memories, Dreams, Reflections*, Rev. ed. (New York: Pantheon Books, 1973), 170-199. This was one of Oliveros’s favorite books by Jung. Mockus, *Sounding*, 156-157.

species — past and present,” but also “racially distinct subdivisions,” a kind of “folk library,” where important cultural symbols are preserved.”²² As Jung explained in *The Psychology of the Unconscious*, for him, the deepest unconscious was a covered but extant bond that united all people and even gave glimmerings of humankind’s connection with all animals.

We know that, although individuals are widely separated by the differences in the contents of their consciousness, they are closely alike in their unconscious psychology. It is a significant impression for one working in practical psychoanalysis when he realizes how uniform are the typical unconscious complexes. Difference first arises from individuation... The unconscious contains the differentiated remnants of the earlier psychologic functions overcome by the individual differentiation. The reaction and products of the animal psyche are of a generally diffused uniformity and solidity, which, among men, may be discovered apparently only in traces...²³

As I will show, expanding the cybernetic loop into the human unconscious made meditation, including Oliveros’s *Sonic Meditations*, a way into and an expression of the supposedly deepest, most universal parts of humans. As Paul Reps, the author of *Zen Flesh, Zen Bones*, wrote: “The problem of our mind, relating conscious to preconscious awareness, takes us deep into everyday living. Dare we open our doors to the source of our being?”²⁴ Thus the frameworks of cybernetics, the collective unconscious, and countercultural Orientalism intersect in the music and activities of the Meditation Project.

In countercultural writings, cybernetic rhetoric legitimized meditation as a special way to tune into information from the universe and one’s self that many believed could heal the practitioner and transform society. For music-makers in the Meditation Project, the frequencies of the music were the information to tune into and meditation was a technique for connecting with that information. That such rhetoric was at play in Oliveros’s orbit is clear from composer Annea Lockwood’s correspondence with Oliveros dating from 1970 concerning Oliveros’s electronic music composition *I of IV*. In it, Lockwood noted the under-appreciated, transformative power of sound as information.

²² “The structure of Jung’s system is made clearer by use of a simple analogy - the archipelago. Human minds are like individual islands in a chain of islands, and the surface of the sea is like the threshold of consciousness. Below the sea, each island is supported by a unique rock formation. This corresponds with the personal unconscious. Further down, these individual columns of rock join together - they share a common part of the seabed. The level at which local islands join is equivalent to what Jung called the racial unconscious; a storehouse of ancient memories associated with specific ethnic groups (for example Mongolian or Aryan). Descending further, a point is reached where all islands and land masses join. This, the deepest level, corresponds with the collective unconscious.” Frank Tallis, *Hidden Minds: A History of the Unconscious* (London: Profile, 2002), 79-80.

²³ C. G. Jung, *Psychology of the Unconscious: a Study of the Transformations and Symbolisms of the Libido: A Contribution to the History of the Evolution of Thought* (New York: Moffat, Yard and Co., 1916), 198.

²⁴ Paul Reps, Foreword to *Zen Flesh, Zen Bones* (Rutland and Tokyo: Charles E. Tuttle Company, 1958), 13. Oliveros cited a portion of his text in Pauline Oliveros, “On Sonic Meditation,” in *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 141.

Seems possible to me that however intensively we compose with them and process them, sounds process us much more deeply and so far I know so little of the changes which go on when a sound goes through me; how far could one get in tracing the effects set up in one's body, by various sounds? It's as if listening/hearing is a whole physical scene, like dancing, set up between your brain and body, and the sounds coming into it, with all sorts of transformations going on.²⁵

Music, for Lockwood, was effecting direct change in the listener and humans seemed to be on the brink of comprehending its mechanisms. The Meditation Project would, in Oliveros's mind, bring humanity closer to that desired comprehension and the cybernetic mapping of electronic systems for music-making would encompass humans and their collective unconscious as well.²⁶

Meditation Project Activities

In each of the sections describing activities in the Meditation Project, thinkers and teachers tell a similar story of implicitly white, Western societal problems, with tuning into an inner universal self as the solution, even as the exact path to this self differs for each practice.²⁷

Kinetic Awareness

“We must build up, co-ordinate, and readjust the human machine so that it may be *in tune*.”

-F. Matthias Alexander²⁸

Oliveros wrote the *Sonic Meditation* “XIII,” entitled “Energy Changes” over the course of the Meditation Project to accompany the movement activities of Elaine Summers, the first guest teacher in the Meditation Project (Image 4.4). Performers begin by becoming aware of the sounds around them as if the sounds were a drone (Image 4.5). Then, performers attend systems that produce sound, both outside and inside the body (Oliveros lists blood pressure, heart beats, and the nervous system). When ready, or “triggered,” performers produce sounds, adding to the

²⁵ Martha Mockus, *Sounding out: Pauline Oliveros and Lesbian Musicality* (New York: Routledge, 2008), 36.

²⁶ In 2007, Oliveros reflected on her work in the 1970s. “I was exploring consciousness—a word that for years was not admissible in the scientific community. Consciousness had no location, could not be measured, and was considered an epiphenomenon. Now consciousness is a crucial part of scientific study.” Pauline Oliveros, “My ‘American Music’: Soundscape, Politics, Technology, Community,” *American Music* 25, no. 4 (2007): 390. For a recent analysis of the roles of cybernetic thought on Oliveros’s theory and praxis, see Theodore Barker Gordon, “Pauline Oliveros at the Buchla Box, 1967” and “‘The Patchwork Girl’: Pauline Oliveros’s Experimentalism of the Self,” interlude and chap. 3 in “Bay Area Experimentalism: Music and Technology in the Long 1960s” (PhD diss., The University of Chicago, 2018).

²⁷ For a schedule of Meditation Project session activities, see Image 4.3.

²⁸ F. Matthias Alexander, *The Resurrection of the Body; the Writings of F. Matthias Alexander* (New York: University Books, 1969), 106.

acoustic environment. Before starting a new sound, performers reconnect with the drone of sound around them which now includes other performers' sounds.²⁹

The phases of this *Sonic Meditation* align with the structure of Elaine Summers's Kinetic Awareness teachings, defined as "a system permitting an extraordinary range and ease of movement" and "a system of integrating life forces."³⁰ In an article from 1980, Ann-Sargent Wooster described the progression of activities in Summers's Kinetic Awareness training.³¹

1. By the end of the first phase, the student has become aware of each part of the body and is able to articulate it. It should be possible to move each part of the body slowly and with little tension.
2. In the second phase, one becomes aware of total body systems such as breathing, circulation, tension, etc. The student should be able to articulate slowly and with little tension more than one part of the body simultaneously.
3. The third phase incorporates the first two phases and adds to them the ability to change tension levels at will from minimum to maximum tension.
4. The student should be able to change speeds and move extremely slowly or very rapidly. While changing tension voluntarily, they should also be able to articulate any part of the body or all parts of the body.
5. The fifth phase combines the previous four and adds the ability to relate to another person and be aware of them in a performance.³²

In the case of the Meditation Project, Summers condensed this "voyage of discovery," which normally took years, into two weeks of activities.³³

In the introductory phases that Summers instructed during the Meditation Project, she seems to have used her regular working methods to explore specific body parts in sequence. According to the dissertation of one of Summers's students, each session consisted of six types of activities that focused on a single body part.³⁴ Students began by "sensing" their bodies as they

²⁹ As will become clear, Oliveros's "Energy Changes" not only follows Summers's "involuntary" pathway, it also follows the general progression of Kinetic Awareness and its artistic manifestation as dance in the choreography for Summers's piece, *Energy Changes*. Instead of body awareness and movement, Oliveros structured the *Sonic Meditation* around sound awareness and vocal production: awareness of the surrounding sounds (phase one), then breaking down those sounds into sound systems and attending to each (phase two), then contributing to the sound (the end of phase two and phases three and four), and finally, when re-establishing contact with the sounds, interacting sonically with others (phase five). For more details on the five sections of Summers's dance piece, *Energy Changes*, see Ann-Sargent Wooster, "Elaine Summers: Moving to Dance," *The Drama Review: TDR* 24, no. 4 (1980): 67-68. Oliveros performed the piece at the end of Summers's stay with project participants Lin Barron and Bonnie Barnett. Pauline Oliveros, "Meditation Project: A Report" in *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 159.

³⁰ Summers developed Kinetic Awareness as a healing practice after being diagnosed with osteoarthritis. Wooster, "Summers," 59-60; J. Robin Powell, "Body Awareness: The Kinetic Awareness Work of Elaine Summers (Movement, Dance, Behavior)" (PhD diss., New York University, 1985), 204.

³¹ The progression of activities and responses to their deployment frequently bring up ableist assumptions about what bodies are assumed capable of and what people are assumed able to do with their bodies.

³² Wooster, "Summers," 62.

³³ Wooster noted that the complete course took "several years" and the beginning course normally unfolded in fifteen two-hour sessions. Powell, "Body," 215; Wooster, "Summers," 62.

³⁴ Powell notes that students could ask questions during this time and that Summers did not start until all students were present. For additional details about Summers's working methods for different body parts, Powell, "Kinetic Awareness: Practice," chap. 4 in "Body."

laid on the floor, obtaining a “clear picture of what the body feels like.”³⁵ Next, students slowly moved the body part in “all directions it can go,” a process Summers called “multi-directional movement.”³⁶ Summers told students to “move as if you’ve never moved your ___[that part] before.”³⁷ Students then placed rubber balls underneath the body part to deepen concentration and explore additional movements (Image 4.6).³⁸ After these activities, students shared their experiences verbally (Summers opened discussions by asking “What did it feel like?”), received a brief introduction into the anatomy and physiology of the body part, and closed by massaging the selected body part of a partner.³⁹ Meditation Project participants mention working on the neck, spine, feet and ankles, thighs, pelvis, and legs in week one and added ball work and head, hips, back, and the stomach in week 2.⁴⁰ Participants also regularly mention practicing an activity called the Hang Out starting on the second day of class.⁴¹

For Summers, becoming aware of each body part and its movements helped practitioners discover and dig underneath automated movements. In her article, Wooster connected Summers’s Kinetic Awareness with somatic education pioneer Mabel Todd’s statement that: “It is possible to bring the organic impressions and resulting movements into consciousness and thus to control the adjustments.”⁴² Wooster also linked Summers’s work with Wilhelm Reich’s concept of muscle armoring, quoting Reich:

In order to achieve the libidinal restrictions as required in present day society and in order to master the resulting stasis of energy, it [character] must undergo a change....It is as if the affective personality put on an armor, a rigid shell on which the knocks from the outer world as well as the inner demands rebound. The armor makes the individual less sensitive to unpleasure but also reduces...his capacity for pleasure and achievement.⁴³

In this view, postures and movements are automated reactions to past experiences and can thus connect an individual to their unconscious. Summers believed that work on specific body parts

³⁵ Summers would ask questions about the body part during this time and students would answer silently. ““What parts are being held?”, ‘What parts are difficult to feel?’ and ‘What parts are resting on the floor?’” Powell, “Body Awareness,” 198, 210.

³⁶ Powell, “Body,” 199.

³⁷ Summers also continued to ask questions about students’ perceptions of the body part as well as breathing during this section. Powell, “Body,” 210, 211.

³⁸ Powell, “Body,” 199-200. Wooster adds the point that the balls free the body from preconceived body images by putting it in new positions: “By placing the body in a position for which there is no body image, the balls help to overcome habitual posture.” Wooster, “Summers,” 62.

³⁹ Powell, “Body,” 200-202, 211.

⁴⁰ UCSD Special Collections, MS 0102, Box 11, Folders 6-13.

⁴¹ “Students pair off, with one standing behind the other. The person in front will slowly bend forward, leading with the head, while the other partner applies gentle pressure on the spine. The student places the thumbs or forefingers on either side of the spine as Summers names each vertebrae, starting at the seventh cervical. The moving students feel and move each separate vertebra, curling over until they reach the fifth lumbar (or go as far as they can go). To come up from the hanging position, the process is reversed.” Powell, “Body,” 233-234.

⁴² Wooster also notes that bodywork teachers like Elsa Gindler, Moishe Feldenkrais, Carola Speads, and Charlotte Selvers influenced Summers’s project. Wooster, “Summers,” 63.

⁴³ Wooster, “Summers,” 64.

could lead to negative emotions and encouraged students to be “good” to their bodies after classes. She even announced what body part would be covered in an upcoming class so that “a student who has emotional difficulty with an area may unconsciously find a reason not to come to that class.”⁴⁴

Through the discipline of Kinetic Awareness, rigid, tension-filled and malaligned parts of the body become visible for what they are. Past experiences have caused the denial or deformation of parts of the body, immobilizing them. Muscles clutch unnecessarily, or a shoulder is hunched to ward off past or present blows, real or imaginary. Often the way the body is worn is associated with the parents' characteristic posture or a style of standing or moving commonly seen when growing up. If a position was casually adopted in adolescence, realignment is comparably easy. An attitude with deeper roots or meaning can only be relinquished with difficulty and sometimes only if the alternative is continued pain from a distorted back or wrongly held leg.

Summers seems to have deemphasized the Freudian elements of the practice, instead leaning into the more holistic language of the human potential movement:

Historically, all body awareness work is psychoanalytic in origin. One cannot work on the body without encountering psychological problems. Summers acknowledges the psychological causes of movement blockage as it relates to individual problems in her reaching, but she emphasizes other areas. Group discussions center on how the body feels ("What did you feel?" is the usual question), as well as a thorough grounding in anatomy, physiology and nutrition. The goal of the work on one level is the reintegration of all of the components of the self, many of which have been suppressed as a child or repressed as adults. Summers insists each student take the movement training and make it his/her own. She provides the tools for the students to begin to heal themselves. No higher compliment could be paid than the often voiced, "She gave me back myself."⁴⁵

The supposedly more authentic self thus emerges through Kinetic Awareness practices. The breath was a key aid to locating and developing the self. Summers noted:

Breathing is one of the body's total systems. Everything inside ourselves is constantly moving. One of the best ways of getting close to yourself is to simply lie still and sense your breath. This is a traditional meditation exercise used in yoga and Zen. It is difficult to watch your breath without interfering with your breathing pattern. Each of us has an individual breathing rhythm shaped by our physiological mechanism and body structure. However, in the process of growing up we are surrounded and inundated with instructions and opinions about how to breathe which serve to alter our natural patterns.⁴⁶

In 1968, Summers introduced Oliveros to Kinetic Awareness over the course of just two sessions.⁴⁷ Oliveros's interactions with Summers not only influenced her *Sonic Meditation* “Energy Changes,” it also led to insights about her own performances. “I...noticed that I could change my performance by the way my body felt. I became sensitive to using just enough muscle

⁴⁴ Powell, “Body,” 212, 210.

⁴⁵ Wooster, “Summers,” 64.

⁴⁶ Wooster, “Summers,” 65.

⁴⁷ O’Brien, “Experimentalisms,” 153-154.

tension, rather than too much. Kinetic and sonic awareness became intertwined for me.⁴⁸ It would also influence her approach to choreography in her own compositions.⁴⁹ Oliveros seems to have been broadly interested in bodywork approaches, and, in her bibliography for the Meditation Project, included books on Alexander technique, tai chi, yoga, relaxation and awareness, a popular science text on the body, and Gestalt therapy.⁵⁰

US Asianist Practices

White Americans' interest in elements of various Asian religions dates back to the 1800s, most famously among the transcendentalists, and continued into the long Sixties.⁵¹ Counterculture writers saw what Gopinath described as Asianist religions as psychological resources for white Americans to undo the negative effects of Western culture. Gopinath defined these Asianist religious expressions as the unique instantiations of Asian religions in the US adopted primarily by white Americans raised outside the traditions of Buddhism, Taoism, Hinduism, etc. The aim, more specifically, was to get underneath the inauthenticities built up by the technocracy, "that society in which those who govern justify themselves by appeal to technical experts who, in turn, justify themselves by appeal to scientific forms of knowledge. And beyond the authority of science, there is no appeal."⁵² The supposedly true self, wrote counterculture writer Theodore Roszak, resided in the corner of the white Western mind not corrupted by technocracy: the "non-intellectual consciousness." Roszak observed that, in the counterculture, the minds of figures like Lao-tzu, the Buddha, and Zen masters "lay at the service of a vision that is incompatible with our conventional science...[they have] become one of the strongest strains of the counter culture."⁵³ White Americans' interest in Asianist religions, motivated by the desire to liberate one's self from the perceived harms of technocracy, included practices that Meditation Project participants explored: tai chi, calligraphy, karate, yoga, and the use of the *I Ching*.⁵⁴

In the seventh week of the project, Oliveros's longtime acquaintance and fellow performer, Chungliang Al Huang, led the group through tai chi and calligraphy exercises (Image

⁴⁸ Pauline Oliveros, "Improvising Composition: How to Listen to the Time Between," in *Negotiated Moments: Improvisation, Sound, and Subjectivity*, ed. Gillian Siddall and Ellen Waterman (Durham and London: Duke University Press, 2016), 75.

⁴⁹ "As my own work in Sonic Meditation developed I applied the principles to movement as well as sound thus arriving at choreography through meditation." Pauline Oliveros, *The Roots of the Moment* (New York: Driogue Press, 1998), 91.

⁵⁰ See the Appendix.

⁵¹ Gopinath, "Contraband," 141.

⁵² Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and Its Youthful Opposition* (Garden City, NY: Doubleday and Company, Inc., 1969), 8.

⁵³ Roszak, *Making*, 83.

⁵⁴ For more on the use of the *I Ching*, see R. L. Wing, *The I Ching Workbook*, 1st ed. (Garden City: Doubleday, 1979).

4.7).⁵⁵ In Huang's book, first published in 1973, his students described tai chi as a method of connecting with the self: "T'ai chi is a subtle and powerful awareness discipline, a tool to become more in touch with yourself."⁵⁶ The discipline involves slow, highly-proscribed movements or forms, often connected in sequences. After three days of tai chi instruction, Huang introduced calligraphy.

...Al talked about calligraphy and Tai Chi and the I Ching and about the center of us. Dantien [sic] which is flexible and is us. It is a center betw[een] waist and pelvis. Our center is always with us and we always work around our center, or a common center formed by those working together. Calligraphy is done with sumi brush held straight up and down in the fingers with the ink making lines determined by where the painter is in his being at that moment.

We all did some brush work...⁵⁷

For participants, brush work was a way of pinging the non-intellectual self, the universal unconscious: "Calligraphy - a form of meditation; after you make a character look at it to see if it is centered - if you are centered. I was shocked to find such a direct reflection of my inner being, my balance."⁵⁸

Oliveros's bibliography for the project included two texts specifically about tai chi that confirm Roszak's understanding of white countercultural interest in Asianist religions. Jerome Kirk, in his introduction to Feng's *Tai Chi, a Way of Centering*, argued that Western Protestants were turning to tai chi to obtain an "Oriental model of the world" and compared the cultural status of tai chi in the East with the West's elevation of science and math. Staking out distance between most Westerners and those in the know, he argued that "To Western eyes," Chinese religions "are similar to one another."⁵⁹ But "unconventional Westerners" such as those in the counterculture, are apt to pursue authentic practices such as tai chi.⁶⁰ The other book on tai chi in Oliveros's bibliography, dancer Sophia Delza's *Body and Mind in Harmony*, was intended to be

⁵⁵ Oliveros recalled her first encounter with Huang in an interview with Martha Mockus. "*When were you first introduced to Asian religious ideas, meditation, T'ai Chi?* Well, the first was meeting Al Chung Liang Huang and taking some T'ai Chi lessons with him in Rancho Santa Fe Kairos about 1968 or '69. So that was the first formal introduction to a discipline such as T'ai Chi. I didn't go far with it, I didn't learn the complete form or anything, but I took the understanding of synchronizing breath with movement and translated it to playing the accordion. I played a lot for Al's classes, and he liked moving with that music, doing T'ai Chi with the music that I played. So there was a lot of collaboration for a few years with him, and I learned a lot." Mockus, *Sounding*, 157.

⁵⁶ Barry and John Stevens, introduction to *Embrace Tiger, Return to Mountain* by Al Chung-liang Huang (Moab, Utah: Real People Press, 1973), 7.

⁵⁷ UCSD Special Collections, MS 0102, Box 11, Folder 13.

⁵⁸ UCSD Special Collections, MS 0102, Box 11, Folder 10.

⁵⁹ Gia-fu Feng, *Tai Chi, a Way of Centering and I Ching; a Book of Oracle Imagery* (New York: Macmillan, 1970), 7.

⁶⁰ Meanwhile, the Chinese, in Kirk's view, were mystified by Westerners' philosophizing. "To the Chinese, the ability of Caucasians (including East Indians) to get hung up in metaphysical abstractions is a never-ending source of wonder." Alan Watts also leaned into the East/West binary and the East's ineffability for Westerners: in describing Feng he wrote that he was "very Chinese and thus difficult to define or classify in Western terms." Feng, *Tai Chi*, 6, 1.

an introduction to tai chi for Westerners.⁶¹ Like the introductory remarks from Feng's book, Delza contrasts the physical habits of East and West: "We in the West are apt to overexert ourselves... The spirit of T'ai Chi Ch'üan is the antithesis of such a point of view..."⁶² It was cast as a corrective path to cure the West's problems.

In week 8, after Huang led the Meditation Project, Lester Ingber, a physicist-turned-karate-instructor led the group for two days of karate exercises (Image 4.8).⁶³ Ingber's theories about attention and awareness influenced Oliveros's thinking on the topic and she (and others from the ♀ Ensemble) studied with Ingber before the project. For Ingber, karate was a means of expanding consciousness. As he wrote in a text adapted from a UCSD extension course in 1972 entitled "Physical/Cognitive Probes into Consciousness":

The body language of karate can be used to expand consciousness. According to folklore, Dharma Bhoda originated the elements of karate while he was developing Zen in China, in order to study the interaction of the rhythms of the self with the external environment, the balancing of Yin and Yang, feminine and masculine archetypes [sic], awareness and concentration. With karate training...the masters are only superficially conscious of these states on a verbal level.⁶⁴

Here, Ingber grounded karate in an Asian religion and affirmed its connections with the non-intellective: desirable traits in the counterculture. Ingber developed his own training method that focused on "the process of concentration and awareness at the same time that [the student] learn[s] the basic karate techniques."⁶⁵ Before detailing his exercises, Ingber described his general approach:

Concentration and awareness exercises designed to study attention can be performed with the primary emphasis on separate sensory mechanisms, such as the somatic, auditory, and visual systems. The exercises that develop concentration help the student focus his attention on minute, or continuous, aspects of space and time, motion and energy, which are the physical variables of karate. The exercises that develop awareness expose the student to a diffuse pattern, or holistic concept of these physical variables.⁶⁶

Practicing karate was thus tuning into sensation.

Participants also noted using the *I Ching* in class and participants described their personal use of the practice. Oliveros's bibliography included Wilhelm and Baynes edition of the text as

⁶¹ Sophia Delza, *Body and Mind in Harmony; T'ai Chi Ch'üan (Wu Style); an Ancient Chinese Way of Exercise* (New York: D. McKay Co., 1961), 5.

⁶² Delza, *Body*, 8-9.

⁶³ Heidi Von Gunden, *The Music of Pauline Oliveros* (Metuchen and London: The Scarecrow Press, Inc., 1983), 88, 91.

⁶⁴ UCSD Special Collections, MS 0102, Box 4, Folder 23.

⁶⁵ UCSD Special Collections, MS 0102, Box 4, Folder 23.

⁶⁶ UCSD Special Collections, MS 0102, Box 4, Folder 23.

well as Ralph Metzner's 1971 text which placed it next to the esoteric/occult practices of tarot, alchemy, and astrology.⁶⁷

There was at least one day of yoga practice during the Meditation Project and Oliveros's bibliography contained five manuals on the topic, including a translation of Patañjali's yogic text and guides to the physical and psychological aspects of the practice by Mircea Eliade, Iqbal Kishen Taimni, Walter Brown Gibson, and Yogi William Zorn.

Interiority

At Oliveros's request, participants kept diaries during the Meditation Project to document their experiences and note changes in themselves. Oliveros also hoped to correlate information in the diaries with quantitative data collected during the project. Oliveros described her "rules" for the project diaries in a memo to participants dated January 15, 1973:

Include everything! Feelings, ideas, observations, fantasies, dreams, images, casual commentary, descriptions, attitudes, reactions concerning the training sessions, and the project as a whole. Feedback to the group will be requested from time to time.⁶⁸

For some of the seven participants from whom we have extant diaries, a tension emerged between the instruction to "include everything" and the knowledge that the diaries would occasionally be shared. Supporting this view, Von Gunden has noted that the "'diary' was too probing."⁶⁹

But not all participants shared these concerns and we have a fascinating level of detail about some individuals. Dream recollections are among the most personal aspects of the diaries. In addition, the groups' Jungian approach to dreams and their interpretation is clear from Oliveros's bibliography for the project as well as its overlap with a syllabus about dreams and a guide to decoding them by Oliveros's colleague, Ronald Lane (a staff psychologist at UCSD).⁷⁰ Participants sought to augment their consciousness and actualize new behaviors by probing dreams for archetypes, personal meanings, and by engaging in "completion work" (writing, discussing, or doing artistic work to express the dream).⁷¹ In this framing, dreams were a way of uncovering and transforming both the concerns of the self and the supposed deeper, universal self. Amongst Oliveros's copies of Lane's syllabus and dream interpretation guide is Kilton Stewart's 1935 article "Dream Theory in Malaya," which purported to describe the social importance of dreams and dream sharing among the Senoi of present-day Malaysia. Stewart's text

⁶⁷ Metzner's chapter on the *I Ching* is an introduction to the text, its key concepts, and use. His language frequently connects the spiritual with the technological: "It may be helpful at this point to give an example of the operation of the *I Ching* as a psychic computer..." He also began the chapter by noting the "fundamental difference in life experience and hence in basic outlook" between the "Western mind" and the Chinese. Ralph Metzner, *Maps of Consciousness: I Ching, Tantra, Tarot, Alchemy, Astrology, Actualism* (New York: Macmillan, 1971), 24, 14. Feng's book on tai chi also contained a version of the *I Ching*.

⁶⁸ UCSD Special Collections, MS 0102, Box 11, Folder 5.

⁶⁹ Von Gunden, *Music*, 92; Heidi Von Gunden, email message to the author, April 24, 2019.

⁷⁰ Von Gunden, *Music*, 89.

⁷¹ UCSD Special Collections, MS 0102, Box 11, Folder 5.

was important in the counterculture and reproduced in Tart's *Altered States of Consciousness*, also on Oliveros's bibliography for the Meditation Project. In a digression in his article, Stewart stated that humans gain access to their deepest selves and most creative power during sleep:

Man discovers his deepest self and reveals his greatest creative power at times when his psychic processes are most free from immediate involvement with the environment and most under the control of his indwelling balancing or homeostatic power. The freest type of psychic play occurs in sleep...⁷²

He further argued that the Senoi offer an ideal model for the West to better relate to their own dreams because of the perceived simplicity of Senoi culture. "Since they are a pre-literate group, the principles of their psychology are simple and easy to learn, understand, and even employ."⁷³ Thus, a culture deemed lower or societally less developed was framed as a psychological resource for Westerners' to tune into and improve their supposed true selves.

Ronald Lane also led a session on "fantasy," noted in a participant's diary and in Oliveros's report on the project.⁷⁴ Given Lane's readings on his syllabus about decoding dreams, this fantasy work likely drew on Jung's practice of detailing fantasies as a way of connecting with the unconscious.⁷⁵

Psychological Data

Oliveros also organized for participants to use quantitative methods both to tune into their inner selves and to measure changes over the course of the project. For example, participants practiced meditating with biofeedback equipment, an electronic system that sonifies externally recorded brain wave activity in a frequency range associated with meditative states (alpha activity). Using the same premises, Oliveros used UCSD medical school professor Reginald Bickford's electroencephalography (EEG) equipment to collect EEG data in different conditions at the beginning and end of the project in order to examine changes in participants' alpha activity.⁷⁶ The hypothesis was that the Meditation Project activities would increase the amplitude and duration of participants' alpha activity. Ronald Lane also organized for participants to take a series of psychological questionnaires and surveys before and after the project, as well as a

⁷² Kilton Stewart, "Dream Theory in Malaya," in *Altered States of Consciousness; a Book of Readings*, ed. Charles T. Tart (New York: Wiley, 1969), 164.

⁷³ Stewart, "Dream," 167.

⁷⁴ Oliveros, "Meditation," 159.

⁷⁵ "Jung kept a record of his dreams and fantasies, which he regarded as communications from the unconscious; however, he also believed that the unconscious could signal its readiness to communicate by engendering unusual urges and impulses in the conscious mind. Jung believed that by surrendering to such impulses he could furnish the unconscious with a much wider expressive repertoire." Tallis, *Hidden*, 77.

⁷⁶ Eyes open, eyes closed, math task, and a music condition.

weekly “consciousness scale” survey.⁷⁷ Extant data from two of these tests survive: the Betts’ Questionnaire and the Seashore Measures.⁷⁸ The Seashore test was deployed to measure participants’ musical abilities. Its six sections tested participants’ ability to discriminate frequencies, loudness, rhythms, duration, tone quality, and tonal memory. For example, in the frequency, or pitch discrimination section of the Seashore test, participants were told to listen to two tones and decide whether the second tone was higher or lower in frequency than the first tone. Participants also took a shortened form of the Betts test, which measured the vividness of participants’ mental images in multiple modalities. Oliveros and her colleagues used the sections on vision, audition, kinesthetics, and touch. The test asked participants to conjure mental images and then probes for details, rated on a seven-point Likert scale.⁷⁹ In addition, participants mentioned using Manfred Clynes’s sentograph: a device for measuring physiological correlates of emotional responses.⁸⁰

Sonic Meditations

“Lose your mind and come to your senses.”

—Fritz Perls⁸¹

Of all the activities practiced in the Meditation Project, Oliveros’s compositions were central: participants practiced them during the majority of the weeks and they drew on many of the other project activities. Oliveros designed the *Sonic Meditations* to “enhance” and “develop” performers’ aural sensation using attention (which she described as narrow, pointed, selective consciousness) and awareness (broad, diffuse, inclusive consciousness) (Image 4.9).⁸² In *On Sonic Meditation*, written after the Meditation Project in 1973, Oliveros stated that attention and awareness were “tunable” and could be trained on real and imagined sounds.⁸³ For example, in

⁷⁷ These included the Betts’ Questionnaire Upon Mental Imagery (QMI) Vividness of Imagery Scale, Seashore Measures of Musical Talents, adaptations of the Imaginal Process Inventory and Omnibus Personal Inventory Form F, as well as his own measures: the Dream Behavior Inventory and Personal Consciousness Scales.

⁷⁸ Alex Cowan has recently explored Seashore’s high-level involvement in the American eugenics movement. He and his colleagues planned to use the test to examine race-based differences in musical ability. Alexander W. Cowan, “Eugenics at the Eastman School: Music Psychology and the Racialization of Musical Talent” (83rd Annual Meeting of the American Musicological Society, Rochester, NY, 2017).

⁷⁹ The previously unanalyzed pre- and post-project data for the Betts’ and Seashore tests showed no significant changes over the course of the project. We are also analyzing the extant EEG data.

⁸⁰ Manfred Clynes, *Sentics: The Touch of Emotions* (Garden City: Anchor Press, 1977).

⁸¹ Quoted in Robert E. Ornstein, *The Psychology of Consciousness* (New York: Viking, 1972), 219.

⁸² Pauline Oliveros, *On Sonic Meditation* (La Jolla: University of California at San Diego, Center for Music Experiment and Related Research, 1973), 5. For an edited version of this text, see Oliveros, “Sonic.”

⁸³ Von Gunden, *Music*, 101, note 16. Pauline Oliveros, *On Sonic Meditation* (La Jolla: University of California at San Diego, Center for Music Experiment and Related Research, 1973), 2, 5. *Sonic Meditation* “III: Telepathic Improvisation” contains a “tuning exercise” where audience members hear the sound of an instrumentalist mentally and attempt to send the sound to the performer telepathically. Pauline Oliveros, “III: Telepathic Improvisation” in *Sonic Meditations* (Sharon: Smith Publications, 1974).

the first *Sonic Meditation*, “Teach Yourself to Fly,” performers are instructed to observe their breathing (Image 4.10). For Oliveros this meant attending to and being aware of breath cycles: focus on them and be simultaneously aware of the cycles’ presence in the environment. With attention staying on the breath, the performer needs to increase air pressure to let the breathing become audible.⁸⁴ Eventually, participants heighten this audible breath into vocalized drones. Still attending to the breath cycle, awareness may include performers’ drones. Participants’ awareness may continue to expand, resulting in what Oliveros called observation: in this case, the ability to perceive one’s self simultaneously (1) paying attention to breath cycles and (2) being aware of sounds in the environment. This observation may be conscious (in real time) or unconscious (retrievable later in memory). Observing is where performers learn and practice tuning attention and awareness.⁸⁵

Oliveros considered breath cycles to be particularly useful because we are able to control our breathing if we choose but it can also be an automatic process. Because of this dual property, Oliveros argued that it was a door between consciousness and the unconscious.

Observation requires a receptive mode of consciousness... The breath cycle is a bridge between voluntary and involuntary activity. It can and does continue all the time without one's conscious attention or awareness. Sometimes it is only noticed when one is struggling to gain voluntary control over it. By trying to observe the breath cycle without disturbing it, one begins to tune an activity which is both conscious and unconscious. In short, breath is the door to the unconscious where a great store of energy lies ready to support or obliterate conscious efforts. Energy is neither positive nor negative, but it can become either.⁸⁶

Using Otto Frisch’s interpretation of Heisenberg’s uncertainty principle, Oliveros suggested that when performers observe their breath cycles they tune or adjust the unconscious.⁸⁷ The breath cycle also plays a pivotal role in “Tumbling Song,” as *Sonic Meditation* participants discuss in their diaries (Image 4.11).⁸⁸ Performers vocalize descending glissandi or pitched steps with the duration of the breath “determin[ing] the maximum time length of any downward gesture.”⁸⁹ Oliveros intended all of the *Sonic Meditations* that she developed during the Meditation Project to be preceded by “observation of the breath cycle.”⁹⁰

A performance of “Teach Yourself to Fly” can be viewed as a series of cybernetic feedback loops. Each performer has a loop of information about breathing (a mostly internal loop), a higher-order loop of information about one’s own vocal production (a self-sound loop), and another, yet higher loop of perceptual information from the sound of the entire performing

⁸⁴ Oliveros, *On Sonic Meditation*, 13.

⁸⁵ Oliveros, *On Sonic Meditation*, 11.

⁸⁶ Oliveros, *On Sonic Meditation*, 11.

⁸⁷ Oliveros, *On Sonic Meditation*, 12.

⁸⁸ Oliveros, “XIV: Tumbling Song” in *Sonic Meditations* (Sharon: Smith Publications, 1974).

⁸⁹ Oliveros, “XIV.”

⁹⁰ Oliveros, *On Sonic Meditation*, 20.

group over time (a group sound loop). Oliveros described the group sound loop in *On Sonic Meditation*:

Because of the underlying principle, observation of the breath cycle, there is always the unity of a characteristic drone. The texture resembles ocean waves. The individual aperiodic coincidences of different breath cycles creates a variety of details. There is an increasingly rich production of partials. The form of the whole is a dynamic arch.⁹¹

All of these nested loops feed back into each individual, informing and changing them over the course of the meditation. The effects, Oliveros's primary impetus for composing the *Sonic Meditations*, were thick.

The effect is restful rather than stimulating. The energies of a few to many people participating together amplify, reinforce and sustain the effects, but one can also participate alone with good results. The resulting awareness of one's body in a relaxed mode, the fresh receptivity to external sound, the discovery of unused vocal or instrumental range and qualities seem primary since the pressures associated with my former music world were not often conducive to such things. However, it happens that I very much like the musical as well as social and psychological results of *Sonic Meditations*, although it seems to require re-orientation of the tangled jungle of expectations among performers and audience.⁹²

For many in the counterculture, cybernetics laid out a blueprint for a unifying, universal human characteristic. Underneath the stultifying routines of modern technocracies lay a purer system, more in touch with the world around the self. In this view, if white Westerners could dig underneath their culturally accrued mental baggage, they would find themselves in touch with each other and all of humanity. Such a sentiment operates seamlessly with rhetoric surrounding the *Sonic Meditations* and the Meditation Project. "Teach Yourself to Fly" even provides a physical manifestation in Oliveros's seating arrangement.

'Any number of persons sit together in a circle facing the center.'

People sitting together in a circle are a living symbol of unity as well as a unified reality. All are on the same plane. All are relating to the same center.⁹³

Participants in the Meditation Project mentioned two other *Sonic Mediations* with similar circular formations: "Removing the Demon or Getting Your Rocks Off" and "Zina's Circle." In "Removing the Demon," performers "[sit] in a circle with persons facing in and out alternatively" (Image 4.12).⁹⁴ This seating arrangement gives performers space to slowly and repeatedly hit rocks together and recreates Oliveros's awareness circle (Image 4.9). If there are an odd number

⁹¹ Oliveros, *On Sonic Meditation*, 17.

⁹² Oliveros, *On Sonic Meditation*, 18.

⁹³ Oliveros, *On Sonic Meditation*, 10. Oliveros's interest in circles intersects with her interest in mandalas. The bibliography she created for the Meditation Project contained a book entirely devoted to the topic and her interest in mandalas would continue to grow in the following decades. See José Argüelles and Miriam Argüelles, *Mandala* (Berkeley: Shambala, 1972) and Pauline Oliveros, "MMM: Meditation/Mandala/Music" in *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 214-261.

⁹⁴ Oliveros, "VII: Removing the Demon or Getting Your Rocks Off" in *Sonic Meditations*.

of performers, the “left over person [is seated] in the center,” adding the dot of attention to the performance set up (Image 4.9).

Similarly, in the *Sonic Meditation* “Zina’s Circle,” performers form a circle, in this case, standing with eyes closed (Image 4.13). The group joins hands and expands the circle of performers, then contracts it, then returns to the originally-sized circle before transmitting electricity-like “jolts” around the circle by squeezing each others hands.⁹⁵ “The action should become so quick that it happens as a reflex, before the person has time to consciously direct the squeeze.”⁹⁶ As with observation of the breath cycle in “Teach Yourself to Fly,” this *Sonic Meditation* aims to tune performers into an “unconscious” process.⁹⁷ In a similar vein, Oliveros’s text score for *Sonic Meditation* “XIX” instructs performers to attend to the normally automatic process of blinking, slowed down to heighten awareness (Image 4.14).⁹⁸ After attending to eyelids, eyes, their sockets, and extraocular muscles, performers turn their attention to external sounds, then internal sounds, then, finally, both sets of sounds simultaneously.

Participants also mention a “Name Mantra” that seems to have been a combination of the *Sonic Meditations* “One Word” and “Your Name: The Signature Meditation” (Images 4.15-16). Another participant documented the instructions in his diary entry on February 13: “Hear your name in your head over and over again in a rhythm—sustain name continuous to be said head to tail. At the end speak your name out loud. Beforehand write your name on paper or in the air.”⁹⁹ The first phrase, “Hear your name in your head over and over again” resonates with the instructions to “Dwell on your name” from “Your Name” and the instructions to “Choose one word. Dwell silently on this word.” from “One Word.”¹⁰⁰ The final sentence of Mayer’s entry is similar to Oliveros’s instructions to “Write it [your name] down as slowly as possible.” from “Your Name.”¹⁰¹

Participants’ Reception of Sound

How did participants think about the *Sonic Meditations* and the Meditation Project? What were their motivations for participating and their take-aways about the efficacy of the meditation

⁹⁵ Oliveros, “XV: Zina’s Circle” in *Sonic Meditations*.

⁹⁶ Oliveros, “XV.”

⁹⁷ In a related move, Oliveros would later cite Benjamin Libet’s experiments to support the idea that consciousness lags behind music-making movements. This connects such statements with contemporary discussions of Libet by affect theorists and their critics. See Pauline Oliveros, *Deep Listening: A Composer’s Sound Practice* (New York, Lincoln, and Shanghai: iUniverse, 2005), xix; Oliveros, “Improvising,” 75; Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham, NC: Duke University Press, 2002); Ruth Leys, “The Turn to Affect: A Critique,” *Critical Inquiry* 37, no. 3 (2011): 434–72.

⁹⁸ Oliveros, “XIX” in *Sonic Meditations*.

⁹⁹ UCSD Special Collections, MS 0102, Box 11, Folder 10. The participant seems to have mislabelled the date as January 13.

¹⁰⁰ Oliveros, “XXV: Your Name: The Signature Meditation” and “XII: One Word” in *Sonic Meditations*.

¹⁰¹ Oliveros, “XXV.”

techniques? Amidst participants' unique perspectives and shifting moods about the project's daily activities, diaries from seven participants converged around common psychospiritual goals and sound as a path to achieving them.

Participant A

Participant A's short, five-page diary orbits around a handful of topics: the dichotomy of mind and body, their age, and a gradual warming up to the project activities. "My resistance against body awareness," they wrote, stemmed from emphasizing "physical or sensual satisfactions" and leaving out "psychic yearnings."¹⁰² They saw the body as "an instrument" for developing "psychic awareness that all are "One." "What good is...this new body awareness...if the psychic awareness is not equal to it...[?]" Without concomitant psychic development, they argued that body awareness would lead to mere "organismic satisfactions" and "survival value." "I thought...that we were beyond this point, in our evolutionary development." Participant A expressed the very platitudes that Kinetic Awareness, and a variety of other countercultural practices, reacted against: theosophist and occultist notions that viewed the body as primarily a vessel for the soul, and, equally, the technocratic emphasis on mind or intelligence above the rest of the human. They mused that they may be too old to develop body awareness but eventually felt the "urge" to "prove something to the Young Ones - that I too experience a need for reaffirmation of my body and channel as well as they do no matter what my age... I too want to be part of the recurring experiential flux of life - so why not play the games [and] see what comes of it." They came to feel "essential Oneness with the group in spite of the great difference in age [and] background." Multiple dreams told them, they believed, to "put less value on social-intellectual achievement [and] instead pay closer attention to body needs - as lowly as they may seem to me." While retaining the perspective that the body is "lower," Participant A also nurtured its development, later describing "pure energy...recharging my body" when practicing Kinetic Awareness.

In the final page of their diary, they described their experience of a *Sonic Meditation*, likely "Teach Yourself to Fly."¹⁰³ Their recollection of the *Sonic Meditation* followed a similar development from skepticism to acceptance that they underwent with Kinetic Awareness. Participant A started by calling the vocalizations "sound effects," making them seem superfluous and artificial. The sounds were an affront: they resembled the noises of domesticated animals. "All that was missing, I thought, was the odor of manure..." Their reaction was to "rise above" using "an ancient lament of my people" and the "psychic growth" that comes from "logos." The suspicion of the body was paralleled in a suspicion of the non-semantic, here linked with animals.

¹⁰² UCSD Special Collections, MS 0102, Box 11, Folder 6.

¹⁰³ This could also have been a Kinetic Awareness activity, as some included vocalizing.

Even with this skeptical framing, they began to embrace these “low” sounds because “...this too was part of it all...” They let go of attempts to elevate the practice and ultimately felt “renewed, recharged, [and] vital for the rest of the day.” Participant A described benefits similar to those Oliveros experienced when practicing “Teach Yourself to Fly”: “The effect is very calming to the nervous system and the whole body. I always feel refreshed and very relaxed afterward.”¹⁰⁴

Participant B

At the end of the first week of the Meditation Project, Participant B had an epiphany that summarized their diary entries: “Tension cuts off the flow of the Universal Energy - thus we are cutting ourselves off from further development towards the Universal One - how can we move or hear if our doors are closed?”¹⁰⁵ While the immediate context was Summers’s Kinetic Awareness exercises, the idea that relaxation, lessening tension, could tune one into Universal Energy, the Universal One, would show up in other modalities, including audition and B’s reactions to *Sonic Meditations*. After being sick, B contemplated a negative corollary of the idea, that tension could induce illness:

I realize why I get sick - I just needed to stop and slow down....I need to balance between Quiet and Quiet Action and People and Outside Responsibilities and time [in] nature. The city and home life can be too busy. My home[,] even though it has a very peaceful tone[,] still has people dropping in and phones ringing[,] etc.

Slowing down and finding balance conjured sonic disruptions in the home, modern noise disturbing their desired “peaceful tone.”

B was one of many project participants who practiced counterculture-associated activities before the winter quarter of 1973. For B, these included psychosynthesis, Gestalt, and Rolfing. In their diary, they tried to document “only what I felt was initiated from the project,” but believed that these activities were, “ALL INTERRELATED.” Given the “interior ‘things’” B was engaged in and their ability to “trigger off certain feelings [,] emotions[,] etc.,” B was unsure of how much to document in the diaries:

I really regret not knowing if these are to be handed in or not. I don’t appreciate “not knowing.” Just because there’s the chance that I’ll have to turn this in for “research sake” there’s *alot* [sic] I’m not writing down. [T]here are some things I don’t feel like sharing with “who ever might happen to read this.”

B was unlikely to be alone in this sentiment. Perhaps this also explains why we have diaries from only seven of the approximately twenty participants. Did the thirteen other participants write diaries at all? Why might they have decided not to hand them in?

¹⁰⁴ Oliveros, *On Sonic Meditation*, 151.

¹⁰⁵ UCSD Special Collections, MS 0102, Box 11, Folder 8.

B was one of the few nonmusicians in the project. This didn't keep them from taking the Seashore test and even finding parts of it "easy." B also took the Betts' test and found that they were most "in tune with" the movement and touch portions of the test.

This tuning also manifested as appreciation for Kinetic Awareness. During the second week of Summers's instruction, B noted, "I love getting more and more in tune with my body!! I love to listen to it - I just don't always understand it - maybe that's because I listen too late!" B, like Summers, viewed the body as sending information to the individual and used musical language of listening and tuning to understand how to interact with this information. B wrote about the benefits of the Kinetic Awareness practices, including massage. "[Another participant] did a nice job on my head - it felt so good being massaged! I feel like something is happening[,] especially with all this practice on focused attention. I remember being very aware of everything as I walked outside after the program." B viewed Kinetic Awareness and its development of focused attention as an every-day awareness booster. But not all physical movement activities resonated in this way with them. "Wonder why we are doing so much yoga," they wrote, "seems out of place sort of."

Tai chi, on the other hand, was something that B looked forward to and appreciated, even when they were too tired to "get into anything [Huang] was doing." Practicing tai chi coincided with B's "highest yet" weekly consciousness scale rating but also, by the next project meeting, boredom: "Really tired of doing Tai Chi - even tho[ugh] it feels good." They found it "difficult" to get into tai chi when following someone else and easier to feel "centeredness" when doing it in a self-directed way.

Perhaps because relaxation was the path to Universal Energy for B, they were ambivalent about Ingber's karate lessons. "Karate in class - don't know that I liked the force involved - probably because I'm not in condition and I don't want to strain anything." The following day, B noted their enjoyment of the practice and how relaxation helped them remember the movement patterns "[be]cause it was there in the body!"

B's emphasis on tuning into Universal Energy via relaxation showed up in their responses to *Sonic Meditations*. For example, after practicing "Teach Yourself to Fly," they wrote about the effects of the "dim blue light": I really like the blue circle! It's like being in your own world" While being in one's own world may seem counterproductive to connecting with Universal Energy, it aligns with the idea that the energy is located in each individual, underneath the surface of the ego. On another day, the blue light was not working and B noted an increased level of distraction: "I was really all over the place today. Sometimes on and in and other times way out. My attention was elsewhere a lot of the time[.]" Later they recorded disillusionment with the vocalizing in a *Sonic Meditation*: "I froze - I didn't want to be there - time passed slowly, left quickly. Tired of doing [the] same things - Sounds with voice - what for?" In a later entry, B

described how part of their dissatisfaction came from feeling that “Teach Yourself to Fly,” particularly the vocalizing, took too much effort and then referenced Herrigel’s *Zen in the Art of Archery* (in Oliveros’s bibliography for the project): “The ‘Teach Yourself to Fly’ takes alot [sic] of effort - I want to be effortless and I can’t seem to make any sound without some kind of effort! To learn how to be effortless to do things with the least amount of effort (Archer of Zen)! What a way to live!! In EVERYTHING.”¹⁰⁶ For B, the effortful vocalizing in “Teach Yourself to Fly” was putting barriers between their self and the Universal One, and when vocalizing became effortless, their perspective on the *Sonic Meditation* shifted: “Making noises (Teach to Fly) felt pretty good - great at times - no effort sometimes and such resonances. Felt great and quiet when [I] left.”

While B saw “Teach Yourself to Fly” as a way to connect with the Universal One inside of the self, the percussive aspects of “Removing the Demon or Getting Your Rocks Off” had the potential to project others’ bad energy into the group. “Don’t like rock hitting of others at all!! Getting all their stuff (vibrations). Didn’t feel light at all after class as I usually do. what a mess - [.]” With another attempt, B found a way to tune into their self and relax, resulting in a positive experience with the same *Sonic Meditation*.¹⁰⁷

Finding my place was difficult because people kept interfering[.] Their persons near me. Finally found a protective spot where [I] could be semi-alone. Wanted to let out a shout, but not enough in me could provoke it, then my hands started going in a circle, around each other with the rocks in them for added weight[.] I seemed to be able to focus my attention better on even movement than I could on uneven movement or a mantra. Much easier today to keep sort of to my own - if anything I had somewhere to go to keep from being too affected by the others['] noises - especially the two who had loud mantras. I became so relaxed after awhile (except for numb leg!) that I had to more desire to yell out something. It would have interfered a great deal. Floated out today feeling very quiet and good - could really smell the trees.

When B could find a place to focus on their own movements, the *Sonic Meditation* worked for them. Eventually, even the rock hitting “felt ok” and shouting led them to contemplate deeper significances of their shouted word:

Started hitting the rocks after a long time - moving very slowly - smashed my finger once. It felt OK - to smash them but it didn’t get down to the depths of me. So back to my movement of holding the rocks and circling each other (like a ferris wheel) in front of me- motion being up and out not back and in. I already keep enough in - I wanted to let some word out, more than anything I wanted to really holler! I kept getting “up” for it, then finally I come out with “OUT” - Felt great to begin such a thing - would like to have gone on longer. I felt I was just beginning to open some doors that have been too heavy to open for too long. I found my hand motions changing to the motion of striking out - like I was boxing or hitting and with the heavy rocks in my hands it gave me more resistance - thus more energy was needed to sustain the movements, which was fine with me! At the

¹⁰⁶ B also mentioned reading Castaneda’s *The Teachings of Don Juan* and *A Separate Reality*, also in Oliveros’s bibliography for the project.

¹⁰⁷ B’s description makes it seem that they used Oliveros’s variations b and c that day, see Image 4.12.

end when all stopped I wish I could have sat a lot [sic] longer - I felt so high and really into sitting - my back and legs were fine the circulation was really moving - due to all the arm movements. I wonder what OUT really signifies to me? Time will tell - it does feel good though!

Another day B shouted the word “No” and said it “felt good” before noting that their “concentration really is getting better.” Not only could they use the *Sonic Meditation* to tune into the inner self, B also came to see this shouting as the expression of the unconscious self, an expression that they could mull over and divine the meaning of.

Sonic Meditations could also be fun and silly. B documented how writing their name for the Name Mantra was fun and repeating it out loud to music (the Hari Om) “sounded silly.” Repeating the name, however, caused boredom and instigated the Hari Om contrafactum. In another performance of the Name Mantra, B documented that they preferred to meditate quietly: “Auditory and visual meditations are not my choice! Quiet awareness (of body - breath - and “the presence”) is my choice!” Their reference to “presence” as the height of meditation may have stemmed from Claudio Naranjo’s definition of meditation as “the development of a *presence*.¹⁰⁸ B’s preference for quiet meditation also came through in a statement about “Zina’s Circle”: “I really feel you can get much more energy from holding hands in a circle and being quiet than squeezing impulses.”

That said, B developed an increased appreciation of auditory and visual meditation. Describing the “Tumbling Song,” they felt it “Really got rid of a lot [sic] of stuff I was hanging on to!” And practicing “Nirodha” led to a revelation about “really meditating.”

Mind had a difficult time seeing spaces vs nothing (Is nothing something?) vs spaced thoughts. Very confusing I’m realizing that it’s better though to focus on something rather than to just let the mind be idle (on no thoughts at all!) Very comfortable that is - takes no effort, you just float on over each thought as you disperse each one trying not to invite them in. That’s why audible or visual practices have been hard because any [underlined twice] focus is hard for me. (And I thought I enjoyed just being quiet! HA! That wasn’t really meditating. It will be interesting see what differences there are on the Alpha machine between quiet nothingness and focusing on something (breathing).

Even with the epiphany that what seemed to them like meditation did not develop focus, it was, ultimately, the calming, slow, low energy *Sonic Meditations* or those features that attracted B. They “enjoyed the slow movements of opening eyelids” in *Sonic Meditation* “XIX.” “[T]hat one really slows you down!”

B reported gradual mood improvement over the course of the project. They left the project during week one feeling “very anxious.” Two weeks later, they “felt very sad and confused after class and during [the] evening.” I have already noted reports of positive feelings upon leaving class after practicing some *Sonic Meditations*, even heightened olfactory sense.

¹⁰⁸ Oliveros included Naranjo’s work in the Meditation Project bibliography. Claudio Naranjo and Robert E. Ornstein, *On the Psychology of Meditation* (New York: Viking Press, 1971), 8.

When practicing for the final performance of the project, B wrote that they “could get into anything - It felt so good to feel that good” and had the best meditation at home they had ever had. “Life seems to be picking up - Everything seems to be flowing much more.”

Participant C

“Was my participation in [the Meditation Project] just a neurotic need to find ‘instant salvation’? Can you really speed the process of growth by this stuff or is this only banging your head against a wall?”¹⁰⁹ For the entirety of the project, Participant C, a young composition student at UCSD, oscillated between extreme hopefulness about Oliveros and the project activities and doubts about whether it was the right place for them to work on their psychological development. They desired to “purify my musical ability and be in tune,” by “uniting” with their unconscious (currently, they believed, ruled by their intellect). They felt they had rejected, repressed, and even hated their body for years and sought “Freedom to feel.” Could Meditation Project activities help them remove the “block between my mind and my unconscious”?

Psychological tests and rules certainly did not. “I felt trapped in my head when taking the psychological tests...” Revealing oneself in the diary was also unhelpful:

I really don’t feel like writing down what[’]s going on [be]cause it[’]s not for words... This is my little rebellion - Fuck you all[.] What’s going on in me [is none] of your damn [business]. I’m not satisfied with this journal at all. It doesn’t have any of the things I think I’m “supposed” to be putting [here] - whatever that means. I’m just sick and tired of my intellect. I’m sick and tired of judgements.

For C, keeping a diary could actually increase their intellect’s hold over their unconscious. Another point of contention was the Meditation Project rule to attend class starting at three in the afternoon every weekday: “I went out and bought a guitar and by the time I finished it was 3:30 and I felt like saying fuck it so I did - but not flippantly - very seriously I said fuck it to the ‘you must attend the project or risk being thrown into outer darkness...’” C’s skepticism extended to other participants in the project. “I’m observing the whole group working for 2 hours a day and it seems to me that with the exception of a few people, most don’t really relax and get into it and for some it looks like an ego confirming experience.” Compounding the situation, C viewed Oliveros’s relationship with the *Sonic Meditations* as far beyond any project participants’ - were any of them really ready to engage with the pieces in a meaningful way?

...I feel the space in which Pauline’s relating to these meditations and I feel a huge distance between her level and the level the whole group and I feel more clearly how meaningless I’m making much of the ritual and meditation....Basically if[’]s another case of I ain’t ready for this form of meditation yet[,] I have too many simpler forms of discipline to be before I am ready to tackle this and do more than just space out against my own unconscious.

¹⁰⁹ UCSD Special Collections, MS 0102, Box 11, Folder 7.

Even with these concerns, C recorded some positive experiences with *Sonic Meditations*.

I really want to get my vocal cords relaxed enough so that I can do some good vibrating OMS. I started to vibrate all over twice today and I felt that Kunduline [sic] dragon moving around in my lower spine.... Today during ‘teach yourself to fly’ I enjoyed my vocal cords - they feel like they’re loosening up.

Relaxing granted C access to the sacred syllable OM and Kundalini energy.¹¹⁰ “Removing the Demon” was also a means of releasing or breaking down barriers between the intellect and the unconscious.

The meditation to cast out the demon is very intense. I felt great pressure inside my head and throat while it was all happening. I couldn’t keep the rhythm going. My rocks weren’t big enough and they kept breaking - I’ll bring some good one’s tomorrow.

I seem to be letting my self be a little more but I also spread and I’m releasing something. It’s more of the same old shit but I’m not fighting as hard I’m just letting it happen a little more.

Now if I can just get myself into that meditation maybe I can cast out a Demon or two.

....during the ‘Demon’ meditation I broke my rocks. I was more centered than yesterday and more energy free to release but I’m building up to a scream or two or three I have this lump in my throat and this pain[?] in my being...¹¹¹

But “Removing the Demon” was not a panacea. C described becoming detached during a performance.

Today during the project I found that I had no desire to do removing the demons and I remained detached all the way through. A lot of energy seems to be moving around in my body looking for a way out but I don’t want to concentrate - or I didn’t feel the desire there and I didn’t feel like forcing myself to. I started out thinking that once I got going I’d be stimulated to release some energy but nothing came. It’s really very frustrating being stuck in my head and filled with nervous energy - It makes everything so distant and hard to get into and it makes my mind go [to] such old unhappy places.

They connected their detachment, their inability to connect (presumably with their unconscious) with “being stuck in my head”: another example of their paradigm of the intellect blocking access to the unconscious.

While C’s positive take aways from the project included reframing tai chi, karate, and Kinetic Awareness as music, but they ultimately felt that they had lost ground over the course of

¹¹⁰ For more on Kundalini, see V. G. Rele, *The Mysterious Kundalini; the Physical Basis of the “Kundalini (Hatha) Yoga” in Terms of Western Anatomy and Physiology*, 4th ed. (Bombay: D. B. Taraporevala Sons, 1939); Swami Narayanananda, *The Primal Power in Man: Or the Kundalini Shakti*, 1st ed. (Rishikesh: N.K. Prasad, 1950); John George Woodroffe, *The Serpent Power: Being the Sat-Cakra-Nirūpana and Pādukā-Pañcaka*, 6th ed. (Madras,: Ganesh, 1958). For more on Woodroffe, see Kathleen Taylor, *Sir John Woodroffe, Tantra and Bengal: “An Indian Soul in a European Body”?* (Richmond, Surrey: Curzon, 2001).

¹¹¹ Could the shouting or screaming of “Removing the Demon” be linked to scream therapy (Arthur Janov’s primal therapy)? His first popular book was published in 1970 and could have been on some participants’ minds. Arthur Janov, *The Primal Scream; Primal Therapy: The Cure for Neurosis* (New York,: Putnam, 1970).

the quarter. The post-project tests were a “rehash.” “I felt it was pointless for me. No ground had been covered - perhaps some lost according to those [with whom] I have gone through the project[,] but my intellect as of Friday was as crippling as ever - and yet not so emotionally...” Only a glimmer of progress.

Participant D

Me [Participant D]: [“]I want to be able to call up every emotion.[”]
 [Another participant]: “I object, it[’]s not real to just put on emotion.[”]
 Me: [“]No, I want to be able to tune in to and do the state I’m in[.”]
 [Other participant]: [“]No. You’ll have to practice an awful lot.[”]
 Me: [“]Right.[”]¹¹²

D, like other Meditation Project participants, sought to be in tune with their psychological states and believed the project would help in that journey. In another diary entry focused primarily on their work as a visual artist, they expressed a similar sentiment using the language of observing the self and expressing it in harmony with the external world.

...I am here writing about being an instrument rather than creating one, to get across the statement I want to observe things and reflect my observation through me. I will try not to interpret but to flow as the energies inside me blend with the outside in a calm[,] focused way.

The tuning goal involved attending to the inner self in a way that they believed was different from the self-consciousness that arises from social interactions. When meditating in the project, they noted: “I’m not paying that much attention to other people hence I’m less self-conscious.” This intense interiority coincided with a heightened awareness of Oliveros’s rules and instructions, perhaps also because they knew Oliveros from the ♀ *Ensemble*. Already on the first day of the project, they noted unwelcome “disciplinary vibes from Pauline.” (This likely arose in part from the list of rules that Oliveros drafted for participants: mandatory attendance, silence in the project space and no talking about the project with others, required diary keeping, no smoking.)¹¹³

But D’s mostly positive notes about *Sonic Meditations* in the project show them enjoying the resultant calm, heightened awareness, and their every-day usefulness. Early in the project, they wrote about enjoying the *Sonic Meditations* and the “new sounds made” and that they were “glad I don’t get too weirded out from not knowing what words like pitch are.” As a nonmusician, D navigated the musical jargon and described how Oliveros “took us slowly through [the] exercises.” D also set the scene for “Teach Yourself to Fly”: “The hovering circle[.] The whole of 409 MC [classroom] is dark with a luminous bluish circle to gather around.” After another performance of “Teach Yourself to Fly,” D noted heightened color awareness upon leaving the session: “the sky so gr[e]y[,] so much dif[ferent] grey, color is incidental highlight, just dig the

¹¹² UCSD Special Collections, MS 0102, Box 11, Folder 13.

¹¹³ UCSD Special Collections, MS 0102, Box 11, Folder 5.

greys.” Not all days were so idyllic. D noted being “Not very tuned in” on occasion. Then there were also breakthrough days, such as the following with “Teach Yourself to Fly.”

The first part I wasn’t exploding into being but I had a calm alert[ness] that felt soft and there. I was much more [a]ware of what the tho[ugh]ts were that passed by. [I]nto the sonic my voice came strong. My body throbbed and beat as the sounds came out. My tongue wags involuntarily.

D achieved not only a soft, calm, alert feeling, but also a heightened awareness of thoughts, physiological processes, and physical ticks: the goal of tuning in. D even used “Teach Yourself to Fly” with a group of sculpture students at the California Institute of the Arts (“CIA”). “They were amazed at how they felt. A couple of hours whizzed by.”

D also recorded the group’s mixture of tai chi and “Teach Yourself to Fly.” It “was ok but petered out except during the ha ha huh huh end Pauline started really laughing.” The tai chi practice led to some of D’s most glowing entries.

It felt like a garden party....The circle was beautiful. the vibes too. My feelings. The moving clapping, sense of a notion of center that is very strong...feeling human and full of joy....I like making movements with other people. Out in the rain wet grass, clasping feet to hands....I am a healthy animal.

They experienced the *Sonic Meditation* as a deep connection with nature and even the animal world, recalling Jung’s comments about the depths of the unconscious containing shared elements with the animal world.

D’s notes about the “Name Mantra” revealed how distraction and discomfort could reside along insight.

Meditation on [name]. Listened to people say my name. Mom, Dad, etc. also could not hear some people I know well say it. I saw it written many ways but not until I [saw] it printed very evenly, like my father’s hand writing did the forthrightness of it come out.

[name written in capital letters]

I could say it then, my heart and breathing blended. I faded in and out of focusing on my name, it was impossible to be fully into it. My foot feel asleep.

D experienced synchronized physiological responses, oscillating focus, and loosing feeling in their foot. The power of this experience seems to have stayed with them, as they also described deploying the *Sonic Meditations* outside of the project for their self.

Sat on the bench [before] the train came[;] totally self-conscious, then I focused on being inside myself and making contact with what was around me. In front[,] the road, some bushes, and the ocean, in the foregr[ou]nd was sand, palm and a cactus. I focused on the picture and got inside myself[I was saying my [name] mantra and to each beat of my heart I was there, and I saw each beat that my mind went somewhere else on.

When I looked up at the starts, I could feel the pulse in my throat. Then I felt people would stare at me staring up there at stars. Why would they and why would I mind.

I miss many things. I was sewed up so part of me couldn't grow. Maybe I can grow more now...Pop these stitches...

Focusing on "being inside myself" led to revelations about growing, "pop[ping] theses stitches." Once again, we see a Jungian expression of the unconscious as a vital part of the *Sonic Meditations*. D also integrated *Sonic Meditations* into drug-induced altered states of consciousness.

I go through some funny jogs when I'm stoned. I'm so nervous and stiff (in pain) until all gotta gotta oughta obligation gets done or goes away. Listen to yourself[.] LISTEN TO YOURSELF [name] [.]

So I'm calm, excited and full. Ready[.]

The "Nirodha" meditation also calmed D. "Meditation or space between thoughts[.] Got far into it...space betw[een] idea flow let me out of 409 with calm vibes..." Another day D noted, "Doing space betw[een][.] that meditation. Into it. Really."

D's experiences with "Removing the Demon" were more mixed. "Can't smash these goddam rocks hard [enough]. My rocks are huge, the[y] tire me. My hands shake after my cycles. My hand bones hurt when I hit." Though "Removing the Demon" could be painful, it could also trigger heightened awareness (with a tinge of cybernetic rhetoric). "I sit isolated, heavy rocks, first focused on that space then on my slow rhythm. I sense myself as an entity. information registers with me but passes through. I am influenced by what is around me but I stay with myself."

D felt that they changed over the course of winter quarter 1973.

Meditation, at least I think it[']s meditation, has sprung a leak in [me] that is a small stream. I am examining what is me, and what is structure superimposed by me onto my life. Some of my need for structure is being replaced by curiosity....It[']s me, it[']s the meditation, it[']s both.

D's ambivalence about the cause of the changes and insights continued throughout the project. After rating high "points" on one of the weekly consciousness scales, D wrote: "God a lot has happened inside. I'm not as sure it is totally the meditation. The meditation stimulated (stimulates) change and I seem to be growing and changing[.] influenced from ever[y] side[.]" In early March, towards the end of the project, D seemed to summarize the changes: "I start to believe in what I notice. My inner sounds have more voice. There is less tension between inside me and outside me. A strange companion I have found who is flinging open windows I have held

shut my whole life." By the end of the project, D seems to have not only tuned into what they considered a more authentic self but also embraced it as more and more of their everyday life.¹¹⁴

Participant E

Composition student Participant E routinely described disappointment with the project but also recorded one of the most dramatic *Sonic Meditation* experiences from the diaries. E's habit of expressing both disappointment with and benefit from the project started early. On the fourth day of the project, they wrote: "Altho[ugh] I'm not as strongly into 'Pauline's thing' as I was at first, the novelty having worn off and work having set in, but I have become more aware of my body and movement and position."¹¹⁵ The very next day, this dynamic was raised to a group level when they described how participants seemed less serious than at the beginning of the project but also notes how the group seemed to be bonding.

The group doesn't seem to be as serious [as] when it started out - more talking, laughing, jiving around. Strangely enuf [sic] - any stratification I felt between people in the group is dissolving. It is still there a slight degree, but the group is experiencing a multi-headed ego death.

Even as the project came to a close, E continued to write about declining seriousness: "The sessions seem to be getting lighter in nature." Yet, E was "In some ways a bit saddened by the

¹¹⁴ D contrasted this inner work with Oliveros's leadership style, which they perceived as too controlling.

I feel that Pauline is doing the right thing (in general) the wrong way. She is forceful which is great for the [♀] ensemble where the women are intimate and strong. With myself, younger people, both sexes, [quarter] numbers, and the authoritarian P.M.E. [Project for Music Experiment] vibes, her role is too powerful, she dominates. I'm glad she doesn't dominate and pretend she is not, but she is controlling this thing too much. I am part of a hard working gr[ou]p. I am not Pauline['s]. Thank god that she has the guts to do this thing, but don't let this let you dominate how I think and react. I want to know how you feel, but don't dictate to me how I must feel.

A contract. When the project started, certain rules were stressed. As important to the work of the meditation. Non-verbal., no discussion. keeping this book, many other rules which I agree to. It is important that this event be as potent as possible I am older, I see how these rules apply for me and I see how they can't or don't. I'm strong, and I know when I'm frittering away the important of experience. Sooooo I sometimes speak of the project, Usually it[']s important to me, it must be important to who I speak with. the non- verbalness I interpret as a tool to heighten our experiences. To keep them fresh. Non-verbalness allows other forms of communication to be felt. There is a trust and fluid dialogue that goes on when no talking is done.

Non verbalness does not mean suppression....I have a strange feeling these days that non-verbal ness is to keep my mouth shut. To keep me down. I am being threatened, and this threat I fight. First by the realization that this thing I am doing grows me. At first I felt that having a leader was ok; now I feel that having a leader is against how I feel about meditation, the group, and the purpose of meditation in the first place. I am not under the direction of someone. I am doing this under my own direction in a fashion that suits me at this time.

¹¹⁵ In week two, E expressed a related sentiment: "Recently I have not been excited or even enthused about the afternoon sessions. Continued theme. I looked forward to them and found them not at all a waste of time because anything that relaxes me and frees me of tension in order to continue work is of great value. But often (especially after last Tue[.] or Wed.) I would fall asleep or not pay sharp attention - not give, put out or whatever." UCSD Special Collections, MS 0102, Box 11, Folder 10.

ending of the project,” likely because they routinely noted the benefits they felt from the Meditation Project activities.

I have noticed a definite change in my body chemistry, metabolism, attitude state of mind. I feel it to be a culmination of several things: My movement exercises (dance, Zaslove, yoga, Pauline’s thing) have all served to free my body - make it looser and less resistant to outside forces - rather, with no resistance tensions, feelings outside stimuli are allowed to flow more freely in and out of me. I’ve become very aware of the way people hold their bodies, move and where their tension lies - This is not to say that I am without tension or holding - only that in awakening to my own tensions I have become aware of the same in others. I still tense up quite a bit in my stomach and throat area, but I’m allowing myself to be conscious of it.

I further refuse to defend myself. An explication is all that I may offer. Defending is holding and holding is resisting free-flow movements and change I will not stand against but flow with....

I’ve noticed that my listening perception has increased in both what I hear and understanding/accepting it too....

My kinesthetic sense, my own dance and movement has become more conscious and intense. My body has been working better, moving stronger and connecting more effectively with my head-image sense....

It was worth it - I’ve recently experienced serious change and trying to set a few simple goals for next quarter....Finding the meditations rewarding I still practice them and much of the movement too since it serves me and is what I want and need.

In addition to positive changes in their body, psychological well-being, and heightened senses, they found musical benefits.¹¹⁶

I feel that these “training methods” are invaluable for everyone no matter what field they wish to work in. It is especially important for performers so that they may concentrate, focus on the essence of their realization thus providing for a performance which reflects a depth and seriousness capable of being understood by both the performer and audience alike. I feel that these methods strengthen non-verbal communication and one’s abilities for honest expression as well as ability to open up and understand/accept.

In a compositional context I feel assured that these methods aid in becoming more sensitive to yourself - listening to your body, becoming aware of your cognitive process and even involuntary processes. This discovery - uncovering - opening up - is what surges me to compose...

E felt that project activities inspired compositions and they gave a clear example when the group practiced calligraphy. “...after you make a character[,] look at it to see if it is centered - if you are centered.” They were “shocked to find such a direct reflection of my inner being, my balance,” and were inspired to compose to regain balance. They realized that meditation was composition: “Funny - a meditation is just like a piece - is a piece.”

¹¹⁶ They also connected physical states or positions with his ability to meditate. When practicing “Nirodha,” they noted “a correlation between thinking and involuntary facial muscle movement...” To improve their practice they tried relaxing their face, uniting lessons from Summers with the meditation.

The most dramatic moment of the diary was instigated by a performance of the “Name Mantra.” They described their experience using the language of physiology, yoga, chakras, electronic music equipment, circuits, and neurons.

The extended name-mantra meditation in session today had significant effect on me:

First of all I was surprised that I could hold my concentration for that long; I only broke from my mantra twice and once was voluntary. The name seem[s] to repeat itself cyclically but during the course of my 35 minutes of concentration the speed often changed. At first very fast, then slower - then I noticed it was following my breath so I've routed the rhythm so that it didn't fall on breaths - I felt that leaving it on breaths was not making it an exercise and also I began to feel I was sub-vocalizing. My focus was always to keep the sound swirling in the upper part of my head and I constantly checked my throat to see if it was tight or moving. I got into my name as a sound and I focused on different parts at different speeds (like Mutatis Mutandis). Altho[ugh] I didn't feel that I forced my concentration I did hold it very strongly and focus on the sound. Eventually I began to experience auditory fatigue and nausea. I considered stopping at that point - the sounds were becoming mind bogglingly soundless, vague mushy, but I wanted to instill a condition, a change, an outside effort/force/stimuli so I concentrated harder - took the sound swirl to a higher part inside my head and poured in energy.

I felt myself begin to rise to joy then surge to a suspended momentary blissful ecstasy. I held, then slowly came down letting the swirl of the mantra sound wind down and me with it until I was calm and quiet inside then I let go of the mantra - blanked out for a few moments then repeated my name - that is one thing I am never ready for. My name when repeated aloud never sounds like I might predict, it's even further off than trying to work with Kobrin's Hybrid.

I hadn't experience such a jolt like that since my Kundalini Yoga Ashram days in Tex[as]. last summer.

Unfortunately my brain actually feels quite fried even now 6 hrs. later. Like blown circuits and actual cell damage. I really had my mind blown - burned-out and altho[ugh] I am physically not tired nor are my mental capacities (as far as I can tell) out of whack the back part of my skull from about my 3rd vertebra to about 2-3 in below the top knock of my head feels sensitive, like damaged and repairing. I remained calm and fairly relaxed during the meditation often my focus was on my 3rd eye and other body chakras - like the sound swirling was the energy source-sustenance to do whatever else for my mind to focus on. Still, the inside of my head feels damaged somehow. This is not a negative context - how could death be negative? I'm gonna try the same in the A.M.

Directing their concentration, they used sound to channel energy on chakras and achieved a state of ecstasy before blacking out and feeling the “blown circuits” of their brain cells. An Orientalized psychological state and rhetoric of cybernetics united seamlessly. The next morning they tried the “Name Mantra” again but ran into “concentration problems. The usual morning meditation dilemma.”

Participant F

Participant F, a composition student at UCSD and a Christian in the style of Pierre Teilhard de Chardin, documented a uniquely spiritual or mystical point of view on the Meditation Project, often tinged with the language of cybernetics.¹¹⁷ Their diary is in two parts, one document dated 1972 containing no references to the Meditation Project (but a window into their thinking on human interiority, technology, and non-Western cultures) and a separate document containing clear references to the Meditation Project.

Many of F's early document entries revolve around electronic music, either ideas for compositions, aesthetics of electronic music, or comparing new-to-them sounds with electronic sounds. For F, Gagaku has "interesting similarities to electronic music - slow pace - beating phenomena and rasping high formant content."¹¹⁸ They compared Beethoven's "concept of meter" with tala and imagined a new electronic piece using tala based on this insight.¹¹⁹ F compared the influence of technology on F's own work with African pygmies' supposed responses to transistor radios.

Stu Dempster's didgeridoo drone for my mr[i]dangam piece reminded me of the great cultural influence electronic technology has had in U.S. Erikson told of explorers in deepest Africa finding pigmy [sic] tribes with transistor radios. No doubt the technology itself is a fit subject for works of art. As well as more traditional materials. The people coming in[to] contact with new cultures via technology often end up imitating the new experience. The same is true for Stu with didgeridoo (and me with mr[i]dangam).

They believed that they and Dempster responded to technology using mridangam and didgeridoo in a mode of imitation like that of pygmies from Erickson's story. F also took Milton Babbitt to task for arguing that electronic music needed "traditional conceptual form models." Such a view ignores the role of human perception and the non-intellective, argued F.

I feel that perceptual limits should be the points of departure for new electronic art and the great subtleties are possible to enjoy. First principles should be perceptual limits. There is no real chance for boredom, as I see it in giving the listener time to perceive the event sonically in subtle ways.

Tuning into perception eliminates potential boredom and opens up new subtleties to enjoy. Finally, F made an analogy between art imitating nature and electronic music imitating inner psychological reality or the soul, an idea dripping with second-order cybernetics.

If art imitates nature, how does electronic music stand aesthetically? The electrons follow natural laws and the scientific knowledge about these laws leads to aesthetic analogs: The human mind isn't exactly unnatural. The inner world of reality is the seedbed for all the arts. Electronic sounds are only the outward manifestations of inward reality - inward from the human soul and inward from the circuitry. Even the speakers (or points of projection) are translators of "natural information."

¹¹⁷ F referenced Chardin's most popular work in his diary. Pierre Teilhard de Chardin, *The Divine Milieu; an Essay on the Interior Life*, 1st ed. (New York: Harper, 1960).

¹¹⁸ UCSD Special Collections, MS 0102, Box 11, Folder 11-12.

¹¹⁹ In their Meditation Project diary they also compared the rhythmic modes of Leonin and Perotin with talas.

All of these comments set up F's notes about the Meditation Project and their electro-spiritual perspective. Meditation was a manifestation of universal binaries for them. "Meditation on breath is like the two fold process of any development. Active - passive. Ingress - egress. etc. Each phase necessary for the other. Development - diminishment. The universal duality." Kinetic Awareness activities enabled control over time: "Exquisite experience of slow time movement in doing leg exercises. I had the feeling of being able to control the rate of processing time." Music, too, they believed, could affect what they described as a spiritual clock.

Meditating on the relationship between man and time, it seems that all our joy or despair relate to time. To vary our spiritual clock it is to alter our expectations of each moment. Anxiety and frustration are simply delayed wish fulfillment. Stopping the clock spiritually allows us to not be so closely tied to wish fulfillment or a moment - to move out back [?] is contemplating the infinite variation of detail in the physical world slows down the clock. Music serves this function well.

F perceived their self to be a metaphorical child of earth and energy: "All is eternally reborn in sound (water) time space and love (energy) The earth is a mother who bore me in her womb. The Sun is a father who energized the matter. I am their child extracted from this union." This, in turn, they connected with spiritualist visions of India. "The land of India fascinates me more than I can comprehend. The very earth seems soaked in music. [W]hen listening to the tamboure drone, I become one with the earth (my mother)." They "stopped in the Immaculate Chapel on the way home...and sang some Tibetan chanting in the twilight." And F's work as a composer seemed deeply connected to their religious path. "My spiritual life took on new meaning today. I resolved to dedicate more time to composition and went to confession.... God's has flooded my life again the small conflicts at home are disappearing I feel happy inside. I need to serve Him more." They even seems to have attended mass as part of their test preparation. "My mind is settling down today. I received Holy Eucharist this morning and peace is setting in. If the studying goes ok, I should pass."

One of F's descriptions of meditation connects their interest in non-mainstream Christianity and perception, revealing the universalizing potential in the process. Here is their recollection of practicing "Nirodha."

While meditating on the spaces between {thoughts sounds} I had the vision of the third eye. It began like a cross section of a geode in my lower right field of vision. It then modulated up to my forehead and expanded into a cave which was covered over with quartz on my forehead. It curved around to the right and downward. The further I followed it the brighter everything became, as if it were leading outside. It finally led outside and my sense of time was racing (it had been speeding up ever since the beginning). Everything was bathed in light.

F has a meditative experience that unified them with all people, opening up a sort of color-blind meditation moment where they can imagine, as they had with pygmies, that they contain or

understand their experience.¹²⁰ In a similar vein, in an experience of Ukiyo-e, they became the center of the artistic landscape and entered into it via drone.

While viewing the Ukeyo-e [Ukiyo-e] prints my mind turned itself around and I became engrossed in the floating world of visual impressions. On leaving my visual perception of the world began functioning in two dimensions. Everything assumed a flat landscape nature of which I was the only moving point this lasted until I sang with the drone.

F's descriptions of *Sonic Meditations* are similarly universalizing. Here is their experience of the "Name Mantra." "Writing the above name as slowly as possible, the time perception of identity becomes manifest. It reminds me of my first experience of timeless egolessness over 12 years ago. All unified in Love. No ego but all joy." F described Casteneda's *A Separate Reality* (about drug-induced altered states of consciousness) as not so separate for them and was rapturous about *Psychocybernetics*, the application of purportedly universal cybernetic principles for self-help.¹²¹ These disparate cultural lenses focused on the same universalized inner self and found expression in F's experience of *Sonic Meditations*.

Participant G

The final diary I will discuss belonged to another UCSD composition student, Participant G. Their writing demonstrates an appreciation for the *Sonic Meditations* as compositions that had the power to connect people with energy sources, with cosmic implications. Their trust in the power of the *Sonic Meditations* joined three recurring topics in their diary. First, their deep admiration for Oliveros. "I wish to express to Pauline a lot of appreciation for getting the group together."¹²² "I want to be part of every piece of Pauline[']s. What a beautiful person she is!" The appreciation even reached biblical levels: "Pauline has set in motion a momentous process. There is no stopping it. It will fill the earth. Beautiful are the feet upon the mountains."¹²³ Second, they held a firm belief in the power of the non-verbal. When contemplating the project prohibition against discussing the sessions, they wondered whether nonparticipants would be able to understand, even if told about it.

¹²⁰ For a critique of such thinking, see Adriana Cavarero's relational ethic of contingency. Adriana Cavarero, "The Necessary Other," in *Relating Narratives: Storytelling and Selfhood* (London: Routledge, 2000), 81–93.

¹²¹ "I finished *A Separate Reality* today. It doesn't really seem so separate from what reality is to me." "... began reading Psycho Cybernetics at the suggestion of Bruce Leibig. My mind is stirring with new ideas." The psychocybernetics craze reached true grandeur with the application of its principles for regulating self-concept to maximizing stock market investments. Claude N. Rosenberg, *Psycho-Cybernetics & the Stock Market: The Key to Maximum Investment Profits and Peace of Mind*, 1st ed. (Chicago: Playboy Press, 1971).

¹²² UCSD Special Collections, MS 0102, Box 11, Folder 9.

¹²³ They are paraphrasing Isaiah 52:7, "How beautiful upon the mountains are the feet of him that bringeth good tidings, that publisheth peace; that bringeth good tidings of good, that publisheth salvation; that saith unto Zion, Thy God reigneth!"

Thinking: the peculiarity of the ban on verbalizing: how can words say anything that can be at all meaningful of an experience that is not dependent on a symbology for the communication of its meaning. The communication of the meaning of any experience can only be to the extent that the communicatee is himself sharing in the experience with the same perceptions and prior experiences and training as the guide thru the experience in question. In principle then, nothing very essential to the meaning of any experiences is every communicable.

They also put forward an extension of this reasoning: that project participants could understand each other without words because of their shared experience. "It is really fine how close our group is becoming! I saw several members today before 3 o'clock. Communication was immediate and without words — as far as I could tell nothing was lost in translation." This even extended to G not learning people's names. "... all the very special people who's names I never learned - I never thought to ask because I knew then something more essential to their persons than the labels by which they are known by the law books." What of importance can ever be said, they wondered after reflecting on a day of silence.

When I first got up this morning I had occasion to speak which tickled my throat and made me cough. But I felt good otherwise: clear head, etc. So to school I went with a note to show folks who wanted to speak with me: "No voice today, sorry." Every time I almost spoke my mistake I caught myself and asked myself "How important is that which I was about to say?" with the conclusion that nothing important at all needed saying. I think I'll take that note to school again tomorrow.

It's been a very peaceful day.

G saw keeping a diary as detaching them from the truth of their experience, an expression of higher, conscious form of life.

One effect of journal writing:

Produces a distinctly non-magic state so I sometimes choose times to write when I wish to put my feet closer to the ground. Not that I don't get quite caught up in it! I mean that being reflective, thinking about thinking, feels like a duty and therefore cut off in some sense from "natural" life processes. On the other hand tho [sic][, it] makes use of the resources of consciousness not found in "lower" life forms so that being reflective makes me aware of one important aspect of where we are in the continuum between microcosm and macrocosm.

G read Huizinga's *The Waning of the Middle Ages* during the Meditation Project and related medieval ritual to "Removing the Demon," both contrasted with the distractions of modern life.¹²⁴

I'm very chagrined to find myself living in a world like this one. It[']s almost embarrassing. I want to crawl into a cave and cry myself to sleep and wake up into one of the dreams I've been having about living in anglo-saxon England.

Or I could really dig being a workman helping to build the abbey at St. Denis. While being aware of its historical significance.

Or being in the choir at St. Martial or Compostela.

Modern life has too many distractions I can't get away from the noise altho [sic] the environmental dialogue helps - if I output the same energy as that around me in the environment it seems to put up a barrier of sorts but I don't have the energy to keep that up for very long at a time.

I must learn removing the demons better.

Now's no time to give up - I've learned from a couple bad acid trips that if one perseveres thru a bad moment, facing it squarely, maybe identifying with the object of the problem that its [sic] possible to break thru [sic] to the other side. To observe myself dispassionately.

Finally, in addition to their appreciation of Oliveros and belief in the power of the non-verbal, G saw art as a way to affect the cosmic balance and change human perception.

What we folks put ourselves thru for the sakes of art is really amazing sometimes. It[']s well worth it cause we know it will all come out even in the end. The cosmos uses man's capacity for art to maintain its equilibrium between cosmos and chaos. Cosmos to me means balancing point. The energy available in a flash of insight is probably phenomenal and then multiply that by the amount of consciousness in the universe.

The energy behind art creation is huge, they argued, and can balance out chaos. The goal of their own art was to change human perception, implicitly white Westerners' technocracy-clouded illusions changed into the imagined, essentialized calm consciousness of meditative Asians and Indigenous peoples.

About creative activity part: I try to compose every day but it's hard to maintain regularly scheduled hours so I find that if I maintain a general alertness and peace of mind then when I do get time between classes, etc. that I can jump right into it in the same mental - spiritual condition as with the previous session. The principle is to not have any ups or

¹²⁴ From Huizinga: "Every event, every action, was still embodied in expressive and solemn forms, which raised them to the dignity of a ritual. For it was not merely the great facts of birth, marriage and death which, by the sacredness of the sacrament, were raised to the rank of mysteries; incidents of less importance, like a journey, a task, a visit, were equally attended by a thousand formalities: benedictions, ceremonies, formulae." G also wrote: "...when proceeding thru the day's activity I'm usually apart also as an observer and it seems as tho[ugh] the way my life enacts itself is like a ritual. My life is an art form like the catholic mass is an art form: everything that happens seems in some way to have an inevitability about it except that the program is in a state of constant change: my life seems to be conditioned by an enormous weight of tradition which gives me a sense of security when facing the changes. I always have a precedent anyway to which I can appeal in times of uncertainty."

downs but to maintain a constant point of references to which I can appeal in case I do feel a mood change coming on. This point of reference is my belief in the importance of my work. I've developed the habit that when a source of instability starts coming on, it triggers the reminder of what I'm here for. It's not what I can do as an isolated individual but as a participator with all those in the world, in whatever capacity or endeavor, to change the nature of human perception. I'm of course beginning with my own and hopefully what I gain through the project will increase my ability to better understand at least intuitively what the changes require.

G's perception of the powers of the *Sonic Meditations* comes out in their descriptions of a performance of "Removing the Demon."

Casting out the Demon is by far the best thing we've done.

Fire, rock, and tree out [cut?] of moments? in quest of its archetypal? drum.

Boom of wave on shore of brow.

I can't say that contact was made with racial memory but the images conjured up were definitely prehistoric in some sense. (Kinesthetic not visual images)

I can't pin anything down about it I guess because it evoked almost exclusively the kinesthetic which doesn't seem too susceptible of symbolic representation.

This is frustrating - last week or so I've been noticing that words have stopped coming to me for things. Even when trying to deal with mundane conversational matters.

From G's perspective, the *Sonic Meditation* connected them with archetypes and, possibly, with "racial memory": primitive human memory. Such experiences had practical application in personal problems for G. They detailed how "Removing the Demon" taught them how to "simulate" anger and use meditational energy to sustain it while dealing with a colleague who bullied them. "Before [']casting out the demon[''][,] I used to be really sensitive, always having my feelings hurt." Now, G imagined, they could conjure up tougher emotions. This was only one potential use of the *Sonic Meditation*, "...there must be other kinds of applications than with the mundane problems such as dealing with the incompatible folks. I probably have some internalized demons that need to be dealt with."¹²⁵

¹²⁵ *Sonic Meditations* could also lead to injury: "When we were doing The Round The Circle Hand Squeeze ["Zina's Circle] yesterday [Participant F] squeezed a little harder than I expected so I didn't form any resistance and: snap! Either that or I was too rigid-brITTLE. I can't decide." They could also be humorous: "The meditation on the space between thoughts ["Nirodha"] was really fine. I started out with really small spaces - like my thoughts were strings of spaghetti and the spaces were the spaghetti sauce. Then I imaged thoughts that occupied another plane of spaghetti. This distance between the realization of jumping between the two dimensionalities and the realization of being a model maker was another good jumping-off-place-to the nether regions. (ad infinitum). Some good space developed between me as model maker and the territory inhabited by the galaxies. I imaged my having the capability of admitting andromeda galaxy into my own personal space. I am the cosmic spaghetti factory." They could also be vaguely positive: "My name mantra is really nice when it gets moving. The sound is a locomotive and the point is the vanishing point at the end of the tracks. My name eats up a lot of country. Everyone I've ever known are faces flashing by as my name propels me down this track."

Other Meditation Project activities also proved powerful for G. Kinetic Awareness “made me aware of how much pain [there] is in the world inside our creaking skeletal cages...”¹²⁶ One day, musing about Summers’s instruction, they wondered if their whole life was “turning into a dance form.”¹²⁷

G believed that the Meditation Project improved their senses. They reported heightened auditory attention, as they predicted it might.¹²⁸

An aside: the transformer on the lights in my office is quite loud (E-natural). I got used to it after about 3 weeks since the physical plant couldn’t seem to get around to fixing it. I expect that with continuing with Pauline[’]s project I won’t be so used to it again after while and as I noticed it introducing after this afternoons session for the first time in several months.

They developed an ability to “unhypnotize” their self and a less active “internal monologue.” Perhaps paradoxically, G found that this meditational energy made them lazy.

Meditation is really fine stuff. I’ve been feeling so peaceful (that my satisfaction with my lot in life) (with things as they are), that my motivation for improving on mundane matters such as school work, etc has definitely been on the decline. The meditation project is making me lazy. I don’t care if I never do anything again. Just basking in the beauty of all the things in process around me.¹²⁹

G felt that the low energy, positive valence state engaged them with beauty to the detriment of work and action: the nightmare of counterculture critics made manifest.

Conclusion: *Phantom Fathom*

After nine weeks of *Sonic Meditations*, Kinetic Awareness, tai chi, karate, psychological testing, and other activities, the Meditation Project participants performed Oliveros’s composition, *Phantom Fathom*. In her 1973 report on the project, Oliveros wrote that, “...the training sessions were also a long rehearsal for my ceremonial composition *Phantom Fathom* from *The Theater of the Ancient Trumpeters*, which was performed March 10, 1973, with the training group, as a culmination of the project.”¹³⁰ The approximately one-hundred audience members were also performers, specially invited, required to RSVP, and given specific

¹²⁶ This awareness could also be annoying: “I give warning to all who’ve been thru the Elaine Summers[’s] sequences: if you feel a cold coming on, do everything to avoid it possible.... I’ve got this cold, see? It’s not a bad cold as colds go but the problem is that I can’t turn off my awareness of if as I could have before Elaine. Or rather, I might be able to but the question: would it necessitate giving up my other awareness as well? [S]olution to dilemma: this is a good opportunity to understand what colds are about - (I haven’t mastered the differential awareness business).”

¹²⁷ They were ambivalent about Clynes and felt the karate was too fast.

¹²⁸ “The sound of the lights in my office has developed a nervous tick.”

¹²⁹ They went on, “Maybe this is just a passing fancy, I may feel differently when I get rid of this damn cold. Truth to tell, I feel a mite guilty that I don’t feel like doing anything - almost as tho the things that need to be done are conscious entities telling me that I’ve got a responsibility (whatever that word means) to them to interact responsibly (that damn word again) to optimize for them their respective situations.”

¹³⁰ Oliveros, “Meditation,” 161.

instructions (Image 4.17).¹³¹ Attendees agreed to stay silent during the entire performance (except when instructed), bring an “exotic dish” to share, prepare a mantra, and also received instructions for Oliveros’s experiment in extra-sensory perception (ESP).¹³² Oliveros transmitted an image and a sound each weekday leading up to the event and attendees were invited to “receive this sound and/or image, [by] try[ing] to remember what Pauline Oliveros looks like or her name, just before you go to sleep. Then tell yourself to remember your dream. Write down your dream when you wake up” (Images 4.18-19).¹³³

The program on March 10 included *Sonic Meditations*, a movement activity, dinner, and dream sharing (Image 4.20). Instructions for the project participants included lighting cues that helped transition from one activity to the next.¹³⁴ Even though Oliveros felt that the space they had for the evening was inadequate (“low ceiling, obstructing posts, and poor ventilation”), she wrote in 1973 that it went well.¹³⁵

...*Phantom Fathom* was performed quite successfully....The silence produced a remarkable atmosphere free of distracting verbal energies...the imagery of the performance gained in intensity. The project members seemed to transmit the necessary models without self-consciousness.¹³⁶

Ten years later, Von Gunden, who seems to have been in attendance, argued that the performance did not go well. “Phantom Fathom was not highly successful because there were too many unrelated elements, too many phantoms to comprehend.”¹³⁷ Meditation Project participants also weighed in. Participant C chose not to attend:

Yesterday was the Phantom Fathom and I did not attend I have been debating whether to go for a long time I just didn’t feel like going through all that ritual with a bunch of people There’s too much bullshit involved. I know that’s a possible cop out but I have definite feelings about my abilities to absorb the beauty of those rituals and I have doubts about the purity of involvement of many of the others. Enough — (‘Don’t knock it if you haven’t tried it’).¹³⁸

¹³¹ Audience numbers according to Oliveros’s report. Oliveros, “Meditation,” 162. The list of RSVPs from Oliveros’s archive included: Linda Collins (crossed out), Dr. Risk, Tim, Peter Gordon, Kathy Acker, Susan Palmer, Kinda Longmire, Irene, Louise, Karen Reynolds, Roger Reynolds, Elliot Swift, Lou Sander, Bill Robdoy (crossed out), Marilyn Boone, Steve Nystul, Pete Bartha, Richard Benedon, Kris Michel, Charlie White, Julie Wells, “one to accompany Elliott Swift,” Leo Benavidez, Kevin Kinnear, Vicki Nakamura, Suzanne Marria, Joan George, Ron George, Tai Hsiang Li, Nancy Francois, Jean-Charles Francois, Reinhart Berg, Chris Pasles, John Celona, Priscilla Celona, Rick Lailer, Teri Tico, David Sonnenschein, Warren Burt, Ed London, Janet London, Christopher Wells, Carrie Beal Wells, Linda Vickerman, Steve Denny, Kathy Esty, Bill Robboy, Ron Paillina, Grace Yonemoto, Paul Severtson, Robi Crosier, Ron Robby, Heidi Von Gunden, David and Brigett Jones. UCSD Special Collections, MS 0102, Box 4, Folder 23. Von Gunden described the front of the invitation as a “mandala.” Von Gunden, *Music*, 97.

¹³² In her report, Oliveros wrote that the reception of these signals was “most likely to take place in a dream (as proven by Stanley Krippner in experiments at Maimonides Hospital in Brooklyn).” Oliveros, “Meditation,” 162.

¹³³ UCSD Special Collections, MS 0102, Box 4, Folder 23.

¹³⁴ UCSD Special Collections, MS 0102, Box 4, Folder 23.

¹³⁵ Oliveros, “Meditation,” 161.

¹³⁶ Oliveros, “Meditation,” 162.

¹³⁷ Von Gunden, *Music*, 97.

¹³⁸ UCSD Special Collections, MS 0102, Box 11, Folder 7.

Participant D took more specific issue with the rules for the performance and the potential effects of aesthetic decisions:

I do not like the oral; the performance the thou shalt nots on the invitation. Makes me claustrophobic. I would like exchange vibes with these people and visitors that have been gathering and growing in us in a forceful kind of unison. The end, I feel should be our exchange, our giving and getting seeing feeling, touching the closeness and levels we have. No more, no less. It will automatically be more. A lot.

I am questioning Pauline's rightness. The thing we are doing Sat. Mar. 10 [the *Phantom Fathom* event] doesn't seem as if it has much to do with what we have been working together on.

I don't think the masks [worn during the performance] are a dynamite idea for after the excitement and desire to do masks from Chinese Opera, as interpreted by the project, I looked into the "why? of it Will it say something? What? Will it separate us from the visiting participants? Is that important? How do the masks fit in. For me, I like the idea of communicating visually;... expression, images, and types that person feel they stand for. A part of the consciousness of affirmation[...] I wouldn't want to overload visitors or ourselves or create any more alienation or diversity. I am thinking that at this time perhaps masks are not such a good or important thing.¹³⁹

Participant G ambivalently undercut the validity of the ESP experiment:

The elephant dream was conditioned by Pauline's talk about her trips to the zoo: the only thing she mentions outside direct references to the project. Altho[ugh] come to think of it, I believe I dreamed some of her zoo adventures but I can't seem to separate out which were her talking about it or which were dreamed. As for the sound: I've dreamed often this quarter a French horn sound which is not unrelated to the conch shell. But then French horn has for many years been my favorite sound. Rug scratches to the contrary.¹⁴⁰

Phantom Fathom brought together the core activities of the Meditation Project, including the underlying ethos of tuning individuals into the universal unconscious. It was Oliveros's belief in the efficacy of what Von Gunden described as an "interior tuning system" that would shape the final published version of *Sonic Meditations* in 1974.

These symbols, experiences, and research studies [of the Meditation Project] became sources of creative ideas as Oliveros began to realize that she was working with an interior tuning system, one in which performers are told how to listen and what should occupy their attention and awareness. Oliveros was sensitive to external events and her own personal processing of sensations, thoughts, and emotions. She began to explore these areas in her *Sonic Meditations*. It took her several years to discover how to describe the interior actions that produced predictable outcomes.¹⁴¹

For Oliveros and many project participants, the *Sonic Meditations* were gateways to a universal consciousness, one without "alienation or diversity."¹⁴² But the diaries of the Meditation Project

¹³⁹ UCSD Special Collections, MS 0102, Box 11, Folder 13.

¹⁴⁰ UCSD Special Collections, MS 0102, Box 11, Folder 9.

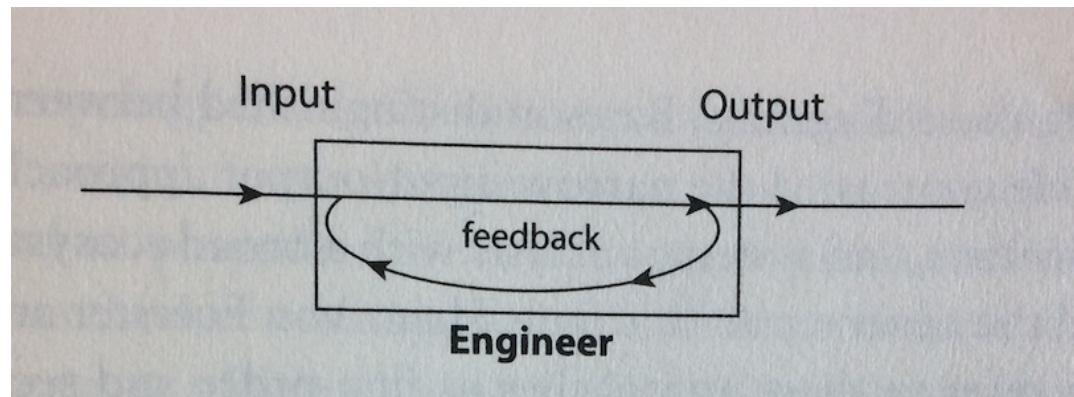
¹⁴¹ Von Gunden, *Music*, 98-99.

¹⁴² UCSD Special Collections, MS 0102, Box 11, Folder 13.

participants also reveal the diverse reception of the project and the *Sonic Meditations*. Not only were participants divided on whether the project and its constituent activities were useful, there were often ebbs and flows in appraisal over time for individuals. Participants grew frustrated with attempts to meditate, some became disillusioned with Oliveros's leadership, and injuries even occurred. Some noted improved creativity and raised awareness, others mostly documented struggles and dissatisfactions. Perhaps Participant G summarized it best in their final entry: "The project is over. Mixed feelings."

Many of the diary entries in this chapter demonstrate how participants' understandings of project activities and goals rested on racial hierarchies, whether in the linkage between *Sonic Meditations* and "racial memory" or associating the turning of attention towards sensation (and perception) with supposedly more primitive or supposedly more pure people (or even animals). As Participant E revealed, these associations with psychological states even reached the neural level, a topic I will explore in chapter five.

Image 4.1. A cybernetic feedback loop.¹



¹ Ronald R. Kline, *The Cybernetics Moment, or, Why We Call Our Age the Information Age* (Baltimore: Johns Hopkins University Press, 2015), 231.

Image 4.2. First-order cybernetic loop from Image 1 and, below that, a second-order cybernetic loop that incorporates the observer (in this case, Norbert Wiener, Gregory Bateson, and Margaret Mead) into the loop.²

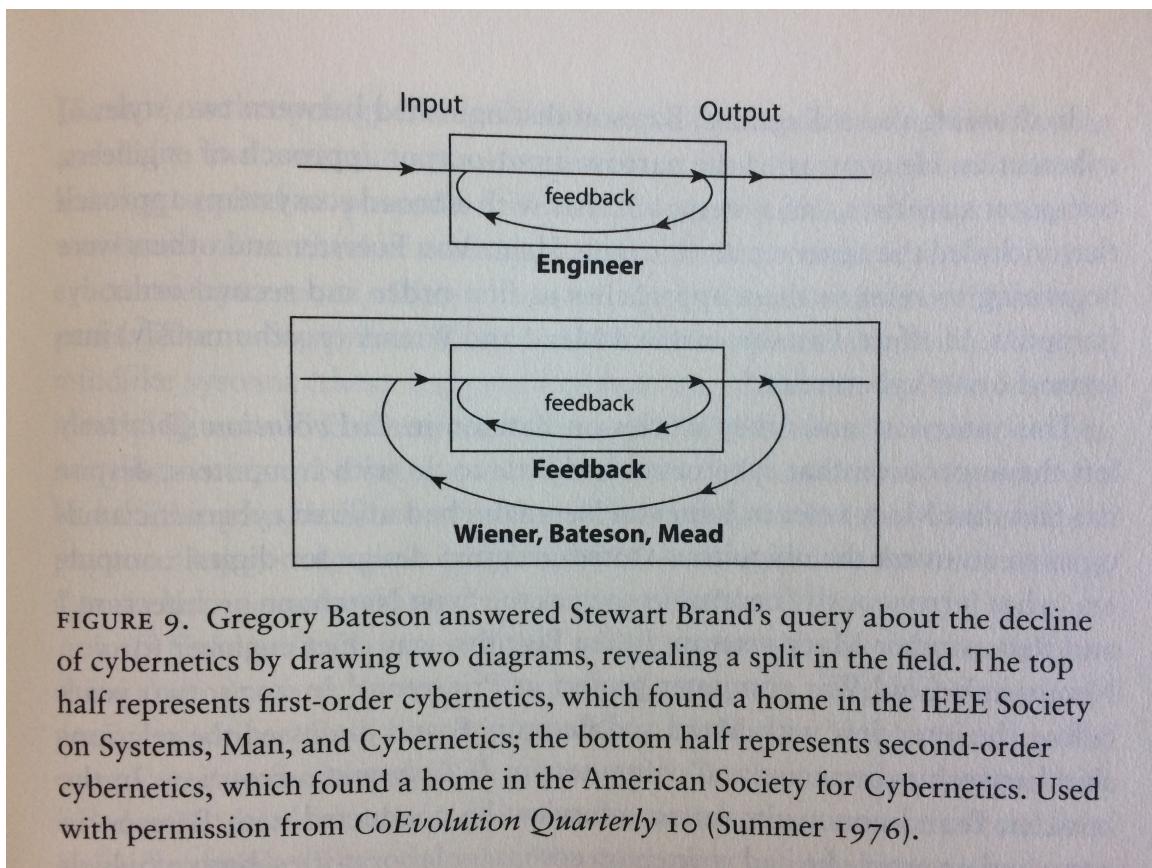


FIGURE 9. Gregory Bateson answered Stewart Brand's query about the decline of cybernetics by drawing two diagrams, revealing a split in the field. The top half represents first-order cybernetics, which found a home in the IEEE Society on Systems, Man, and Cybernetics; the bottom half represents second-order cybernetics, which found a home in the American Society for Cybernetics. Used with permission from *CoEvolution Quarterly* 10 (Summer 1976).

² Kline, *Cybernetics*, 231.

Image 4.3. Key Meditation Project Activities.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1 January 8-12	Body Awareness with Elaine Summers		Psychological Testing		
Week 2 January 15-19	Body Awareness with Elaine Summers	Open Seminar with Elaine Summers			
Week 3 January 22-26	Sonic Meditations	Name Manta, Teach Yourself to Fly	Name Mantra	Name Manta, Teach Yourself to Fly	Journal Reading
Week 4 January 29-February 2	Sonic Meditations	Teach Yourself to Fly	Name Mantra	Name Mantra	
Week 5 February 5-9	Sonic Meditations	Nirodha, Tumbling Song	I Ching, Teach Yourself to Fly, Nirodha	Walking meditaiton	Dream interpretation with Ronald Lane
Week 6 February 12-16	Sonic Meditations	Yoga, Removing the Demon			Fantasy technique with RonaL Lane
Week 7 February 19-23	Tai Chi & Calligraphy with Al Huang			Calligraphy	Teach Yourself to Fly with tai chi
Week 8 February 26-March 2	Sonic Meditations		Clynes's sentics measures	Karate with Lester Ingber	
Week 9 March 5-9	Sonic Meditations	Clynes's sentics measures			
Week 10 March 12-16	Retesting with Ronald Lane, Reginald Bickford, Bruce Rittenbach				

Image 4.4. Elaine Summers performing *Energy Changes*.³



³ Ann-Sargent Wooster, "Elaine Summers: Moving to Dance," *The Drama Review: TDR* 24, no. 4 (1980), 61.

Image 4.5. Pauline Oliveros Sonic Meditations XIII, “Energy Changes: (For Elaine Summers’ movement meditation, Energy Changes).”⁴

Listen to the environment as a drone. Establish contact mentally with all the continuous external sounds and include all of your own continuous internal sounds, such as blood pressure, heart beat and nervous system. When you feel prepared, or when you are triggered by a random or intermittent sound from the external or internal environment, make any sound you like in one breath, or a cycle of like sounds. When a sound or a cycle of sounds, is completed re-establish mental connection with the drone, which you first establish before making another sound or cycle of like sounds.

⁴ Pauline Oliveros, *Sonic Meditations* (Sharon: Smith Publications, 1974).

Image 4.6. Use of balls in Kinetic Awareness activities.⁵



⁵ Wooster, "Summers," 63.

Image 4.7. Chungliang Al Huang.⁶



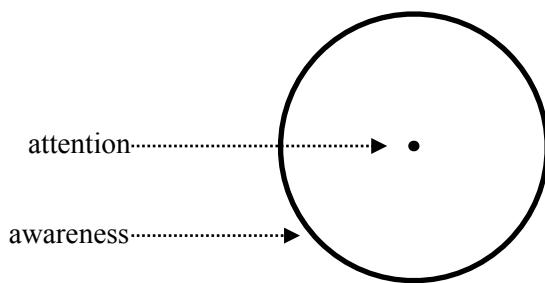
⁶ “Chungliang Al Huang on Kauai Feb 8-10, 2013,” accessed June 1, 2020, <https://www.hawaiisinspiration.com/master-chungliang-al-huang-on-kauai-feb-8-10/>.

Image 4.8. Lester Ingber.⁷



⁷ “Karate72_encinitas.Jpg 300×420 Pixels,” accessed June 1, 2020, https://www.ingber.com/karate72_encinitas.jpg.

Image 4.9. Annotated version of Oliveros's image for attention and awareness.⁸



⁸ Pauline Oliveros, *On Sonic Meditation* (La Jolla: University of California at San Diego, Center for Music Experiment and Related Research, 1973), 4a.

Image 4.10. Pauline Oliveros Sonic Meditations I, “Teach Yourself to Fly”⁹

Any number of persons sits in a circle facing the center. Illuminate the space with dim blue light. Begin by simply observing your own breathing. Always be an observer. Gradually allow your breathing to become audible. Then gradually introduce your voice. Allow your vocal cords to vibrate in any mode which occurs naturally. Allow the intensity to increase very slowly. Continue as long as possible naturally, and until all others are quiet, always observing your own breath cycle.

Variation: Translate voice to an instrument.

⁹ Oliveros, *Sonic Meditations*.

Image 4.11. Pauline Oliveros Sonic Meditations XIV, “Tumbling Song”¹⁰

Make any vocal sound, but always go downward in pitch from the initial attack. The initial attack may begin at any pitch level. Go downward in a glissando or in discrete steps continuously. Go any distance in range, at any speed, dynamic or quality, but the breath determines the maximum time length of any downward gesture.

¹⁰ Oliveros, *Sonic Meditations*.

Image 4.12. Pauline Oliveros Sonic Meditations VII, “Removing the Demon or Getting Your Rocks Off”¹¹

Sit in a circle with persons facing in and out alternately. If the number in the group is odd, seat the left over person in the center. Each person except the center person has a pair of resonant rocks. Begin the meditation by establishing mentally a tempo as slow as possible. Each person begins independently to strike the rocks together full force maintaining the imagined tempo. When enough energy is present, shout a pre-meditated word. Once selected, the word remains the same. The shout is free of the established tempo, and may occur one or more times during the meditation. The center person is without rocks and selects a word, phrase or sentence to say or intone repeatedly either silently or audibly for the duration of the meditation.

Variations:

- a) *Persons without rocks may surround the circle and follow the same instructions as the center person, independently.*
- b) *Persons may repeat mentally, or actually, one body movement as slowly as possible. One body movement may be simple or very complicated as long as it is continuous and can be repeated exactly as a cycle. Kinetic participants could include the shout or the repeated word, phrase or sentence.*
- c) *Do this meditation in an outdoor environment. Move slowly away from the circle. Move anywhere in the environment but keep in audible contact with at least one other person. Gradually return to the beginning circle.*

¹¹ Oliveros, *Sonic Meditations*.

Image 4.13. Pauline Oliveros Sonic Meditations XV, “Zina’s Circle”¹²

Stand together in a circle, with eyes closed facing the center. One person is designated, the transmitter. After observing the breathing cycle, individually, gradually join hands. Then slowly move back so that all arms are stretched out and the size of the circle increased. Next stretch the arms towards center and move in slowly. Finally move back to the normal sized circle, with hands still joined, standing so that arms are relaxed at sides. Return attention to breathing. When the time seems right, the transmitter starts a pulse that travels around the circle, by using the right hand to squeeze the left hand of the person next to her. The squeeze should be quickly and sharply made, to resemble a light jolt of electricity. The squeeze must be passed from left hand to right hand and on to the next person as quickly as possible. The action should become so quick that it happens as a reflex, before the person has time to consciously direct the squeeze. Simultaneously with the squeeze, each person must shout hah. This shout must come up from the center of the body (somewhere a little below the navel) before passing through the throat. There must be complete abdominal support for the voice. When the first cycle is complete, the transmitter waits for a long time to begin the next cycle. When the reaction time around the circle has become extremely short, the transmitter makes the cycles begin closer and closer together until a new transmission coincides with the end of a cycle, then continue trying to speed up the reaction time. If attention and awareness are maintained, the circle depending on its size, should be shouting almost simultaneously.

Variations:

1. *Reverse the direction of the pulse using the left hand to transmit and the right hand to receive.*
2. *Reverse the direction of each cycle.*
3. *Each person chooses which direction to send the pulse. The transmitter continues to control the beginning and ending of a cycle.*

¹² Oliveros, *Sonic Meditations*.

Image 4.14. Pauline Oliveros Sonic Meditations XIX.¹³

Lie flat on your back or sit comfortably. Open your eyes widely, then let your eyelids close extremely slowly. Become aware of how your eyelids are closing. When your eyelids are closed, turn your eyes slowly from left to right, around, up and down. Let your eyes rest comfortably in their sockets. Try to be aware of the muscles behind the eyes and of the distance from these muscles to the back of the head. Cover your eyes with your palms and shut out all the light. Become aware of all the sounds in the environment. When you think you have established contact with all of the sounds in the external environment, very gradually, introduce your fingers into your ears or cover them with your palms. Try to shut out all external sound. Listen carefully to the internal sounds of your own body working. After a long time gradually open your ears and include the sounds of the external environment.

¹³ Oliveros, *Sonic Meditations*.

Image 4.15. Pauline Oliveros Sonic Meditations XXV, “Your Name: The Signature Meditation”¹⁴

- 1. Dwell on your name. Write it down as slowly as possible.*
- 2. Visualize your name as you sign it mentally.
a. with eyes closed
b. with eyes open*
- 3. Visualize your name in different kinds of writing, script and printing.
a. vary the sizes from microscopic to gigantic
b. vary the colors and backgrounds
c. vary the dimensions from 2 to 3*
- 4. Visualize or actually sign your name backwards, forwards, upside down, inside out.
a. with the right hand
b. with the left hand
c. with both hands simultaneously mirroring each other*

¹⁴ Oliveros, *Sonic Meditations*.

Image 4.16. Pauline Oliveros Sonic Meditations XII, “One Word”¹⁵

Choose one word. Dwell silently on this word. When you are ready, explore every sound in this work extremely slowly, repeatedly. Gradually, imperceptibly bring the word up to normal speed, then continue until you are repeating the word as fast as possible. Continue at top speed until “it stops.”

Choose a word. Listen to it mentally. Slowly and gradually begin to voice this word by allowing each tiny part of it to sound extremely prolonged. Repeat for a long time.

Variations:

1. *As above, but increase the speed of each repetition as imperceptibly as possible. Continue beyond the normal pronunciation of the word until the repetitions are as fast as possible. Continue.*
2. *As variation one but when the top speed has been reached and maintained, reverse the process by slowing down again as imperceptibly as possible until the original utterance returns.*

¹⁵ Oliveros, *Sonic Meditations*.

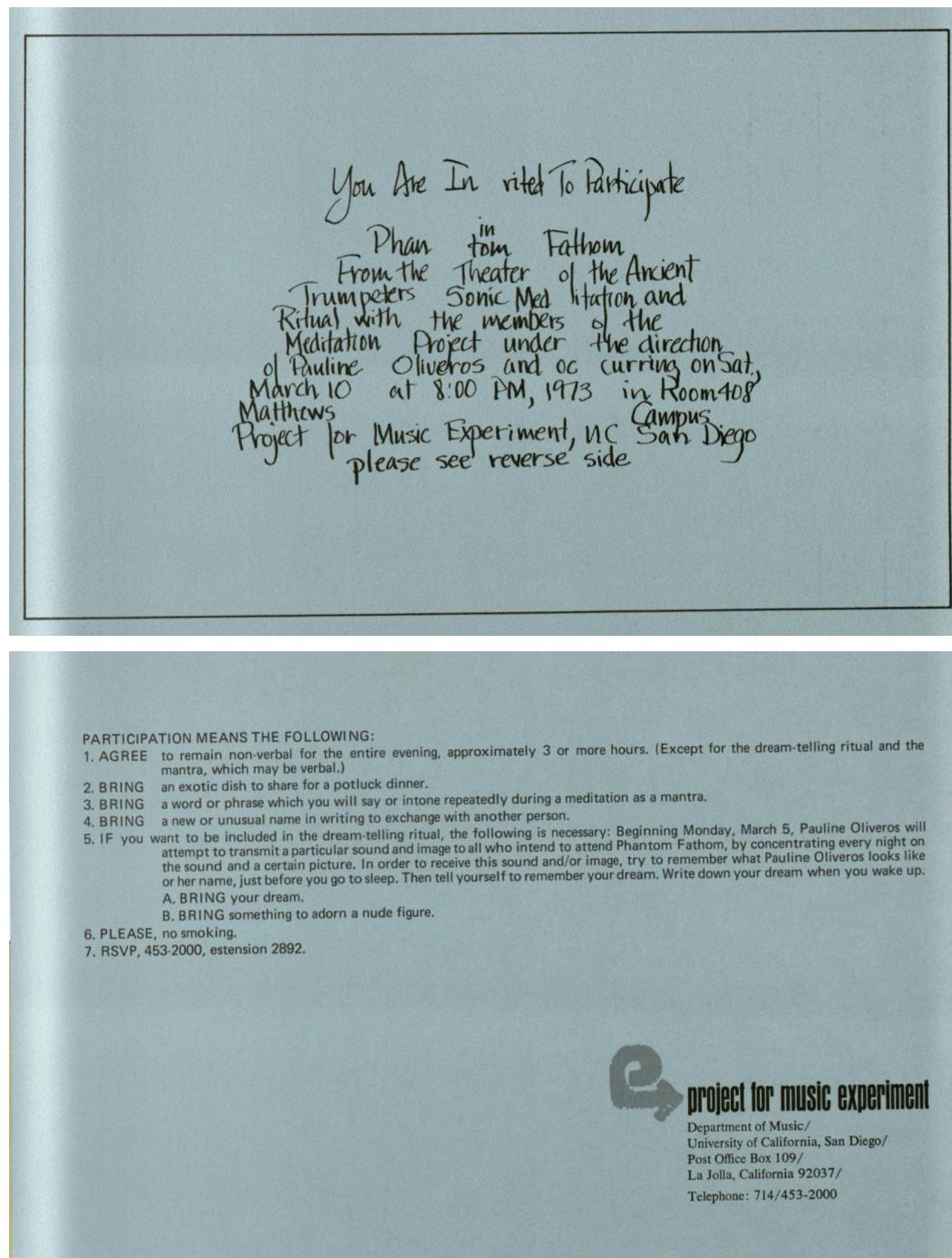
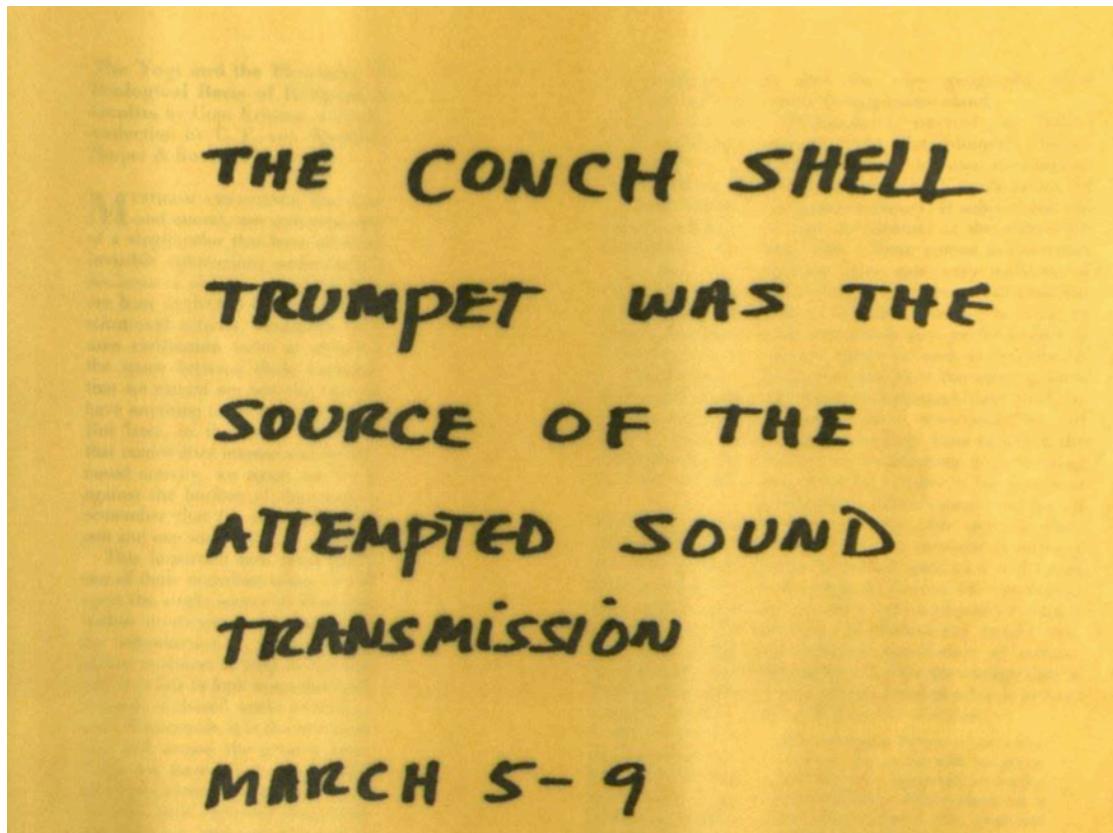
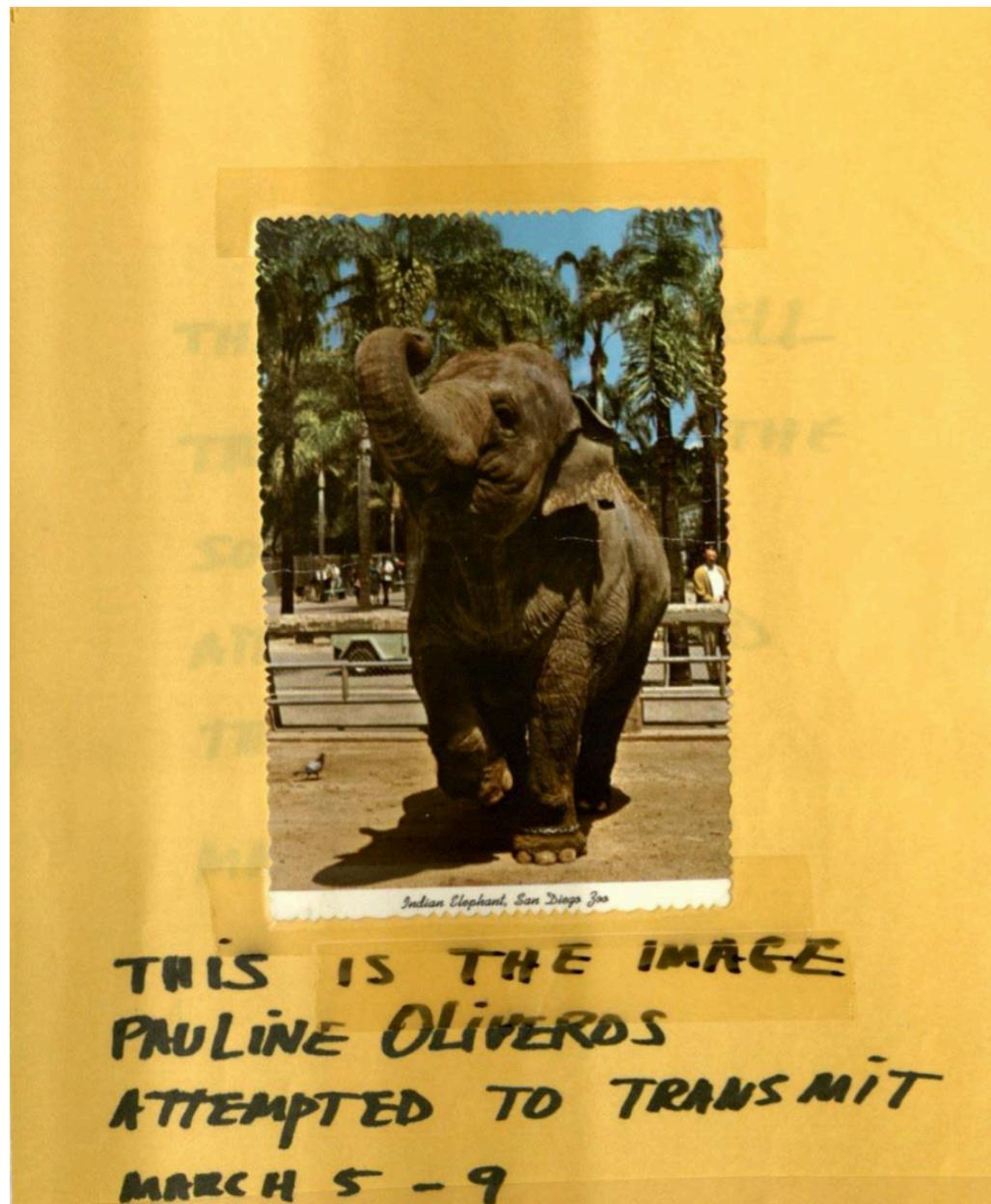
Image 4.17. Invitation to *Phantom Fathom*.¹⁶¹⁶ UCSD Special Collections, MS 0102, Box 4, Folder 23.

Image 4.18. ESP sound transmission.¹⁷



¹⁷ UCSD Special Collections, MS 0102, Box 11, Folder 5.

Image 4.19. ESP image transmission.¹⁸



¹⁸ UCSD Special Collections, MS 0102, Box 11, Folder 5.

Image 4.20. Program for *Phantom Fathom*.¹⁹

 project for music experiment
DEPARTMENT OF MUSIC/UNIVERSITY OF CALIFORNIA, SAN DIEGO

PHANTOM FATHOM

From the Theater of the Ancient Trumpeters

Directed by Pauline Oliveros Lighting by John Forkner

INSTRUCTIONS

After you have placed your dish on the table, please be seated and comfortable. (Take a chair if necessary.)

THE GREETING

Rest and observe your breath cycle. When you are ready, focus mentally on a single tone. Whenever a new person or persons enter the space, sing the tone you have in mind as a greeting. Wait silently for the next person, keeping your same tone in mind.

THE SNAKE

When everyone is present, the snake leader will join everyone's hands. As you follow the snake leader in the procession, look straight into the eyes of everyone you pass. When the snake swallows its tail, stop and send your breath into the center of the circle.

REMOVING THE DEMON

When you leave the circle, find the place in the space where you most want to be. Rest and observe your breath cycle. When you are ready begin silently to repeat your word or phrase. Choose a comfortable tempo. Very gradually make it audible. (Some project members will be making cracking sounds with rocks.) Continue until all is silent.

EXOTIC POT LUCK

When the light changes, serve yourself dinner. Eat with your fingers. Enjoy watching your neighbors and moving around.

DREAM TELLING RITUAL

If you have a dream, sit in the circle of light (Moon Pool) with the project members. When light shines on you, tell or read your dream. When the nude figure is by you, give the facilitator what you have brought for the figure.

GOOD-BYE

Take an unfamiliar partner and exchange the new names you brought.
DO NOT DUPLICATE

For research use only per Title 17 (UCS 107-108) - Special Collections & Archives, University of California, San Diego

Department of Music/University of California, San Diego/ Post Office Box 109/ La Jolla, California 92037/ Telephone: 714/453-2000

¹⁹ UCSD Special Collections, MS 0102, Box 11, Folder 5.

Interlude C

Forty-seven years later: analyzing data from Pauline Oliveros's Meditation Project

As part of the Meditation Project, approximately twenty participants practiced Oliveros's *Sonic Meditations*, body awareness, tai chi, karate, calligraphy, and yoga every week day for two hours.¹ In collaboration with a psychologist and a professor from the medical school, Oliveros collected a variety of quantitative data from participants at the beginning and end of the project to measure changes that could be attributed to the Meditation Project.² Specifically, Oliveros and her colleagues believed that Meditation Project activities, including Oliveros's *Sonic Meditations*, would improve cognitive skills, including musical abilities and vividness of mental imagery.³ In this interlude, I analyze two extant data sets that Oliveros collected: the Seashore Measurement of Musical Talents (Seashore) and the Betts' Questionnaire Upon Mental Imagery (QMI) Vividness of Imagery Scale (Betts).⁴ Oliveros never received funding to analyze her data, so the question remains: do the Seashore and Betts scores from the beginning and end of the Meditation Project show any significant changes?⁵ While the analyses included detailed statistics, in this interlude I will focus on visualizations and high-level findings.⁶

The Seashore test includes six sections covering six musical parameters: pitch, loudness, rhythm, timbre, time, and tonal memory. The pitch test presents fifty pairs of tones. Participants record whether the frequency of the second tone was higher or lower than the first. Similarly, in the loudness test, participants determine whether the second of two tones was louder or softer than the first (again, there are fifty pairs). The rhythm test consists of thirty pairs of rhythmic patterns. Participants decide if the pairs were identical or different. Fifty pairs of tones make up the time test. Participants note if the second tone of the pair was longer or shorter than the first. For the timbre test, participants determine if two tones have the same tone quality (fifty pairs). Finally, in the tonal memory test, participants listen to pairs of tone sequences and note if a tone differs between the pairs (ten pairs of three-note sequences, ten pairs of four-note sequences, and

¹ Heidi Von Gundun, *The Music of Pauline Oliveros* (Metuchen and London: The Scarecrow Press, Inc., 1983).

² Data discussed in this interlude were collected on January 11, 1973 and March 12, 1973 (UCSD Special Collections, MS 0102, Box 11).

³ Pauline Oliveros, "Meditation Project: A Report," in *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 158–64.

⁴ The original Seashore test from 1919 was revised in 1939. The later, revised version was used in the Meditation Project. Paul R. Lehman, "Tests of Musical Aptitude," in *Tests and Measurements in Music* (Englewood Cliffs: Prentice-Hall, 1968), 37–56. The original Betts test from 1909 was shortened by Peter Winston Sheehan in 1967. Sheehan's shortened version was used in the Meditation Project. George Herbert Betts, *The Distribution and Functions of Mental Imagery*, 26 (Teachers College, Columbia University, 1909). Peter Winston Sheehan, "A Shortened Form of Betts' Questionnaire upon Mental Imagery," *Journal of Clinical Psychology* 23, no. 3 (1967): 386–389. Based on participants' diary references, it seems that Oliveros and her colleagues collected the Seashore and Betts data during the first and tenth weeks of the project. Both tests allow for group or individual testing.

⁵ Oliveros, "Meditation," 158–64.

⁶ Details will be published in a series of forthcoming papers with Barbara Nerness and Takako Fujioka.

ten pairs of five-note sequences). If a tone differs, the participant records “by number the note that is different.”⁷

The Betts test includes seven sections, each one testing a different sensory modality. Oliveros and her colleagues used four: visual, auditory, kinesthetic, and cutaneous (which they referred to as “touch”). The test is designed to determine the vividness of participants’ imagery. Participants read brief instructions or scenario descriptions and then respond to items that probe details. Participants rate the vividness of these mental details on a scale of one to seven, where low is more vivid (Image C.1). Here, for example, are the instructions and first item of the auditory section:

Think of each of the following sounds, considering carefully the image which comes to your mind’s ear, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item

- 6. The whistle of a locomotive...⁸

The extant data for both the Seashore and Betts tests appear to be summed for each participant rather than raw responses (Images C.2, 3). So, for example, each participant has one score per section of the Seashore test administered at the beginning of the project and another score for the same section from the test administered at the end of the project. Similarly, scores from the Betts test are by participant per modality for the initial and final tests.

Image C.4 shows that there are no significant differences between participants’ Seashore scores at the beginning and end of the Meditation Project. Group means actually show worse (i.e. lower) overall scores for some musical parameters at the end of the project compared to the beginning.⁹ Image C.5 more clearly shows the variability of changes in participants’ Seashore test scores. Participant 1, for example, had a remarkably lower score for pitch at the end of the Meditation Project (“Pitch1” to “Pitch2”) but also a dramatically improved loudness score at the end of the project (“Loudness1” to “Loudness2”). Similarly, Image C.6 shows no significant differences between participants’ Betts scores at the beginning and end of the project. Mean scores show slightly worse (i.e. higher) scores at the end for each modality and for the combined modalities.¹⁰

⁷ Lehman, “Tests,” 37–56. You can listen to the test here: <https://youtu.be/tPZ9j5COoho>.

⁸ Sheehan, *Betts*.

⁹ For a discussion of how environmental and subjective factors could lead to lower scores see Joseph G. Saetveit, *Revision of the Seashore Measures of Musical Talents* (Iowa City: The University of Iowa Press, 1940).

¹⁰ Betts responses are meaningful when combined across modalities. Seashore measures are not meaningful when combined across modalities. Sheehan, *Betts*. Carl E. Seashore, *Manual of Instructions and Interpretations for Measures of Musical Talent* (New York City: Columbia Graphophone Co., 1919). Lehman, “Tests,” 37–56.

Oliveros's archived notes from 1972-1973 make clear that the Meditation Project was exploratory. Oliveros's primary motivations were experimenting with meditation techniques and musical compositions. This approach meant that the experimental design and resulting data have rather severe limits. There was, for example, no control group for comparison, nor was consideration given to practice effects or experimenter effects.

The existing literature on the Seashore and Betts tests, as well as the generic-nature of the Meditation Project activities align with the null results. The literature on the Seashore and Betts tests suggest that the measures are reliable across six-week periods or longer.¹¹ Changes in scores over the course of the ten-week Meditation Project were thus unlikely. A previous example of improvements in Seashore's pitch test, for example, came after twelve 50-minute periods of individual training.¹² Given that the Meditation Project participants did not receive specific training in mental imagery or the musical parameters tested by the Seashore test, it is not surprising that participants did not show any changes.

Still, it is important to analyze Oliveros's data and make its limits explicit because Oliveros's qualitative description of the data lingers in experimental music circles: "Brain wave measurements and imaginal tests by a clinical psychologist at the beginning and end of the experiment supported the effects that *Sonic Meditations* seemed to have."¹³ This does not appear to be the case for the self-report data described in this interlude. However, we are currently analyzing the brain wave data Oliveros mentioned (we worked with the UCSD Special Collections and Archives to digitize the extant electroencephalography (EEG) data from the project). Oliveros and her colleagues hypothesized that participants' alpha activity would increase in duration and amplitude as a result of the Meditation Project. Regardless of the outcomes of the quantitative measures Oliveros used, the experiment was an early example of popular and scientific, hope-filled interest in the cognitive effects of meditation. In the midst of another wave of such interest, Oliveros's Meditation Project offers a useful, historical case study.¹⁴

¹¹ Ian M Evans and Wanda S Kamemoto, "Reliability of the Short Form of Betts' Questionnaire on Mental Imagery: Replication," *Psychological Reports* 33, no. 1 (1973): 281–282. Peter W Sheehan, "Reliability of a Short Test of Imagery," *Perceptual and Motor Skills*, 1967. Lehman, "Tests," 37–56. Jane Tanner and Henry Loess, "Intercorrelations among Rhythm Subtests of Three Tests of Musical Aptitude," *Perceptual and Motor Skills* 25, no. 3 (1967): 721–726.

¹² Ruth F Wyatt, "Improvability of Pitch Discrimination," *Psychological Monographs* 58, no. 2 (1945).

¹³ Pauline Oliveros, *Sounding the Margins: Collected Writings 1992-2009* (Kingston, N.Y.: Deep Listening Publications, 2010), 30.

¹⁴ N. T. Van Dam et al., "Mind the Hype: A Critical Evaluation and Prescriptive Agenda for Research on Mindfulness and Meditation," *Perspectives on Psychological Science* 13, no. 1 (2018): 36–61, <https://doi.org/10.1177/1745691617709589>.

Image C.1. Response Options for the Betts.¹

Rating options for the Betts QMI Vividness of Imagery Scale

'The image aroused by an item of this test may be -'

Perfectly clear and as vivid as the actual experience.	Rating 1
Very clear and comparable in vividness to the actual experience.	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable.	Rating 4
Vague and dim.	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only 'knowing' that you are thinking of the object.	Rating 7

¹ Retyped from Peter W. Sheehan, *The Betts QMI Vividness of Imagery Scale* (Princeton: Educational Testing Service, 1967, 1980).

Image C.2. Meditation Project participant data for the Seashore test. The suffix “1” designates data collected at the beginning of the project and the suffix “2” denotes data collected at the end of the project.²

Seashore Data from the Meditation Project														
participant	Pitch1	Pitch2	Loudness1	Loudness2	Rhythm1	Rhythm2	Time1	Time2	Timbre1	Timbre2	Tonal1	Tonal2		
1	92	60	3	94	90	90	86	99	97	76	99	85		
2	99	96	99	59	39	73	79	71	61	83	99	52		
3	92	99	68	68	28	19	92	92	88	45	72	85		
4	92	99	87	98	99	99	96	99	92	95	99	99		
5	99	99	3	30	90	90	62	79	38	83	99	72		
6	99	96	79	68	90	90	62	53	69	76	99	99		
7	17	92	79	30	55	39	37	30	38	52	72	99		
8	96	84	98	98	90	99	86	92	92	52	85	99		
9	77	96	79	94	55	90	86	86	76	61	85	72		
10	99	84	79	79	73	99	79	96	76	52	99	99		
11	99	99	68	94	28	55	92	86	95	61	85	99		
12	99	92	99	79	12	3	96	79	61	45	61	61		
13	92	77	87	87	73	73	79	96	76	52	99	99		
14	96	92	39	87	5	28	37	4	69	38	72	99		
15	35	35	59	9	73	55	71	30	38	31	1	10		
16	99	99	7	59	55	73	15	37	52	61	99	85		

² UCSD Special Collections, MS 0102, Box 11.

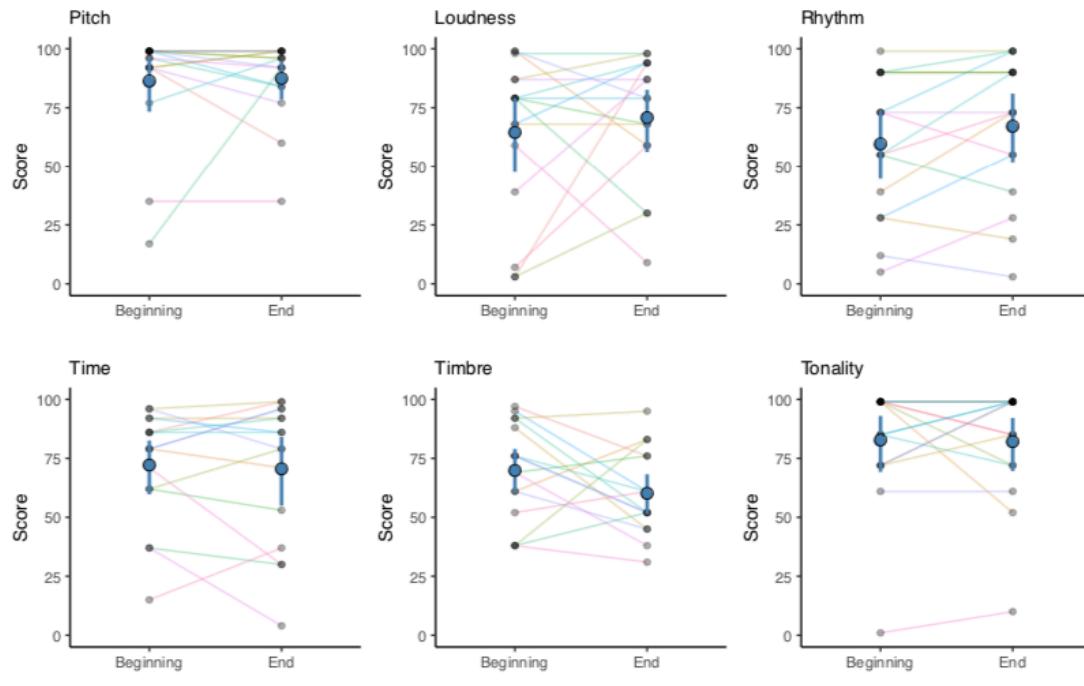
Image C.3. Meditation Project participant data for the Betts test. The prefix “Pre” denotes data collected at the beginning of the project and the prefix “Post” designates data collected at the end of the project. “NA” takes the place of missing data.

Betts Data from the Meditation Project								
participant	PreVis	PostVis	PreAud	PostAud	PreKine	PostKine	PreTouch	PostTouch
1	13	6	9	5	10	6	11.0	5
2	29	25	24	22	12	25	16.0	18
3	11	9	21	27	8	7	7.0	9
4	21	NA	10	NA	11	NA	12.0	NA
5	15	13	11	9	16	9	13.0	10
6	10	11	11	7	10	7	10.0	7
7	12	16	16	15	16	17	16.0	16
8	14	15	7	9	12	11	16.0	14
9	9	9	9	8	11	13	12.0	9
10	13	NA	10	NA	12	NA	7.0	NA
11	20	17	5	9	7	8	10.0	9
12	8	12	10	7	8	7	11.0	9
13	8	12	10	7	8	7	11.0	9
14	11	10	11	5	8	5	7.0	6
15	6	5	5	5	8	7	8.0	5
16	18	15	15	16	8	9	7.0	10
17	13	13	20	18	19	15	18.0	20
18	9	12	8	9	5	6	5.0	8
19	15	14	11	14	10	10	12.0	12
20	7	NA	13	NA	8	NA	7.0	NA
21	16	NA	13	NA	15	NA	13.0	NA
22	13	NA	19	NA	11	NA	10.5	NA
23	6	NA	10	NA	10	NA	7.0	NA

Image C.4. Visualized and analyzed data from the Seashore test. Faint colored lines connect before and after data for single participants. Heavier colored blue circles are the average for before or after data. Lines extending from those blue circles are confidence intervals. If we collected this data again infinite times with the same sample size, we expect that population mean would fall within the confidence interval ranges in 95% of our newly collected data sets.

Seashore Measurement of Musical Talent

Each plot shows the raw data, means, and bootstrapped 95% confidence intervals for participants' scores at the beginning and end of the Meditation Project.



Data archived at the University of California, San Diego Special Collections and Archives.

Image C.5. Seashore results by participant. Each box contains data from a single participant with subtest names on the vertical axis and score on the horizontal axis. As in Image 2, the number suffixes on the vertical axis denote data from the beginning or end (1 and 2, respectively).

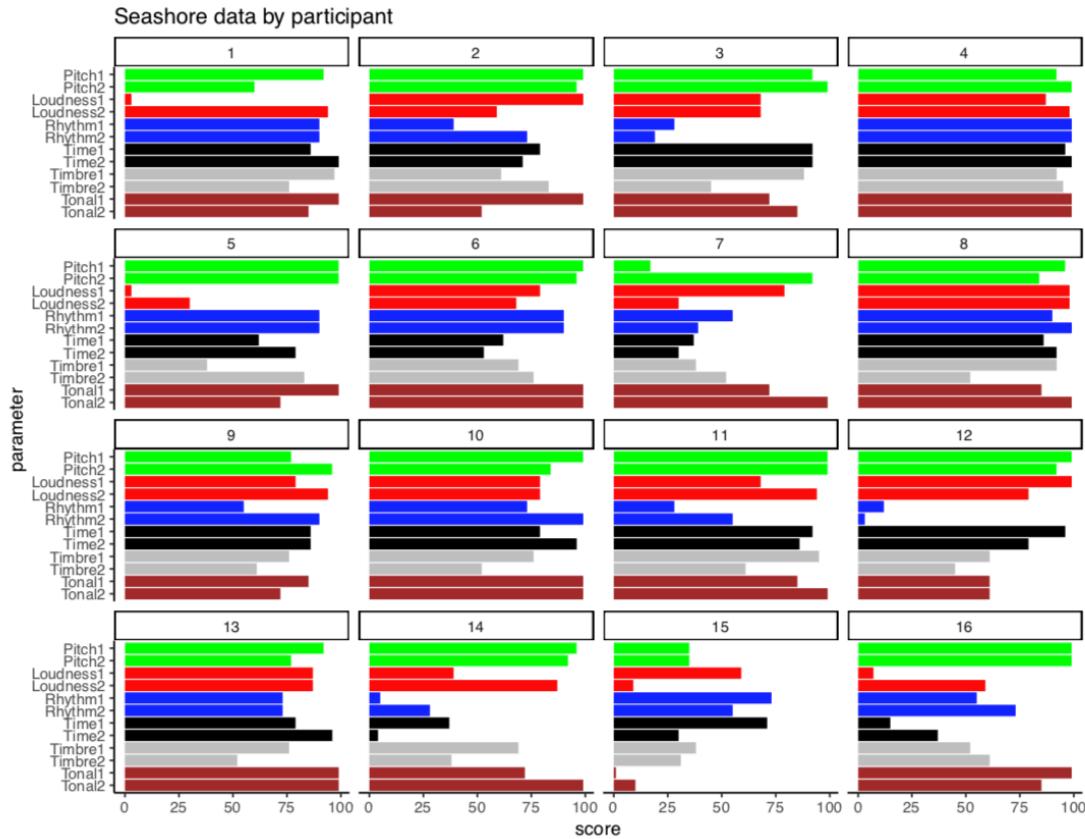
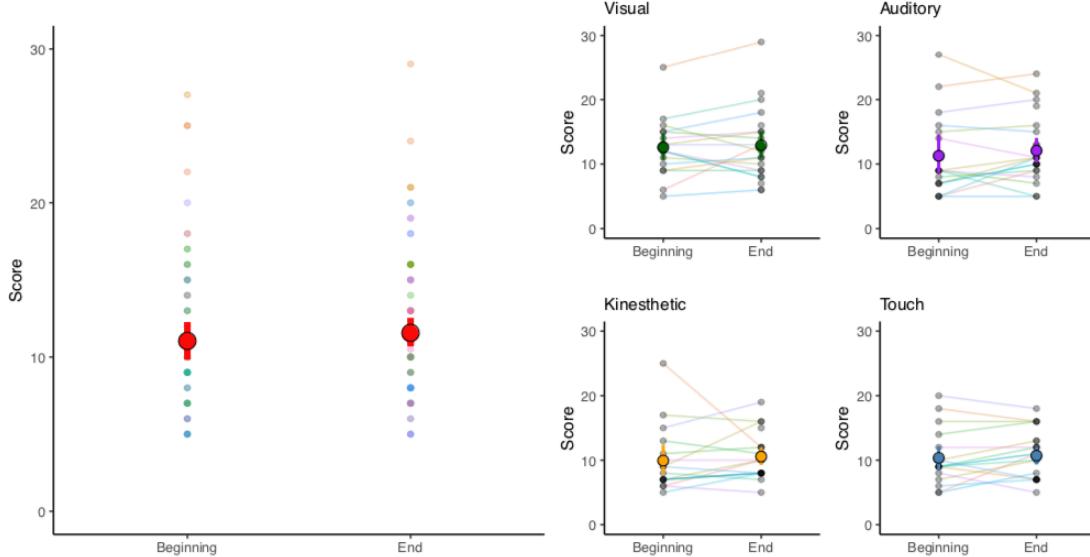


Image C.6. Visualized and analyzed data from the Betts test. As in Image 4, heavier dots show averages, lines extending from those dots designate confidence intervals, and fainter lines connecting Beginning and End data are data points for individual participants.

The Betts QMI Vividness of Imagery Scale

Each plot shows the raw data, means, and bootstrapped 95% confidence intervals for participants' scores at the beginning and end of the Meditation Project.

All Modalities Combined



Data archived at the University of California, San Diego Special Collections and Archives.

Chapter 5

Orientalized Alpha Waves as Psychospiritual Resource in Pauline Oliveros's 1973 Meditation Project

In 1970, George Winne Jr. was a twenty-three year old graduate student in the history department at the University of California, San Diego (UCSD). According to the UCSD student newspaper, the *Triton Times*, Winne was a former “outstanding ROTC cadet,” the son of a retired Navy captain, and was “very religious”: an unlikely candidate for the actions he was about to take.¹ On Sunday, May 10, 1970, Winne brought a poster reading “In God’s name end the war” to Revelle Plaza on the UCSD campus, the site of frequent anti-war protests.² The events that unfolded next were devastatingly similar to Thích Quang Đức’s famously photographed self-immolation in 1963.³ Winne “lit rags, saturated with gasoline, that were on himself,” and was “[a]blaze immediately.”⁴ When students tried to put out the flames, Winne yelled at them, “Let me die.”⁵ He was taken to a hospital where he asked his mother to write to President Nixon. In an article in the *Los Angeles Times*, his mother relayed Winne’s motivation: ““This was his way of calling attention to the terrible things going on in the world today. He said he did it to show the world and particularly President Nixon how he felt about the situation.””⁶

Winne’s protest was one of many during the spring of 1970. On April 30 of that year, President Nixon announced the expansion of the Vietnam War into Cambodia. The Kent State shootings followed days later on May 4 and less than a week thereafter came George Winne’s self-immolation.⁷ The day after Winne died, the *Triton Times* reported on strikes and protests across the University of California system: a march of 3,000 people at UC Santa Barbara, 5,000 attended a “convocation” in Santa Cruz, 4,000 UC San Francisco students marched to City Hall, several departments were closed at UCLA, and UC Irvine students marched with members of the anti-war Movement for a Democratic Military.⁸ Students and faculty at UCSD could easily view

¹ Owen Joyner, “Student Sets Self Afire; Dies to Protest War,” *Triton Times*, May 12, 1970, 1-2.

² Joyner, “Student,” 4.

³ The Buddhist monk burned himself in Saigon on June 11, 1963 to protest the persecution of Buddhists in South Vietnam. David Halberstam, *The Making of a Quagmire* (New York: Random House, 1964), 194-220. See also Seth Jacobs, *Cold War Mandarin: Ngo Dinh Diem and the Origins of America’s War in Vietnam, 1950-1963* (Lanham: Rowman & Littlefield Publishers, 2006), 135-156.

⁴ Joyner, “Student.”

⁵ Harold Keen, “Did It to Show...how He Felt’: San Diego Student Who Set Self Afire in War Protest Dies,” *Los Angeles Times*, May 12, 1970, 3, 17.

⁶ Keen, “Show.”

⁷ Howard B. Means, *67 Shots: Kent State and the End of American Innocence* (Boston: Da Capo Press, 2016).

⁸ “Report from Other UC Eight,” *Triton Times*, May 12, 1970, 2.

Winne's self-immolation as a local case of campus unrest springing up across California and the States, galvanized by international politics.⁹

Pauline Oliveros had joined the faculty at UCSD in 1967 to teach electronic music after directing the San Francisco Tape Music Center and supervising its relocation to Mills College.¹⁰ She was teaching at UCSD during what she later described as "those... very disturbing times." The turmoil in the late long Sixties triggered a "changing perspective" on her musical activities.¹¹ During this time, Oliveros came to believe that sound creation and listening could heal human consciousness. She turned to explorations of consciousness and ways of using sound creation and listening to heal consciousness, most famously in her *Sonic Meditations*.¹² With these event scores for group performance, Oliveros said:

...I was reacting, in a way, to the death of a student who immolated himself on the plaza at UCSD in a Vietnam War protest. Like many others, I also practically witnessed the assassination of Robert Kennedy on television. These up-close and personal experiences—not to mention the more distant My Lai Massacre—moved me to change.¹³

Oliveros shifted from writing electronic music and pieces for theater to music that could be performed by people without musical training.¹⁴ She reacted against what she called "disembodied music" and a "scientific approach" to composition.¹⁵ She went, she said, "in the opposite direction," not towards a music without intellectual content, but towards a balance of "body/mind."¹⁶ She related that she was "departing from the avant-garde paradigm of the time

⁹ David Farber and Beth Bailey, "The Vietnam War," in *The Columbia Guide to America in the 1960s* (New York: Columbia University Press, 2003), 34–43. Kenneth J. Heineman, *Campus Wars: The Peace Movement At American State Universities in the Vietnam Era* (New York: New York University Press, 1993), <https://web.b.ebscohost.com/ehost/ebookviewer/ebook/bmxIYmtfXzQ4MjgzX19BTg2?sid=f90c05b6-562c-428ab0f4-f6db768f1097@sessionmgr104&vid=0&format=EK&lpid=i8&rid=0>.

¹⁰ "Interlude - Pauline Oliveros at the Buchla Box, 1967" and "Chapter 3 - 'The Patchwork Girl': Pauline Oliveros's Experimentalism of the Self" in Theodore Barker Gordon, "Bay Area Experimentalism: Music and Technology in the Long 1960s" (PhD diss, The University of Chicago, 2018), <https://search.proquest.com/pqdtglobal/docview/2111350819/199D06234657458FPQ/1?accountid=14026>,

142-205. For more on Oliveros's time at the San Francisco Tape Music Center, see David W. Bernstein, ed., *The San Francisco Tape Music Center: 1960s Counterculture and the Avant-Garde* (Berkeley: University of California Press, 2008).

¹¹ Pauline Oliveros, "My 'American Music': Soundscape, Politics, Technology, Community," *American Music* 25, no. 4 (2007), <https://doi.org/10.2307/40071676>, 392. The "long Sixties" refers to the cultural events of the 1960s and the years immediately preceding and following that decade. See Christopher B. Strain, *The Long Sixties: America, 1955-1973* (Chichester, West Sussex: John Wiley & Sons, 2017).

Frederic Jameson used the same time frame as Strain, but did not use the term "long Sixties," see Fredric Jameson, "Periodizing the 60s," *Social Text*, no. 9/10 (1984): 178–209, <https://doi.org/10.2307/466541>.

¹² Oliveros, "American," 390, 392-393.

¹³ Oliveros, "American," 392.

¹⁴ This radical aesthetic shift from electronic music to event scores was also a source of conflict in departmental politics because Oliveros was specifically hired at UCSD in 1967 to start a program in electronic music because of her expertise. As a result, her *Sonic Meditations*, she later recounted, "puzzled" her colleagues. See: Oliveros, "American," 392.

¹⁵ Oliveros, "American," 392.

¹⁶ Oliveros, "American," 392.

and creating my own way, my own path.” Indeed, the “Introduction II” to the *Sonic Meditations* states that:

Pauline Oliveros has abandoned composition/performance practice as it is usually established today for Sonic Explorations which include everyone who wants to participate. She attempts to erase the subject/object or performer/audience relationship by returning to ancient forms which preclude spectators... She is especially interested in the healing power of Sonic Energy and its transmission within groups... Sonic Meditations are an attempt to return the control of sound to the individual alone, and within groups especially for humanitarian purposes; specifically healing.¹⁷

Music scholars’ delimitations of Oliveros’s compositional output reflect this change. Von Gunden noted that Oliveros was writing “theater pieces” throughout the Sixties, even when she started working at UCSD. However, in the early 1970s, Von Gunden said Oliveros, “began to study consciousness seriously... No longer could she compose with the kind of humor she had shown in *Pieces of Eight or Double Basses at Twenty Paces* [earlier theater pieces from 1965 and 1968].”¹⁸ Von Gunden’s chapter divisions articulated the stages of Oliveros’ career accordingly, discussing theater pieces and then Oliveros’s interest in consciousness before devoting a chapter to the *Sonic Meditations*.¹⁹ Martha Mockus, in her 2008 book *Sounding Out*, addressed Oliveros’s *Sonic Meditations* in their own chapter on the heels of a chapter on Oliveros’s electronic music.²⁰ Denise Von Glahn’s exploration of Oliveros’s relationship with nature similarly precedes a discussion of the *Sonic Meditations* with sections on the composer’s electronic music.²¹

In her development of sonic healing techniques discussed in the introduction to the *Sonic Meditations*, Oliveros looked for “scientific evidence of various states of consciousness” that she had experienced.²² She found what she was looking for in emerging literature about alpha activity in cognitive neuroscience and parapsychology circles. Alpha activity is 8-12 Hz neural oscillations recorded from the human scalp using electroencephalography (EEG), in other words, wave-like patterns at the rate of approximately 10 waves per second stemming from the synchronized firing of thousands to millions of neurons.

¹⁷ Pauline Oliveros, *Sonic Meditations* (Sharon: Smith Publications, 1974).

¹⁸ “Theater Pieces” and “Consciousness Studies” in Heidi Von Gunden, *The Music of Pauline Oliveros* (Metuchen and London: The Scarecrow Press, Inc., 1983).

¹⁹ Chapters 5, 6, and 7: Von Gunden, “Theater Pieces,” “Consciousness Studies,” and “The Sonic Meditations” in *Music*.

²⁰ After discussing Oliveros’s electronic music and *Sonic Meditations*, Mockus then turns to Oliveros’s compositions and improvisations for accordion. Chapters 2, 3, and 4, “Amplification,” “Meditation,” and “Respiration,” in Martha Mockus, *Sounding out: Pauline Oliveros and Lesbian Musicality* (New York: Routledge, 2008).

²¹ Similar to Mockus’s outline, Von Glahn also follows her discussion of Oliveros’s *Sonic Meditations* with an exploration of Oliveros’s work with accordion (Alvin Curran’s later sampling of Oliveros’s accordion playing). Denise Von Glahn, “Pauline Oliveros,” in *Music and the Skillful Listener: American Women Compose the Natural World* (Bloomington: Indiana University Press, 2013), chap. 5, <https://web.a.ebscohost.com/ehost/ebookviewer/ebook/bmxIYmtfXzUzNzE5MF9fQU41?sid=567c7094-5c10-4ce0-9121-0c31facebf13@sdc-v-sessmgr03&vid=0&format=EK&lpid=toc13&rid=0>.

²² Oliveros, “American,” 390.

However, it was an emerging interpretation of alpha activity as an index of meditative states that made it a wellspring of inspiration for Oliveros's *Sonic Meditations* rather than the dry definition of alpha activity as neural oscillations. The authors Oliveros was reading on the topic argued that "primitive" and "Oriental" cultures maintained access to meditative states that Westerners could use to improve their psychological health, a particularly desirable goal for many in the counterculture who viewed psychological health as the key to effecting global change. Counterculture texts argued that measurable alpha activity confirmed the existence of meditative states and would allow white Americans rapid entry into meditative states. Alpha activity was, wrote one author known to Oliveros, a "shortcut to satori," or enlightenment.²³

In the winter quarter of 1973, Oliveros assembled a group of approximately twenty participants for what she called the Meditation Project to test the efficacy of meditation, including her *Sonic Meditations*. Oliveros and her collaborators expected that meditation practices would quantitatively change participants' alpha activity, reflecting an increase in a "receptive" mode of consciousness ("consist[ing] of observation and intuition") that they hoped would balance out an overly developed "active mode" in the West (emphasizing the "active manipulation of the external environment through analysis and judgement").²⁴ I argue that alpha activity was not only Oliveros's key quantitative measure of the Meditation Project's efficacy, it was also implicated in Orientalist associations and an accompanying renegotiation of white American identity. The focus will be on Meditation Project participants' beliefs and experiences, often resonating with Oliveros's selection of texts, structuring of the project, and writings.

Scholars of American minimalist music in the 1960s have only recently begun interrogating the aesthetic implications of whiteness. Siarhei Biareishyk used Lacanian psychoanalysis to locate a functional isomorphism between white identities and the American avant-garde subculture. Using Steve Reich's *Come Out* as an example, Biareishyk argued that both the avant-garde and white identities look to an Other to reconstitute their continued existence.²⁵ Lloyd Whitesell has argued, also using Reich's early tape pieces as examples, that musical reductions towards silence or noise are "medium[s] of white self-representation."²⁶ Both scholars located racializations in musical techniques, and both emphasized race relations between white and black Americans. Sumanth Gopinath has also excavated racial meanings in Reich's works and lays out interpretations of *It's Gonna Rain* based on speculated subject positions in the peace movement and black freedom movement as well as multiple potential interpretations of

²³ Marvin Karlins and Lewis M. Andrews, *Biofeedback: Turning on the Power of Your Mind*, 1st ed. (Philadelphia: Lippincott, 1972), 18.

²⁴ Pauline Oliveros, "Meditation Project: A Report," in *Software for People: Collected Writings 1963-80*, 1st ed. (Baltimore: Smith Publications, 1984), 163.

²⁵ Siarhei Biareishyk, "Come Out to Show the Split Subject: Steve Reich, Whiteness, and the Avant-Garde," *Current Musicology* 93 (2012): 73–93.

²⁶ Lloyd Whitesell, "White Noise: Race and Erasure in the Cultural Avant-Garde," *American Music* 19, no. 2 (2001): 168–89.

*Come Out.*²⁷ Gopinath's aim, however, was historically-situated hermeneutics rather than reception history and he only occasionally drew on contemporary first-person perspectives from listeners.

Intrigued by Biareishyk and Whitesell's claims, but building on Gopinath's example of multiple, historically contextualized interpretations, I do not seek evidence of racializations in the music alone. Rather, I focus on documented, first-person experiences of the music, assuming that it is only in the interaction of individual listeners and music that these racialized meanings arise.²⁸ Historian Nell Irvin Painter's chronological tracking of the shifting definitions and consequences of whiteness in her 2011 book, *The History of White People* and critical whiteness scholar Steve Garner's warning to keep in mind how racial meanings are always time- and place-specific have convinced me to pursue this bottom-up approach to the topic.²⁹

I will focus on evidence from Oliveros's bibliography for the Meditation Project and the project diaries kept by participants.³⁰ First, I examine how the motivations for Oliveros's aesthetic shift and music-experimental practices fit into a countercultural diagnosis of Western, white social illness stemming from technocracy. Next, I look at alpha activity as a prescription for Western ills because of its tenuous association with meditative states. I show how these "alpha states" leveraged American Cold War Orientalism in a manner that reinforced essentializations and racial hierarchies. These introductory sections set the stage for an analysis of alpha activity in Oliveros's Meditation Project: its role as inspiration for the *Sonic Meditations*, its real-time use to practice meditation, and Oliveros's qualitative analyses of participants' brain data. This historical work provides a historical backdrop for the recent resurgence of scientific interest in meditation and biofeedback products and also offers, amidst contemporary inquiries into the effects of settler colonialism in music studies and the roles of race in listening, a case study of how a version of American whiteness shaped music experiences and judgements.

The Diagnosis

"...Western civilization is very sick..."

²⁷ "Chapter 3: Racial-Allegorical Valences of Postwar Mass Religion in *It's Gonna Rain*" and "Chapter 4: The Political Histories and Racialized Moments of *Come Out*" in Sumanth Gopinath, "Contraband Children: The Politics of Race and Liberation in the Music of Steve Reich, 1965-1966" (PhD diss, Yale University, 2005).

²⁸ My analysis is related to Ralph Locke's "All the Music in Full Context" paradigm insofar it looks at the "interaction between a work... and the listener," and is fundamentally about reception. Ralph P. Locke, *Musical Exoticism: Images and Reflections* (Cambridge, UK: Cambridge University Press, 2009), 3, 12.

²⁹ Nell Irvin Painter, *The History of White People* (New York: W.W. Norton, 2010); Steve Garner, *Whiteness: An Introduction* (London: Routledge, 2007).

³⁰ In looking to participants' diaries for descriptions of events and evidence of attitudes, I am, in part, engaged in what English scholar Heather Love called "close but not deep" reading. Heather Love, "Close but Not Deep: Literary Ethics and the Descriptive Turn," *New Literary History* 41, no. 2 (October 31, 2010): 371–91, <https://doi.org/10.1353/nlh.2010.0007>.

—Paul Brunton³¹

“I may be compared...with a physician or physicist who is describing a group situation in which he is himself involved. The physician in an epidemic, the physicist exposed to radioactivity...”

—Jacques Ellul³²

Oliveros's characterization of the latter part of the long Sixties as “very disturbing” was widespread in American culture. As Fred Turner has pointed out in his study of technology in the late Sixties counterculture, numerous cultural figures in America and Western Europe were diagnosing the West's cultural illnesses and identifying interconnected sources of dehumanization.³³ Authors like Jacques Ellul, John Kenneth Galbraith, Herbert Marcuse, Theodore Roszak, and Charles Reich argued that the social problems of the West resulted from the technocratic state, a society of experts claiming objective scientific neutrality as a source of power.³⁴ According to these writers, the technocracy, together with its military-industrial complex, fed Americans false needs, undercutting a meaningful interior life.³⁵ Roszak, for example, saw the 1960s American technocracy as an extension of the Scientific Revolution of the 1600s.³⁶ “[T]wo centuries of aggressive secular skepticism,” Roszak stated,

³¹ Ernest Wood and Patañjali, *Practical Yoga, Ancient and Modern* (New York: E.P. Dutton, 1948), 16. The book is listed in Pauline Oliveros's bibliography for the Meditation Project.

³² Jacques Ellul, *The Technological Society* (New York : Vintage, 1967), xxvii.

³³ Mark Greif has traced the prehistory of this “crisis of man” and its literary manifestations. Mark Greif, *The Age of the Crisis of Man: Thought and Fiction in America, 1933-1973* (Princeton: Princeton University Press, 2015).

³⁴ Fred. Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006), <http://www.loc.gov/catdir/toc/ecip064/2005034149.html> <http://www.loc.gov/catdir/enhancements/fy0702/2005034149-b.html> <http://www.loc.gov/catdir/enhancements/fy0702/2005034149-d.html>. Ellul, *Technological*; John Kenneth Galbraith, *The New Industrial State*, 1st Princeton Edition (Princeton: Princeton University Press, 2007); Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, 2nd ed. (Boston: Beacon Press, 1991); Theodore Roszak, *The Making of a Counter Culture: Reflections on the Technocratic Society and Its Youthful Opposition* (Garden City, NY: Doubleday and Company, Inc., 1969); Charles A. Reich, *The Greening of America* (New York: Random House, 1970). Herbert Marcuse was a member of the philosophy department at UCSD when George Winne self-immolated in 1970 and delivered one of the eulogies at his memorial; Joyner, “Student,” 2.

³⁵ One Meditation Project participant detailed the deadening effects of technocracy in the context of a dream they recorded: “In this new office building - wood - plants - music- lots of people. Met a fellow who knew same thing I did which meant we had alot of [the] same friends from I.C.C. US.C. type dress. He and another fellow [were] real[ly] nice to me. Their boss liked me and hired me on the spot - easy-going fellow-uptight, but nice. Showed me who to talk to - secretary wise. Finally put to work - shown how to fill out sick form - and asked what I could do. Knew this was only temporary - At lunch break - saw boss in elevator going to cafeteria while I went outside to be with grass and birds - Remember thinking how most people get so conditioned by these jobs that even their breaks become the same kind of zeroness - coffee, rolls and artificial light with artificial conversation.” UCSD Special Collections, MS 0102, Box 11, Folder 8.

³⁶ Roszak, *Making*, xii, 8.

after ruthlessly eroding the traditionally transcendent ends of life, has concomitantly given us a proficiency of technical means that now oscillates absurdly between the production of frivolous abundance and the production of genocidal munitions.³⁷

Western technocracies, in Roszak's telling, have disintegrated Americans' sense of purpose at the personal and social levels. In their place, these societies produce destructive weapons and things that serve no fulfilling purpose. In such conditions, he and others argued, when profit and power trump human life, the West produces youth who have more material things than ever before but with more internal emptiness and despair than their ancestors.³⁸

But to whom in the West, specifically, were texts such as Roszak's referring? The proposed solution to the social ills made clear that the ailing were thought to be white Westerners. The way out of technocracy, according to Roszak's countercultural sources, was a "transformation of the Western European Man."³⁹ In the American context for this project of transformation, non-white groups were viewed as sources of power because they were considered to be less polluted by technocracy: Roszak cited the "lore" of American Indians and "oriental

³⁷ Roszak, *Making*, 13.

³⁸ This narrative resonated with Oliveros as well, at least after the fact. In a 2013 interview, she described her aesthetic shift in the early 1970s using language that more tightly coupled the shift with language common to countercultural rhetoric about the technocracy: "This was just at the end of the Vietnam War and that, of course, had been very important. There were draft resistors. It was a senseless war just like the one we've been fighting. Or senseless as far as I'm concerned. Senseless in that they're based in profit motive rather than any kind of ideals...I felt the need to address some of the issues that were around me and I was beginning to do my own meditation...I wasn't involved in any traditional meditation practice, but I called my work sonic meditation at the time." Shanna Sordahl, "Experiential Engagement in Experimental Music and Alternative Education" (M.F.A., United States -- California, Mills College, 2013), 15-16, <https://search.proquest.com/docview/1366073603/abstract/2D855528179949F7PQ/1>.

³⁹ Roszak, *Making*, 46. Also see Roszak's use of a quotation from a Wintu "Indian" woman in *Report of the Canadian Arctic Expedition*. The quotation contrast Wintus' care of the land with the destructive tendencies of "white people" and "white man": "'The white people never cared for land or deer or bear. When we Indians kill meat, we eat it all up. When we dig roots, we make little holes....We shake down acorns and pine-nuts. We don't chop down the tress. We only use dead wood. But the white people plow up the ground, pull up the trees, kill everything. The tree says, "Don't. I am sore. Don't hurt me." But they chop it down and cut it up. The spirit of the land hates them....The Indians never hurt anything, but the white people destroy all. They blast rocks and scatter them on the ground. They rocks say "Don't! You are hurting me." But the white people pay no attention. When the Indians use rocks, they take little round ones for their cooking....How can the spirit of the earth like the white man?...Everywhere the white man has touched it, it is sore.'" (Roszak, *Making*, 245). Later, Roszak uses the character of the Wintu to narrate his views of the ills of the long Sixties. In this section, he makes clear that he is addressing white readers: "Consider for a moment the admonition of the quaint old Wintu woman, who warns that the 'spirit of the earth' hates us for what we have done to our environment. Of course we *know* there is no 'spirit of the earth,' But even now as I write and as you read, there reside in the bowels of the earth, in concrete silos throughout our advanced societies, genocidally destructive weapons capable of annihilating our safe and secure civilization. No doubt in her deeply poetic imagination the old woman would see in these dread instruments the vengeful furies of the earth posed to repay the white man for his overweening pride. A purely fanciful interpretation of our situation, we might say. But maybe there is more truth in the old woman's poetry than in our operations analysis. Maybe she realizes that the spirit of the earth moves in more mysterious ways than we dare let ourselves believe, borrowing from man himself its instruments of retribution" (Roszak, *Making*, 251).

religions” as tools of the counterculture.⁴⁰ Roszak’s account of the American counterculture explicitly located its members among those raced as white: older political radicals informed the white middle-class youth because African-Americans were “seal[ed] off” by the Black Power movement and the “Third World” was too distant to be influenced.⁴¹ In Roszak’s conception of the American counterculture, non-white individuals were essentialized, or grouped along racial lines, while the psychologically ailing, those seeking or in need of healing, were treated as potential individuals. That is, white Americans were seen as holding the seeds of authentic individuality once they had been transformed, cured of their social maladies while non-white individuals recede from the narrative.

Charles A. Reich’s *The Greening of America* offered another explicitly racial angle to the story. In describing the origins of contemporary alienation or separation, he wrote:

Beginning with school, if not before, an individual is systematically stripped of his imagination, his creativity, his heritage, his dreams, and his personal uniqueness, in order to style him into a productive unit for a mass, technological society. Instinct, feeling, and spontaneity are repressed by overwhelming forces. As the individual is drawn into the meritocracy, his working life is split from his home life, and both suffer from a lack of wholeness. Eventually, people virtually become their professions, roles, or occupations, and are thenceforth strangers to themselves. Blacks long ago felt their deprivations of identity and potential for life. But white “soul” and blues are just beginning. Only a segment of youth is articulately aware that they too suffer an enforced loss of self—they too are losing the lives that could be theirs.⁴²

The imagined individual under discussion here was explicitly white. And, unlike “Blacks,” who have experienced such dehumanization for centuries, Reich argued that white individuals were new to the consequences of dehumanization. For the counterculture, the pressing problems stemmed from white alienation.

Oliveros’s alignment with Roszak and Reich’s description of the American counterculture is evident from the bibliography of fifty-eight texts she crafted in preparation for the Meditation

⁴⁰ Roszak, *Making*, xiii. I use the term American Indian to accommodate writers’ general reference to the various tribes, most often referring to tribes in the United States. A 1995 Supplement to the Current Population Survey found that American Indian respondents preferred the term “American Indian” over the term “Native American” (49.76% preferring the former, 37.35% preferring the latter). Clyde Tucker, Brian Kojetin, and Roderick Harrison, “A Statistical Analysis of the CPS Supplement on Race and Ethnic Origin,” 1995, 28.

⁴¹ Roszak, *Making*, 35. “If the adult radical is white, the ideal of Black Power progressively seals off his entrée to Negro organizations. As for the exploited masses of the Third World, they have as little use of white Western ideologues as our native blacks—and in any case they are far distant. Unless he follows the strenuous example of a Regis Debray, the white American radical can do little more than sympathize from afar with the revolutionary movements of Asia, Africa, and Latin America.” Roszak also frequently describes members of the counterculture in ways that obliquely assert their whiteness using socio-economic language. For example: “Because we have an economy of cybernated abundance that does not need their labor, that is rapidly severing the tie between work and wages, that suffers from hard-core poverty due to maldistribution, not scarcity. From this point of view, why is the voluntary dropping-out of the hip young any more ‘parasitic’ than the enforced dropping-out of impoverished ghetto dwellers?” Roszak, *Making*, 36. See also, his references to Dr. Spock and high schools as country clubs (Roszak, *Making*, 30-31).

⁴² Reich, *Greening*, 9.

Project. It lists books on Asian spirituality, psychology and parapsychology, dreams, American Indian practices and mythology, how-to guides for group activities, and popular science.⁴³ It was, to simplify only slightly, of a piece with the blossoming humanistic psychology movement.⁴⁴ American Studies scholar Jessica Grogan noted the movements' associations with qualitative interventions such as sensitivity training and encounter groups, "talk of human liberation...and growth" as well as yoga and Eastern philosophy and religion.⁴⁵ But quantitative methods coexisted with these more popularized approaches: the movements' key leaders, including Abraham Maslow and Carl Rogers, often had training in experimental and behavioral psychology and humanistic psychology drew from empirically-minded, nascent cognitive science (for whom behaviorism as a common enemy).⁴⁶ Maslow wrote that, rather than doing away with scientific enquiry, he and others in the movement saw themselves involved in the "resacralizing of science..."⁴⁷

Not only does Oliveros's bibliography show the range of countercultural influences noted in Roszak's text, Roszak's line of reasoning also resonated with authors from the bibliography. For example, Oliveros included Robert Ornstein's 1972 *The Psychology of Consciousness* which states that, "We [in the West] deemphasize and even devalue the arational, nonverbal modes of consciousness,"⁴⁸ making for lopsided or incomplete humans. He goes on,

Certainly our culture has too severely emphasized the development of only one way [the analytic mode] of organizing reality....the change in our culture to a predominantly technological, scientific one during the last few centuries has caused a radical increase in the environmental stresses placed on each person.⁴⁹

Psychiatrist and counterculture author Claudio Naranjo began his 1971 *On the Psychology of Meditation* by noting the "...dissatisfaction with and detachment from cultural forms that answered to man's yearning in the past" and "...disappointment in the ultimate fruits of scientific and technological progress."⁵⁰ In his foreword to *Book of the Hopi*, Frederick H. Howell used the words of Laurens van der Post to note "the loss to our society of the 'whole natural language of the spirit.'"⁵¹ John Cunningham Lilly wrote of widespread "anti-Satori programming" in the

⁴³ See the appendix for the complete bibliography.

⁴⁴ For a recent exploration of Maslow's influence on composer John Adams, see John Kapusta, "The Self-Actualization of John Adams," *Journal of the Society for American Music* 12, no. 3 (2018): 317–44, <https://doi.org/10.1017/S1752196318000184>.

⁴⁵ Jessica. Grogan, *Encountering America: Humanistic Psychology, Sixties Culture & the Shaping of the Modern Self*, 1st ed. (New York: Harper Perennial, 2013), ix, 161-2.

⁴⁶ Grogan, *Encountering*, 120.

⁴⁷ Abraham H Maslow, *The Journals of A.H. Maslow 2. 2.* (Monterey: Brooks/Cole, 1979), 672.

⁴⁸ Robert E. Ornstein, *The Psychology of Consciousness* (New York: Viking, 1972), 10.

⁴⁹ Ornstein, *Psychology*, 139-140.

⁵⁰ Claudio Naranjo and Robert E. Ornstein, *On the Psychology of Meditation* (New York: Viking Press, 1971), 3.

⁵¹ Frank Waters and Oswald White Bear Fredericks, *Book of the Hopi* (New York: Viking Press, 1963), v.

minds of Americans.⁵² Walter Gibson promoted yoga as a cure for “the humdrum routine” and “excessive speed of Western civilization.”⁵³ Edward Maisel’s introduction to the writings of Matthias Alexander sketched out how, in contrast to the people of South Africa and Jamaica, “The process of civilization, according to Alexander, has contaminated man’s biological and sensory equipment, with a resultant crippling in the responses of the whole organism...”⁵⁴ And in their 1972 book on biofeedback, Karlins and Andrews argued that the historically declining Western “self-concept” or self-image was at the root of contemporary ills:

The present state of man’s self-image is reflected in the daily use of such words and expressions as ‘alienation,’ ‘disillusionment,’ ‘loss of faith’ and ‘lack of self-respect.’ The evolution of the computer, the growth of population, the ability of psychologists to control behavior with increasing accuracy—all serve to lower a person’s sense of worth, his self-reliance, his sense of autonomy. The decline of man’s self-concept is not an abstract or airy intellectual question. The growing problems of suicide, depression, alcoholism and drug abuse are linked to the deteriorating self-concept syndrome.⁵⁵

For all of these writers, the political and social manifestations of the West’s problems pointed to a location in the white Western psyche.⁵⁶

The 1960s diagnosis of American and, more broadly, Western technocracy as the source of illness often framed science and technology as both root causes and contemporary stumbling blocks for healthy development.⁵⁷ But Turner has pointed out that by the end of the long Sixties, the American counterculture embraced or reclaimed both, hoping to use them towards their own ends.⁵⁸ These New Communalists, as Turner called them, included the tens of thousands of Americans who established and joined communes as well as those who shared their worldview without pulling up stakes.

The Treatment

“...we find sociology giving way steadily to psychology...”

—Theodore Roszak⁵⁹

⁵² John Cunningham Lilly, *The Center of the Cyclone; an Autobiography of Inner Space* (New York: Julian Press, 1972), 3.

⁵³ Walter Brown Gibson, *The Key to Yoga* (New York: Bell Pub. Co., 1962), 9.

⁵⁴ F. Matthias Alexander, *The Resurrection of the Body; the Writings of F. Matthias Alexander* (New York: University Books, 1969), xxxiii.

⁵⁵ Karlins and Andrews, *Biofeedback*, 163-164.

⁵⁶ This narrow definition of West as white extended beyond the counterculture. Nell Painter points out that influential texts from the 1950s on American business (*The Organization Man* by William Whyte) and American sociology (*The Lonely Crowd* by David Riesman) limited Americanness to whiteness. Painter, *History*, 368.

⁵⁷ See, for example, Roszak’s discussion of the negative effects of a scientific mindset and his list of research atrocities and dystopian futures (Roszak, *Making*, Chapter VII: “The Myth of Objective Consciousness”, 205-238, and “Appendix: Objectivity Unlimited,” 267-289).

⁵⁸ Turner, *Counterculture*, Introduction.

⁵⁹ Roszak, *Making*, 64.

With the diagnosis of a social problem (technocracy), one might be tempted to identify social treatments: social movements and politicking. Roszak laid out how the counterculture instead sought to rebuild from the ground up, from individual psychology, in order to avoid simply replacing the technocracy with another top-down system with similarly dehumanizing effects. The societal “New Jerusalem” of the counterculture began “not at the level of class, party, or institution, but rather at the non-intellective level of the personality from which these political and social forms issue.”⁶⁰ The post-technocratic culture was to be one where “the non-intellective capacities of the personality—those capacities that take fire from visionary splendor and the experience of human communion—become the arbiters of the good, the true, and the beautiful.”⁶¹ “Oriental mysticism” was part of the answer, a path to this New Jerusalem. “Eastern religion, with its heritage of gentle, tranquil, and thoroughly civilized contemplativeness,” was seen as investigating the non-intellective but not resorting to violence or madness.⁶² Lao-tzu, the Buddha, and Zen masters thus became guides to a psychological escape from technocracy as well as the foundation for what would come next.

A “common denominator” approach to the multitude of meditation practices provided new countercultural seekers a way to cultivate the receptive, non-intellective qualities believed to “deautomate” the effects of technocracy and simultaneously seed the post-technocratic society.⁶³ Naranjo argued that once humans move past the surface variety of meditational techniques such as using mental imagery, repeating phrases, or employing physical gestures, the common denominator of meditation was “concerned with the development of a *presence*, a modality of being, which may be expressed or developed in whatever situation the individual may be involved.”⁶⁴ In the Meditation Project, music-making provided the context or “situation” for developing this presence.

A growing counterculture interest in cognitive neuroscience literature offered quantification of the positive effects of meditation. The second half of Naranjo’s book, written by psychologist Robert Ornstein, summarized much of the existing English-language scientific literature on meditative states as indexed by alpha activity as well as countercultural interpretations. Alpha activity is the electrical activity of neurons that oscillates approximately 10 times per second (Image 5.1).⁶⁵ Psychologist Steven Luck describes where electrodes could

⁶⁰ Roszak, *Making*, 49.

⁶¹ Roszak, *Making*, 50-51.

⁶² Roszak, *Making*, 82.

⁶³ For the common denominator of meditation, see Naranjo and Ornstein, *Psychology*, 4-5. For deautomatization, see Arthur J. Deikman, “Deautomatization and the Mystic Experience,” in *The Nature of Human Consciousness: A Book of Readings*, ed. Robert E. Ornstein (San Francisco: W. H. Freeman and Company, 1973), 216–33.

⁶⁴ Naranjo and Ornstein, *Psychology*, 8.

⁶⁵ Steven J. Luck, *An Introduction to the Event-Related Potential Technique*, 2nd ed. (Cambridge, MA and London: The MIT Press, 2014), 16, <http://ebookcentral.proquest.com/lib/stanford-ebooks/detail.action?docID=3339822>.

ideally be placed to measure alpha waves and what seems to induce them: “Alpha oscillations are usually most prominent over the back of the head and tend to be large when the subject is drowsy or when the subject’s eyes are closed.”⁶⁶ Such alpha activity can be reduced with loud sounds and is the result of rhythmic and synchronous firing of neurons “generated when the cortex is in a state of idling.”⁶⁷

With such cognitively-uninteresting causes, what generated countercultural excitement about alpha activity in the late long Sixties? Naranjo and Ornstein’s text (in Oliveros’s bibliography) demonstrates the linkage between alpha activity and meditation. Ornstein drew on the handful of EEG studies of meditators conducted by the early 1970s to argue that alpha indexes the loss of contact with the external world in an interior-focused meditative state (Image 5.2, Image 5.3). He cited “[t]he electrophysiological studies of meditation by Bagchi and Wanger, those by Anand..., and those by Kasamatsu and Hirai, and by Akishige...” which “indicate that meditation also is a high alpha state.”⁶⁸ While Kasamatsu and Hirai’s 1966 and Anandi, Chhina, and Singh’s 1961 papers showed selected data for individual participants at moments when they recorded alpha activity, Kasamatsu and Hirai also noted that this sort of alpha activity is seen in participants who are falling asleep (hypnagogic states) or hypnotized.⁶⁹ They also cited previous literature which found alpha activity in an early stage of N₂ gas inhalation and accompanying acute alcohol consumption.⁷⁰ Additionally, Bagchi and Wenger noted that “it is the normal waking alpha pattern that is seen in meditation.”⁷¹ Ornstein also did not cite Das and Gastaut’s 1957 study that found alpha activity before and after meditation, but fast, 20-40 Hz activity during meditation.⁷² This upsets the simpler association of alpha with meditative states that Ornstein narrated. Rather, existing literature available to Ornstein suggested

⁶⁶ Luck, *Introduction*, 17.

⁶⁷ Terence W. Picton, *Human Auditory Evoked Potentials* (San Diego; Abingdon: Plural Publishing, Inc., 2011), introduction, iBooks, <http://site.ebrary.com/id/10901624>.

⁶⁸ Naranjo and Ornstein, *Psychology*, 167.

⁶⁹ Akira Kasamatsu and Tomio Hirai, “An Electroencephalographic Study on the Zen Meditation (Zazen),” *Folia Psychiatrica et Neurologica Japonica* 20, no. 4 (1966), 335. “From the electroencephalographic point of view, the changes of stages I, II and III [appearance of alpha waves, increase in their amplitude, and decrease in their frequency] could not be clearly differentiated from those seen in hypnagogic state or the hypnotic sleep, though the changes during Zen meditation were more persistent and did not turn into deeper sleep pattern.”

⁷⁰ Kasamatsu and Hirai, “Electroencephalographic,” 331.

⁷¹ B. K. Bagchi and M. A. Wenger, “Electro-Physiological Correlates of Some Yogi Exercises,” *Electroencephalography and Clinical Neurophysiology* Supplement 7 (1957): 132–49.

⁷² N. N. Das and H. Gastaut, “Variations de l’activité électrique du cerveau, du coeur et des muscles squelettiques au cours de la méditation et de l’extase yogique,” *Conditionnement et réactivité en électroencéphalographie* Supplément No 6 (1957), 213. “Méditation profonde depuis plusieurs heures: activité occipitale complexe, très rapide et peu ample, dont certaines composantes rythmiques à 20, 30 et même 40 c/x; muscle au repos; coeur à 80 r. p. m.”

that alpha indexes a wide variety of states, including falling asleep and intoxication and can be entirely absent during meditation.⁷³

All five of the meditation studies that Ornstein and many other counterculture writers cited have limited generalizability due to their low number of participants, or, when many participants were involved, the decision to report data from only selected participants. Ornstein obliquely acknowledged the problem when he addressed the usefulness of aggregating data from multiple participants:

We do not know how continuous the alpha is in meditation, or whether there are differences between persons with different EEG's as they practice meditation. Now that computer analysis of EEG signals is possible, we may be able to approach the problem from a quantitative angle.⁷⁴

Such quantification would be desirable to Ornstein because it would enable people “to be trained to match the EEG patterns of meditators...”⁷⁵

Efforts to “practice” alpha production were already well under way when Ornstein wrote in 1971. He described how a machine could amplify alpha waves recorded using EEG, allowing an individual to “hear” their alpha waves and train themselves to produce them. This practice of biofeedback was, for Ornstein and his colleagues, “a way in which our sophisticated technology can help many in our culture to alter their nervous system’s activity without undertaking a pilgrimage to India.”⁷⁶ He described the goal of the “Bio-feedback Society” as bringing a “more Eastern view of our capabilities into the culture at large” using “feedback, hypnosis, meditation, etc.”⁷⁷ Karlins and Andrews even described biofeedback as a shortcut to *satori*, or enlightenment.⁷⁸

⁷³ Durand Kiefer, “Meditation and Biofeedback,” in *The Highest State of Consciousness*, ed. John White (Garden City, New York: Anchor Books, 1972), 325. This is not to say that alpha activity cannot index meditative states: more recent studies have more narrowly linked the two (specific meditation practices are associated with different levels of alpha power and coherence in and between different regions of the human cortex). For a recent review, see Darrin J. Lee et al., “Review of the Neural Oscillations Underlying Meditation,” *Frontiers in Neuroscience* 12 (2018), 4, <https://doi.org/10.3389/fnins.2018.00178>.

⁷⁴ Naranjo and Ornstein, *Psychology*, 230.

⁷⁵ Naranjo and Ornstein, *Psychology*, 230.

⁷⁶ Naranjo and Ornstein, *Psychology*, 221.

⁷⁷ Naranjo and Ornstein, *Psychology*, 223.

⁷⁸ Karlins and Andrews, *Biofeedback*, 18. Biofeedback provides an example of the shift in thinking between early counterculture writers and those influenced by New Communalism. Writers like Roszak feared that viewing the mind as mere physics and chemistry would result in people limiting their consciousness to states that could be studied scientifically and those states acting as standards for all thought (Roszak, *Making*, 230). Biofeedback in the long Sixties complicates this narrative: scientific, pseudo-scientific, and parapsychological views of the mind became tools for achieving spiritual goals.

Meditation's links with alpha activity thus carried essentialized notions of an imagined East.⁷⁹ It recalls Edward Said's definition of Orientalism: "a style of thought based upon an ontological and epistemological distinction made between 'the Orient' and (most of the time) 'the Occident.'⁸⁰ But while Said emphasized the ways Orientalism was deployed to show the superiority of the Occidental side of the binary, the case of meditation in the American counterculture reveals an inversion of this valuation.⁸¹ With meditation, the East was cast as holding a mental power that the white West not only needed to treat itself, but was also newly able to quantify.⁸²

The Meditation Project

Like the New Communalist's deployment of science and technology towards countercultural goals, Oliveros's interest in alpha activity combined biofeedback and EEG data collection with her interest in healing social ills from the inside out.⁸³ Alpha activity as an index of meditation acted as inspiration for the *Sonic Meditations*, a tool for improving meditation skills, and a test for the success of her Meditation Project.

Oliveros's engagement with literature on alpha activity acted as inspiration, solidifying her belief in the power of meditation and her own *Sonic Meditations*.

...I was exploring my inner world and experiencing the sensation of music with *Sonic Meditation*. I was exploring consciousness—a word that for years was not admissible in the scientific community. Consciousness had no location, could not be measured, and was considered an epiphenomenon... When I was beginning my study of consciousness in relation to music in 1970, a conference on consciousness was held at [UCSD]. I attended because of my own research. I was looking for scientific evidence of various states of consciousness. This conference brought out a lot of ideas, concepts, and studies that were beginning to take place and which paralleled the development of my work with *Sonic Meditation*.⁸⁴

⁷⁹ Take, for example, Oliveros's binary division when discussing Christian and Eastern meditation practices: "Christian meditation, or contemplation, is usually a dwelling upon specific ideas, such as one's relationship to God, or the pursuit of an activity which is decided upon and directed intellectually. Certain Eastern practices will be opposite, advocating dwelling on emptiness of mind. (Nirodha in the Yoga Sutras of Patanjali, 'No Mind' in Zen Buddhism.)" Oliveros, *On Sonic Meditation*, 1.

⁸⁰ Edward W. Said, *Orientalism* (London: Penguin, 2003), 2.

⁸¹ For a discussion of Orientalist tropes in the reception of Shinichi Suzuki's Talent Education method triggering "pervasive anxieties within American culture," see Robert Fink, *Repeating Ourselves: American Minimal Music as Cultural Practice* (Berkeley: University of California Press, 2005), 218, 208-35. For discussions of previous inversions of the East/West valuation, see J. J. Clarke, *Oriental Enlightenment: The Encounter between Asian and Western Thought* (London and New York: Routledge, 1997).

⁸² Interestingly, neither Ornstein, Kiefer, Naranjo, Karlins and Andrews, nor the myriad other writers relying on binaries that tipped scientific qualities to the "Western" side of the scales noted that nearly all the scientific articles on meditation they cited were led by Asian or Asian-American scientists. A future project could investigate how these scientists were viewed within the scientific community.

⁸³ Oliveros, "American," 393. Kerry O'Brien connected Oliveros's interest in biofeedback with New Communalism. Kerry O'Brien, "Experimentalisms of the Self: Experiments in Art and Technology, 1966-1971" (PhD diss, Indiana University, 2018).

⁸⁴ Oliveros, "American," 390.

In her introduction to the published version of the *Sonic Meditations*, Oliveros made clear that the goal of these pieces was less about music making, which was “a welcome by-product.” Instead, reminiscent of Naranjo’s definition of meditation as the development of presence, Oliveros proposed that the *Sonic Meditations* were about “[h]eighted states of awareness or expanded consciousness... a tuning of mind and body... greater awareness and sensitivity...”⁸⁵

What sorts of musical materials were deemed most amenable to this meditative approach? Oliveros cited examples of drones in key minimalist compositions including Terry Riley’s 1960 *String Quartet* and La Monte Young’s *Composition 1960 #7* (Image 5.4, Image 5.5).⁸⁶ She also pointed to a drone in her 1959 *Variations for Sextet* as an example of drone as mantra, and called it a “brief meditation” (Image 5.6).⁸⁷ “...I became interested in dwelling on single pitches in my music at the end of the 1950’s,” wrote Oliveros in 1973.⁸⁸ Repetition also features prominently in the *Sonic Meditations* and both of these musical techniques, drones and repetition, were cited by Ornstein as traditional meditation aids.⁸⁹ He argued that mantras — repeated words — are the sonic counterpart to Zen breathing exercises: all aids to focus the mind.⁹⁰ He cited the mantra OM, the Hare Krishna mantra, and mantras used in Transcendental Meditation.⁹¹ These repeated mantras bridge the techniques of repetition and drones by transforming a repeated unit (the mantra word or phrase) into a continuous drone. But repetitive mantras and drones were not limited to vocal production. Body sounds such as breathing and heart beats could also serve the function of mantras, argued Ornstein. He then cited a list of “internally generated sounds” that could also serve to focus the mind in meditation.⁹² Ornstein linked the wide variety of sonic practices to “primitive peoples,” mostly of the “Middle and Far East.”⁹³ For Ornstein, these meditative sonic practices contrasted with the West’s focus on melody.

⁸⁵ Oliveros, “Introduction I” in *Sonic Meditations*.

⁸⁶ For more on Riley and Young, see Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge: Cambridge University Press, 2000); Jeremy Neal. Grimshaw, *Draw a Straight Line and Follow It: The Music and Mysticism of La Monte Young* (Oxford: Oxford University Press, 2011), <http://dx.doi.org/10.1093/acprof:oso/9780199740208.001.0001>; Henry Flynt, “La Monte Young in New York, 1960-62,” in *Sound and Light: La Monte Young, Marian Zazeela*, ed. William Duckworth and Richard Fleming (Lewisburg, PA: Bucknell University Press, 1996), 44–97; Benjamin Piekut, *Experimentalism Otherwise: The New York Avant-Garde and Its Limits* (Berkeley: University of California Press, 2011), <http://site.ebrary.com/lib/stanford/Doc?id=10448572>.

⁸⁷ Pauline Oliveros, “On Sonic Meditation,” in *Software for People: Collected Writings 1963-80* (Baltimore: Smith Publications, 1984), 145.

⁸⁸ Oliveros, “On Sonic Meditation,” 142.

⁸⁹ Naranjo and Ornstein, ““Turning Off” Awareness,” in *Psychology*, 142-169.

⁹⁰ Naranjo and Ornstein, *Psychology*, 150.

⁹¹ Naranjo and Ornstein, *Psychology*, 150-151.

⁹² Naranjo and Ornstein, *Psychology*, 153. He included the hum of bees, an idling engine, rain, bells, and musical instruments, among others. They include The “imagined or naturally occurring” sounds he lists came from Rammurti Mishra, *Fundamentals of Yoga* (New York: Lancer Books, 1969).

⁹³ Naranjo and Ornstein, *Psychology*, 160 and Ornstein, *Psychology*, 167.

In the music of the Middle and Far East, melody plays a small role. Rather, it is the very *sound* of the music itself, the tonal quality, which is important. (It is this component of music which is associated with the right hemisphere of the brain.) In these esoteric traditions, tonal vibrations of certain frequencies are held to stimulate parts of the mind which normally go untouched. The *mantra* of the Yoga, the Dervish call, are ‘magic’ words. It is often thought that the ‘special’ properties of these words lie in their *meaning*. Actually, the ‘magic’ lies in the *sound* of the words, which are designed to have certain effect on consciousness.⁹⁴

In this view, specially chosen sounds were thought to have automatic effects on human consciousness. Sonic repetition and drones could induce these effects.⁹⁵

Oliveros related how she experienced repetition and drones to induce meditative effects in “Teach Yourself to Fly” from the *Sonic Meditations* (Image 5.7). In a text called “On Sonic Meditation,” written in 1973, Oliveros detailed the conditions for and effects of practicing her composition. Oliveros wrote that participants are asked to sit in a circle that manifests equality and unity. Low illumination of the room is requested to minimize visual distraction and facilitate awareness of the body.⁹⁶ Participants are to observe their breathing, a receptive act requiring attention and awareness of the breath which Oliveros noted often initiated a calming lower breathing rate. Attention brought to bear on the breath cycle allows awareness to expand and a meta-awareness of both attention and awareness to emerge.⁹⁷ “...allow your breathing to become audible... Allow your vocal cords to vibrate... Allow the intensity to increase...”⁹⁸ These “allows” require receptivity, argued Oliveros, a refusal of manipulation. Repeated practice of the composition leads to body awareness, fresh receptivity to sound, and discovery of one’s own unique vocal sounds. “The effect is restful rather than stimulating.”⁹⁹ The description of mental and physiological states while performing *Sonic Meditations* makes clear that Oliveros believed them to be paths into meditative states.

At each pivotal step in “On Sonic Meditation,” Oliveros incorporated selections from popular texts that cast the East as a source of healing for the West as evidence, motivations, and

⁹⁴ Ornstein, *Psychology*, 167.

⁹⁵ Counterculture writers also cited the role of acoustic repetition and drones in other, “primitive” cultures. For example, Roszak included a quotation about the effects of ritual music in the practices of the followers of Smohalla in the Pacific Northwest: “Ritual excitement was heightened by singing, dancing, and the rhythmic beating of the drums, which gradually hypnotized the participants and sent most of them into trance, or dreams, as they were called in this cult. Visions were publicly narrated according to traditional custom, the Dream Dance being regarded as the cure for every ill introduced by the white man.” Vittorio Lanternari, *The Religions of the Oppressed; a Study of Modern Messianic Cults*, 1st. American ed. (New York: Knopf, 1963), 130. Quoted in Roszak, *Making*, 261.

⁹⁶ Oliveros’s call to “[i]lluminate the space with dim blue light” resonates with Mishra’s meditation advice to gaze steadily at a “blue, very low voltage bulb” in *Fundamentals of Yoga*. Ornstein references this work, meaning the advice was in the Meditation Project bibliography. See Naranjo and Ornstein, *Psychology*, 152-153.

⁹⁷ “During this process it is also possible to observe myself attending and being aware. For me this is a highly desirable mode of consciousness.” Oliveros, “On Sonic Meditation,” 152.

⁹⁸ Oliveros, “Teach Yourself to Fly,” in *Sonic Meditations*.

⁹⁹ Oliveros, “On Sonic Meditation,” 156.

explanations.¹⁰⁰ These texts appear when Oliveros described her aesthetic shift that resulted in the *Sonic Meditations*, the healing power of the singing voice, the transition from breath to sound creation in “Teach Yourself to Fly,” the experience of expanding awareness, the move towards voice and away from instruments, and the extra-musical potential of sound. To explain her desire to experiment with drones, Oliveros cited the story “A Cup of Tea” from Paul Reps’ collection *Zen Flesh, Zen Bones*.¹⁰¹

Nan-in, a Japanese master during the Meiji era (1868-1912), received a university professor who came to inquire about Zen.

Nan-in served tea. He poured the visitor’s cup full, and then kept on pouring.

The professor watched the overflow until he no longer could restrain himself. “It is overfull. No more will go in!”

“Like the cup,” Nan-in said, “you are full of your own opinions and speculations. How can I show you Zen unless you first empty your cup?”¹⁰²

Oliveros saw herself in the story’s professor: “As a composer I had to empty my cup...”¹⁰³

In the collection’s Foreword, Reps casts Zen as central to the “Orient” and obliquely contrasts “Orientals” with (implicitly white) Americans. “Zen,” said Reps, “might be called the inner art and design of the Orient” and, earlier in the Foreword, “For Orientals, more interested in being than in busyness, the self-discovered man has been the most worthy of respect.”¹⁰⁴ Unlike Rep and Oliveros’s views of contemporary America, Zen and the “Orient” offered deeper meaning because of their Orientalized other-ness. In describing the pleasurable effects of drones, Oliveros drew on Hazrat Inayat Khan’s *The Music of Life*, linking her sonic explorations with the findings of ancient singers in India. She quoted from Khan’s chapter entitled “The Effect of Sound on the Physical Body”:

[T]he knowledge of sound can give a person a magical instrument by which to wind and tune and control and use the life of another person to the best advantage. The ancient singers used to experience the effect of their spiritual practices upon themselves first. They used to sing one note for about half an hour and study the effect of that same note upon all the different centers of their bodies: what life current it produced, how it opened the intuitive faculties, how it created enthusiasm, how it gave added energy, how it soothed, and how it healed. For them it was not a theory, it was an experience.¹⁰⁵

Oliveros also cited Khan’s chapter to explain how sound and breath are able to refresh and relax.¹⁰⁶ Later in the article, Oliveros also used the same chapter to support her ensemble’s

¹⁰⁰ These texts include Paul Reps’ *Zen Flesh, Zen Bones*, Inayat Khan’s *The Music of Life*, Naranjo and Ornstein’s *Psychology of Meditation*, and Idries Shah’s *The Way of the Sufi*. The only other text quoted in “On Sonic Meditation” is Otto Frisch’s *Atomic Physics Today* to make a point about the power of observation.

¹⁰¹ Oliveros, “On Sonic Meditation,” 141-142.

¹⁰² Paul Reps, *Zen Flesh, Zen Bones* (Rutland and Tokyo: Charles E. Tuttle Company, 1958), 19.

¹⁰³ Oliveros, “On Sonic Meditation,” 142.

¹⁰⁴ Reps, *Zen*, 17.

¹⁰⁵ Hazrat Inayat Khan, *The Music of Life: The Inner Nature and Effects of Sound* (New Lebanon: Omega Publications, 2005), 274-275. Oliveros, “On Sonic Meditation,” 148.

¹⁰⁶ Oliveros, “On Sonic Meditation,” 151.

abandonment of instruments for voice.¹⁰⁷ When discussing the emergent psychological and social results of the *Sonic Meditations*, Oliveros drew on a quotation from Ibn Hamdun called “The Problem of Music” in Idries Shah’s *The Way of the Sufi*: “Be sure that you do not train yourself to music, in case this holds you back from even higher perceptions.”¹⁰⁸ In order to obtain the psychological and social benefits of the *Sonic Meditations*, Oliveros’s contemporaries would need to “re-orient” themselves away from the traditional roles for performers and listeners in the Western art music scene.

To summarize details from the previous chapter, after publishing a set of eleven *Sonic Meditations* in 1971 and working on them for years with her ♀ *Ensemble*, Oliveros organized an academic-quarter-long exploration of the works.¹⁰⁹ From January 8 to March 16, 1973, approximately 21 participants met each weekday from 3-5 PM for Oliveros’s Meditation Project.¹¹⁰ The two-hour meetings consisted of exercises to improve meditation abilities, and, as a result, creative practices: body awareness, breathing meditations, *Sonic Meditations*, Tai Chi, calligraphy, karate, *I Ching*, dream practices, fantasy techniques, and yoga. This breadth of exercises was made possible by Oliveros’s collaborators. Intermedia artist Elaine Summers led kinetic awareness exercises in weeks one and two; dancer Al Chung Liang Huang led Tai Chi and calligraphy sessions in week seven; physicist Dr. Lester Ingber instructed karate for two days during week eight; and psychologist Dr. Ronald Lane led two separate sessions on dream interpretation and “fantasy technique” in weeks six and seven and regularly attended the project sessions.¹¹¹ Participants also kept detailed diaries during the ten-week project. Oliveros stated that the “key product of all this training [was] the development of receptivity… the receptive mode which consists of observation and intuition.”¹¹²

Oliveros’s *Sonic Meditations* played a central role in the Meditation Project and participants often noted which pieces they practiced in their project diaries. In addition, extant recordings from the Meditation Project reveal how Oliveros’s instructions were realized in sonic

¹⁰⁷ Oliveros, “On Sonic Meditation,” 155.

¹⁰⁸ Idries Shah, *The Way of the Sufi* (New York: E. P. Dutton and Company, 1969), 245. Oliveros, “On Sonic Meditation,” 156.

¹⁰⁹ See Pauline Oliveros, “Sonic Meditations,” *Source: Music of the Avant Garde* 5, no. 2 (1971): 103–7. See also Kerry O’Brien, “Listening as Activism: The ‘Sonic Meditations’ of Pauline Oliveros,” *The New Yorker*, December 9, 2016; Mockus, “Meditation” in *Sounding*; and Von Gundun, “Consciousness Studies” and “The Sonic Meditations” in *Music*.

¹¹⁰ For the meeting time of the Meditation Project see participants’ journals from the project (UCSD Special Collections, MS 0102, Box 11).

¹¹¹ These events and the timeline are reconstructed from participants’ diary references.

¹¹² Oliveros, “Meditation,” 163.

practice by participants.¹¹³ A recording of “Teach Yourself to Fly” from the Meditation Project highlights dynamic drones. The recording is from the end of the project session on Tuesday, January 30 and begins with Oliveros giving verbal instructions for shifting from the previous meditation into “Teach Yourself to Fly.”¹¹⁴ It takes approximately three and a half minutes before participants’ observed breathing becomes audible. Around minute eight of the recording, some participants begin to hold pitched tones, drones that become longer in duration for the next seven minutes. At minute fifteen these drones unfold in iterated waves, each wave getting louder, with wider frequency range and density on each iteration. The waves of drones also occur more frequently until peak loudness and frequency range is reached around minute 18:30. After this peak, the drone waves continue but are longer in duration and gradually subside in loudness and range until minute 26 when breath sounds return. By minute 31 participants are no longer producing pitched tones and some return to silence around minute 32:50 before the recording ends at 33:27.¹¹⁵ This recording demonstrates the centrality of drones in “Teach Yourself to Fly” as well as their variety across parameters of timbre, duration, frequency, and loudness.

A recording of Oliveros’s *Sonic Meditation* “Removing the Demon or Getting Your Rocks Off” demonstrates the importance of repetition.¹¹⁶ The thirty-plus minute recording is dated Monday, February 12, 1973.¹¹⁷ Oliveros’s published score asks each participant seated in a

¹¹³ The participants included graduate composition students, UCSD faculty, and community members (including members of the ♀ Ensemble). Oliveros’s hand-written list before the project started included the following names: Chris Desmond, David Gamper, Ned Sublette, Gigi Gamper, Elinor Barron, Bonnie Barnett, Roberto Laneri, Carol Smith, Georgia Dow, Bonnie Rittenbach, Esther Rich, Howard Crook, Pam Sawyer, Ellen Van Fleet, Maria Bruslaa, Stan Evans, Blair Tabor, Fred Mayer, John Mizelle, and Bruce Rittenbach. Three names are crossed out: Karen Reynolds, Andy Barnett, and Kathy Acker. Four of the participants were also part of the ♀ Ensemble: Barron, Barnett, Sawyer, and Van Fleet. Desmond, Gamper, Sublette, Barron, Laneri, Evans, Mayer, Mizelle, and Rittenbach were UCSD music graduate students. Visual artists included Gigi Gamper (photographer and videographer), Van Fleet (on the UCSD faculty at the time), and Sawyer. From diary entries it is clear that many of the participants were, like Oliveros, influenced by the American counterculture. UCSD Special Collections, MSS 0102, Box 11.

¹¹⁴ CD transfers of these recordings are housed at Mills College. See Pauline Oliveros, “Sonic Meditation—Teach Yourself to Fly,” in *Archive CD 183 Oliveros, Pauline 76:57:43*, 1973. From 00:00-01:29 Oliveros states: “When you re-, when you open your eyes, when you take your palms away and open your eyes, open them very slowly and try not to focus on anything, trying not to see anything in particular.” A participant requests: “Can you say it a little louder?” Oliveros responds: “When you open your eyes open them slowly. Trying not to focus on anything in particular or to see anything in particular.” After a brief silence, she continues: “When you’re ready, come to sitting and let’s try to do a more extended version of ‘Teach Yourself to Fly’ letting it continue until the end of the session, taking a very long time to get it started.”

¹¹⁵ There is audible throat clearing at 32:50, suggesting some people have stopped. A note on the container of the original recording reads: “too much improvising.” Her instructions for the piece ask participants to make sounds that occur “naturally.” If this written note is from Oliveros, perhaps it refers to participants’ throat singing or other more “forced” sounds audible in the recording. See Mills College, Center for Contemporary Music, “Center for Contemporary Music Archive, CD 183, Oliveros.”

¹¹⁶ Pauline Oliveros, “PO 7-268 Sonic Meditations-Removing the Demon,” in *Archive CD 180 Oliveros, Pauline*, Mills College, 1973.

¹¹⁷ Diary entries from three participants confirm that they performed “Removing the Demon...” that day. See UCSD Special Collections, MS 0102, Box 11.

circle to hit rocks together at the slowest possible tempo (Image 5.8).¹¹⁸ Since each participant's slow tempo is different, the sounds of rocks hitting are repetitive in timbre and in their short attack duration yet unpredictable in time with tempo fluctuations within a single participant's tempo and unexpected proximities between participants' attacks. Amid these sounding rocks, Oliveros's instructions tell participants to shout out a pre-selected word once "enough energy is present."¹¹⁹ The word can be shouted one or more times. In the recording from the Meditation Project, most words are repeated, some temporally scattered throughout the course of the performance ("yeah" and "joy") and some repeated multiple times in a row for extended durations with minimal time between iterations creating a drone-like effect ("rock" and "hear"/"here").

Alpha activity was also itself a tool for practicing meditation.¹²⁰ Following the hopes of many authors in the project's bibliography, Oliveros and Meditation Project participants used biofeedback to mimic the alpha activity of Eastern meditators by listening to their own amplified alpha activity.¹²¹ Oliveros also recalled new *Sonic Meditations* arising from the biofeedback work:

Besides the training group meetings, Dr. Ingber, Lin Barron, Bruce Rittenbach, and I met regularly three times a week to work with biofeedback training experiments. We used respiration to control the pitch of an oscillator, and the amplitude of alpha brain waves to trigger the oscillator on and off. We tried placing electrodes at different points of the brain, i.e. occipital, parietal, etc., corresponding to known functions: auditory, visual, etc., and noted the quality of various mental states in relation to the auditory feedback results. Some of our observations led directly to successful meditation training exercises and new *Sonic Meditations*.¹²²

Project participants also had the chance to sign up for time with the biofeedback equipment. Ornstein and others had noted the usefulness of repeated words and sustained sounds in achieving meditative states for many existing spiritual traditions. Now Oliveros collaboratively created new compositions to serve the same function.

In addition to biofeedback training, Meditation Project participants also sat for EEG data collection at the beginning and end of the project, and in a report about the project, Oliveros noted what she described as "an interesting tendency."¹²³

¹¹⁸ Oliveros, *Sonic Meditations*.

¹¹⁹ Oliveros, *Sonic Meditations*.

¹²⁰ In contrast with Oliveros's indirectly musical use of alpha activity as inspiration, meditational tool, and experiment metric in the Meditation Project, composer Alvin Lucier used amplified alpha activity in his composition *Music for Solo Performer* (Alvin Lucier and Douglas Simon, "Music for Solo Performer," in *Chambers: Score by Alvin Lucier* (Middletown: Wesleyan University Press, 1980)). In addition, composer David Rosenboom discussed his real-time improvisations with biofeedback equipment in an interview with Oliveros (UCSD Special Collections, MS 0102, Box 12, Folder 30). See Oliveros and Lucier's performances of Lucier's alpha activity piece: *Music for Solo Performer* (Lovely Music, VR 1014, 1982) and Rosenboom's *Brainwave Music* (Black Truffle, BT048, 2019, 1977).

¹²¹ Oliveros, "Meditation," 160.

¹²² Oliveros, "Meditation," 163.

¹²³ January 11 and March 12, 1973.

Alpha tended to be present in higher amplitude in the right as opposed to the left hemisphere of the brain or vice versa during the first tests. At the end of the project, the tendency was towards more equal amplitude alpha in both hemispheres simultaneously, indicating that some balancing or synchronization might be occurring.¹²⁴

She described transforming hemispheric differences, the same physiological divide onto which Ornstein plotted Orientalist binaries. The project, it seemed to Oliveros, had balanced Eastern- and Western-associated modes of consciousness, physically evidenced in alpha activity (Image 5.9). In the immediate aftermath of the Meditation Project, Oliveros emphasized the importance of the EEG data, but without funding to systematically analyze the data, Oliveros was limited to qualitative descriptions. While it is possible to visually identify alpha waves, determining their relative amplitude, frequency, and duration is most reliably done computationally, especially when determining statistically significant changes over the course of the project.¹²⁵ Years after the Meditation Project, Oliveros gave stronger descriptions of the data as evidence for the efficacy of the *Sonic Meditations*: “Brain wave measurements and imaginal tests by a clinical psychologist at the beginning and end of the experiment supported the effects that *Sonic Meditations* seemed to have.”¹²⁶

Alpha activity’s deep integration in the Meditation Project carried Orientalist binaries and implicit racial hierarchies with it. In Oliveros’s Meditation Project and its supporting bibliography, Eastern sources and practices were esteemed as a source of power that had faded in the West, seemingly inverting the valuation of Said’s Orientalism binaries. The apparently inverted valuation recalls ethnomusicologist Tara Browner’s analysis of Oliveros’s *Crow Two*, a sonic meditation from 1975. Oliveros drew on a Native American text for the work, and Browner quoted literary scholar Julian Rice’s analysis of that text:

[the author] fulfill[s] the yearnings of the disaffected youth he projects: “You know, we Indians are not like some white folks—a man and a wife, two children, and one babysitter who watches the TV set while the parents are out visiting somewhere.” The reader is immediately adopted into the “we” and safely set apart from the “some,” the soulless, silent majority that the alienated reader loves to hate. [The author] made the counter-

¹²⁴ Oliveros, “Meditation,” 163-164.

¹²⁵ The first secondary text to describe Oliveros’s data from the Meditation Project, Von Gunden’s *Music of Pauline Oliveros*, stated that the project was “not successful” and suggested that this was “probably because there were too many variables to make conclusions.” Von Gunden, *Music*, 92. In an email request to find out more about the decision to say the project was not a success, Von Gunden stated, “If I remember correctly it was difficult for her to assemble a number of people to commit to the project. It was time consuming and I think the ‘diary’ was too probing.” Heidi Von Gunden, email message to author, April 24, 2019.

¹²⁶ The quotation comes from Oliveros’s keynote address at ArtSci98: Seeding Collaborations on April 4-5, 1998. Pauline Oliveros, *Sounding the Margins: Collected Writings 1992-2009* (Kingston, N.Y.: Deep Listening Publications, 2010), 30.

culture readers of the early 1970s... an offer they couldn't refuse: They could have their serene wisdom. They could have an Indian soul.¹²⁷

Browner's analysis resonates with one of Eve Tuck and K. Wayne Yang's "settler moves to innocence": "...strategies or positionings that attempt to relieve the settler of feelings of guilt or responsibility without giving up land or power or privilege, without having to change much at all."¹²⁸ One of their settler moves to innocence, "settler adoption fantasies," is the wish to gain imagined benefits of being Indigenous without actually being an Indigenous person: "...the desire to *become without becoming [Indian]*...These fantasies can mean the adoption [by settler colonizers] of Indigenous practices and knowledge..." For Browner, Oliveros's *Crow Two* was a conduit for some white Americans to imagine themselves as possessing Indian wisdom and soul without actually being Indian (that is, without addressing or experiencing the history and consequences of settler-based dehumanization of American Indians). As Tuck and Yang pointed out, American Indian groups such as the Aleuts have acted as domestically "Orientalized Others," and Oliveros's bibliography for the Meditation Project, as well as comments from participants' diaries provide additional examples of the operation of Orientalism in a settler colonialism context with its unique power-relations arising from a lack of "spatial separation between metropole and colony."¹²⁹

However, while the specificities of settler colonialism played out in Browner's text and the Meditation Project, the broader role of Orientalized alpha activity in the Meditation Project recalls Janet Mawhinney's less settler-specific "moves to innocence": "strategies to remove involvement in and culpability for systems of domination."¹³⁰ In the Meditation Project, an imagined inversion of a racialized social hierarchy allowed white members of the American counterculture to distance themselves from the dominant culture and conceive of themselves as possessing an essentialized trait of a supposedly more primitive group. White members of the counterculture could view themselves as just another othered group from the perspective of the white Western technocracy. This countercultural positioning resonates with a "settler move to innocence" that Tuck and Yang called "colonial equivocation," (though, importantly, in this analysis of the Meditation Project this equivocation was directed towards the Orientalized East

¹²⁷ Browner stated that Oliveros drew on the text *Lame Deer: Seeker of Visions*, which was ostensibly an autobiography of a Lakota Medicine Man. Browner cited scholarship which raised issues with the text: (1) the assistant writer, Richard Erdoes, attributed earlier Lakota texts to Lame Deer and (2) Lame Deer turns out not to have been a Lakota Medicine Man. See Tara Browner, "'They Could Have an Indian Soul': Crow Two and the Processes of Cultural Appropriation," *Journal of Musicological Research* 19, no. 3 (2000), 249; and Julian Rice, "A Ventriloquy of Anthros: Densmore, Dorsey, Lame Deer, and Erdoes," *American Indian Quarterly* 18, no. 2 (1994): 169–96, <https://doi.org/10.2307/1185245>.

¹²⁸ Eve Tuck and K Wayne Yang, "Decolonization Is Not a Metaphor," *Decolonization: Indigeneity, Education & Society* 1, no. 1 (2012), 10.

¹²⁹ Tuck and Yang, "Decolonization," 4-5, 18.

¹³⁰ Janet Mawhinney, "'Giving up the Ghost': Disrupting the (Re)Production of White Privilege in Anti-Racist Pedagogy and Organizational Change" (MA thesis, University of Toronto, 1998), 17.

rather than Indigenous land and life): the idea that “‘We are all colonized,’ may be a true statement but is deceptively embracive and vague, its inference: ‘None of us are settlers.’”¹³¹ From the perspective of white counterculture members: if they are also victims of the technocracy, they are not also oppressors. Participants in the Meditation Project can be seen as examples of what American Studies and English scholar Mark Greif noted in *The Age of the Crisis of Man: Thought and Fiction in America, 1933-1973*: the unthought universality of “man” in midcentury American fractured in the 1960s and many white Americans in the counterculture identified with non-whites as fellow-oppressed groups, concern with the crisis of man became, for such people, concern with fighting “the Man.”¹³² Racially-othered groups, thought to be less infected by the technocracy precisely because of their perceived lack of relative development, were cast as repositories of reparative psycho-spiritual technologies.¹³³ In the case of *Crow Two* it was “Indian souls.”¹³⁴ In the case of the Meditation Project, participants could utilize “Oriental” alpha activity en route to curing themselves from the dross of Western technocracy.¹³⁵

Since the discourse surrounding meditation in the counterculture implied that meditative states were race-based and race was widely believed to have biological determinants, how could

¹³¹ Tuck and Yang, “Decolonization,” 17.

¹³² Greif, *Age*, 18, 270-279.

¹³³ This augments Herbert Blumer’s conceptualization of racial prejudice as a sense of group position. In this case, white American superiority along technological, economic, or political dimensions interacts with attempts to disassociate from the group by identifying with “inferior” groups. Herbert Blumer, “Race Prejudice as a Sense of Group Position,” *Pacific Sociological Review* 1, no. 1 (1958): 3–7. The situation also resonates with Frank Chin, Jeffery Paul Chan, Lawson Fusao Inada, and Shawn Hsu Wong’s concept of “racist love,” the idea that white Americans love another racial group because they abide by their assigned stereotypes. “There is racist hate and racist love. That is, if the system works, the stereotypes assigned to the various races are accepted by the races themselves as reality, as fact, and racist love reigns.” Speaking about the experiences of Asian Americans in their 1973 preface, they described “euphemized white racist love,” and “racist white supremacy passed off as love and acceptance.” See Frank Chin, ed., *Aiiieeeee! An Anthology of Asian-American Writers* (Washington: Howard University Press, 1974), xxv, viii, xvi.

¹³⁴ Browner, “Indian,” 249. Browner’s analysis resonates with another of Tuck and Yang’s settler moves to innocence: “settler adoption fantasies,” the wish to gain imagined benefits of being indigenous without actually being an indigenous person: “...the desire to *become without becoming [Indian]*...These fantasies can mean the adoption [by settler colonizers] of Indigenous practices and knowledge...” Tuck and Yang, “Decolonization,” 14.

¹³⁵ This use of an essentialized version of a marginalized culture to “heal” or “improve” the dominant white American culture recalls Norman Mailer’s use of stereotypes about African Americans to plot a path away from social conformity for the white American hipster. “The hipster has absorbed the... synapses of the Negro, and for practical purposes could be considered a white Negro.” See Norman Mailer, *The White Negro* (San Francisco, 1957), originally published in *Dissent*; for the use of Mailer’s term to explain the reception history of jazz, see John. Rockwell, “Jazz, Group Improvisation, Race & Racism,” in *All American Music: Composition in the Late Twentieth Century*, 1st ed. (New York: Knopf, 1983), 164–75; for more discussion of Mailer, see “Mailer’s Sound,” chap. 5 in Phil Ford, *Dig: Sound and Music in Hip Culture* (New York: Oxford University Press, 2013), <http://dx.doi.org/10.1093/acprof:oso/9780199939916.001.0001>. White American identity anxieties in the long Sixties were in part driven by explications of the damaging history of whiteness emerging from Third Worldism and the Black Power movement. See Painter, “Black Nationalism and White Ethnics,” chap. 27 in *History* and “Activism and the Origins of Asian American Studies,” chap. 1 in Calvin Miaw, “Asians and the Color-Line: A History of Asian American Studies, 1969-2000” (Stanford, Stanford University, forthcoming).

members of the counterculture also believe it was possible to enter these states, given that they were not part of the racial group they ascribed the state to? Changes in academic and popular anthropology in mid-century America untie this knot. Prominent race theory in the early 1900s attributed an individual's behavioral, physiological, and mental abilities to the biology of the individual's racial group.¹³⁶ Anthropologists and scientists were also attributing behavior and conscious states to racial groups. This impacted academic and popular discourse on the accessibility of supposedly non-white states of consciousness and practices. While some fringe groups, including "late theosophy" teachings, argued that white Americans and Europeans could access other groups' psychological states, most of the American popular culture cast practices like meditation and yoga as activities that Westerners could fundamentally never understand, a position bolstered by the notion that practitioners are biologically other.¹³⁷ However, in the early 1900s, anthropologist Franz Boas contested the biological foundations of race by collecting cephalic measurements that gave strong evidence against the biological premises of these racial groups.¹³⁸

As Painter has recounted, anthropologists following Boas's path, most prominently Ruth Benedict and Margaret Mead in the mid-twentieth century, further undermined the evidence and arguments for biological race differences. While Benedict and Mead still held to the notion of biological race, they argued that it was over-generalized, that scholars had used it to explain too much and that culture explained most observed differences.¹³⁹ This was the rise of what Omi & Winant called the ethnicity paradigm, race conceived of as social category where "ethnicity itself was understood as the result of a group formation process based on culture and descent."¹⁴⁰ It made room for white Americans to see the practices of non-white-racialized groups as learnable. Take, for example, an item from Oliveros's bibliography. In Walter Gibson's 1958 book on yoga, he opens with a statement about how white Americans may have perceived an insurmountable division between East and West:

Often we have heard the poetic saying, 'East is East and West is West,' usually followed by the line — 'and never the twain shall meet.' The latter phrase is becoming obsolete. For

¹³⁶ Painter, "The American School of Anthropology," chap. 13 in *History*.

¹³⁷ Stephen Prothero, "From Spiritualism to Theosophy: 'Uplifting' a Democratic Tradition," *Religion and American Culture: A Journal of Interpretation* 3, no. 2 (1993): 197–216, <https://doi.org/10.2307/1123988>. For an example of racial incomprehensibility, see Herrigel's text on archery, cited in Oliveros's bibliography for the Meditation Project: "For Orientals these mysterious formulae are clear and familiar truths, but for us they are completely bewildering." Eugen Herrigel, *Zen in the Art of Archery*, trans. R. F. C. Hull (New York: Vintage Books, 1953), 6.

¹³⁸ Painter, "Franz Boas, Dissenter," chap. 16 in *History*. For more on the history of scientific racism, see "The Scary Monster," chap. 6 in Jennifer L. Eberhardt, *Biased: Uncovering the Hidden Prejudice That Shapes What We See, Think, and Do* (New York: Viking, 2019).

¹³⁹ Painter, "Refuting Racial Science," chap. 24 in *History*.

¹⁴⁰ Michael Omi and Howard Winant, *Racial Formation in the United States*, Third (New York and London: Routledge, 2015), 15.

many years, people of the West have forced their ways upon those of the East. Now, in return, the East has begun to implant its wisdom in the West.¹⁴¹

Such a rigid division and its associated impenetrability are in the past, argued Gibson. Now, (implicitly white) Americans could learn the wisdom of the East and Gibson's text presents visual models: drawings of trim, white individuals successfully achieving yoga poses (Image 5.10). Claudio Naranjo's book, *On the Psychology of Meditation*, also on Oliveros's bibliography for the meditation project, begins with a similar sentiment:

The time when East and West meet, our time, is one of meeting between religions, philosophies, and psychological schools that had hitherto ignored one another or looked upon one another with fanatical disdain....because of a measure of disappointment in the ultimate fruits of scientific and technological progress, an increasing number of people are becoming concerned with the question of personal development. An age of self-satisfaction is over, and we have entered an age of seeking.

In our search we look for new answers, but we also turn a respectful gaze to the wisdom of the remote past and to the wisdom of the East that we once thought obsolete and superseded...¹⁴²

Naranjo cast previously separated ways of thinking, stemming from the East and West, as uniting in response to technocracy's disappointments, a meeting only conceivable under the ethnicity paradigm. Vaguely ancient wisdom from the East would form part of the West's new answers, Naranjo and many others argued.

The rise of the ethnicity paradigm did not, however, do away with notions of racial difference.¹⁴³ Those notions persisted within the emerging paradigm and revealed its racial underpinnings.¹⁴⁴ In the case of the Meditation Project, this situation allowed participants, and Oliveros, to simultaneously and comfortably hold two views that would have been contradictory only a few decades earlier: (1) meditation induces a psychological state linked with the Asian race and (2) meditation is an Eastern practice that can be learned.

Participants' diaries from their time in the Meditation Project reveal how alpha activity played out on the ground.¹⁴⁵ In line with writers from Oliveros's bibliography for the project, participants' expressed the belief that alpha activity indexed meditative states. For example, one participant recalled running into another participant while on an afternoon walk.

[that participant] has the clearest eyes of anyone I can remember. I had the impression of being in the presence of ... (my words fail me at this point - I thought for a minute that I

¹⁴¹ Gibson, *Key*, 7.

¹⁴² Naranjo and Ornstein, *Psychology*, 3.

¹⁴³ Take, for example, Alan Watt's description of Gia-fu Feng in his introduction to Feng's book *Tai Chi, a Way of Centering and I Ching*: Feng is "very Chinese and thus difficult to define or classify in Western terms." Gia-fu Feng, *Tai Chi, a Way of Centering and I Ching; a Book of Oracle Imagery* (New York: Macmillan, 1970), 1.

¹⁴⁴ Omi and Winant, "Ethnicity" in *Racial*.

¹⁴⁵ Throughout, I anonymize participants' names and deploy the pronouns they/their/them.

had hold of something to say with words but there are none except that I hope to meet [them] again sometime[...]]... I bet [they have] some really nice alpha.¹⁴⁶

The other participant's ineffable *presence*, Naranjo's definition of meditation, triggered an association with alpha activity.¹⁴⁷

In another example, a participant reflected on the practice of a *Sonic Meditation* called "Nirodha" (or "emptiness of mind") and their ability to distinguish between focused meditation and an idle mind. They wondered if biofeedback equipment could make the same differentiation: "It will be interesting to see what differences there are on the Alpha machine between quiet nothingness and focusing on something (breathing)[.]"¹⁴⁸ Not only could the biofeedback equipment track meditation, they wondered if it could even detect the quality of the meditation.

Participant diaries contain many references to counterculturally associated concepts and activities, including a distaste for psychological tests, perceived as tokens of technocracy. One participant gave the most pointed take on the day the group took a battery of quantitative surveys, questionnaires, and tests: "For some reason I hate psychologists and the inane, horrible, stupid tests that frustrate me so that they can generalize, categorize and intellectualize me like the sociologists."¹⁴⁹ Diary entries demonstrate that participants did not hold this sentiment for alpha activity and biofeedback, even though alpha activity is more invasively quantitative than the other psychological tests participants' took. One participant wrote: "... my first session (long awaited) with B.F. [biofeedback] machine. I think I'll do it every day it I can."¹⁵⁰ All of the participants

¹⁴⁶ UCSD Special Collections, MS 0102, Box 11.

¹⁴⁷ Immediately after asserting that one of the other participants "has some really nice alpha," this participant wrote a quotation from Meister Eckhart taken from Huizinga's famous history of the Middle Ages, "...the abyss without mode and without form of the silent and waste divinity (see Johan Huizinga, *The Waning of the Middle Ages: A Study of the Forms of Life, Thought and Art in France and the Netherlands in the XIVth and XVth Centuries* (Garden City: Doubleday, 1954). [The same quotation appears in the 1924 edition on page 203 but in altered form in the 1996 translation: "...the mannerless and formless abyss of the silent, empty deity..." (see Johan Huizinga, *The Autumn of the Middle Ages* (Chicago: University of Chicago Press, 1996), 258).] The participant seems to link Huizinga's discussion of mystical metaphors about the divine with the other participant's presence and alpha activity. The Middle Ages often came up in counterculture texts as an example of the last time the West was culturally in touch with the human-ness and the non-intuitive, a time before technocracy. Charles Reich had noted that the Middle Ages were the last time that Westerners had real choice: "...it has been a long, long time since we made any real choices; since the end of the Middle Ages, technology and the market have made our choices for us." Reich, *Greening*, 305. Scholars of the European Middle Ages have also historically cast the time period as uniformly white (see recent critiques, Jennifer Schuessler, "Medieval Scholars Joust With White Nationalists. And One Another," *The New York Times*, May 23, 2019, sec. Arts, <https://www.nytimes.com/2019/05/05/arts/the-battle-for-medieval-studies-white-supremacy.html>). This attraction to "simpler times" is also reflected in one participant's dream, recorded in their project diary: "In San Francisco - people had to gather away from [the] city as there was possibly going to be an A-bomb dropped on it. [others] and I march along - no differences between people now - we're all surviving! After 2 days of this it's found that if we revert 20 years (back to 1900's) back to that style of living the pressure will be off of our being "wiped out" (who knows why?) [In the left margin in giant parentheses:] (back to simpler times = less pressure)[.]" UCSD Special Collections, MS 0102, Box 11.

¹⁴⁸ UCSD Special Collections, MS 0102, Box 11.

¹⁴⁹ UCSD Special Collections, MS 0102, Box 11.

¹⁵⁰ UCSD Special Collections, MS 0102, Box 11.

who expressed reservations about the psychological tests also recorded interest in alpha activity. It seems that alpha activity's countercultural associations outweighed its technocracy-stained connections with psychological testing in general. Another interpretation of these comments is that participants may have viewed neurophysiological data as a more accurate reflection of their true or "primitive" self because, in contrast with self-report data, the measurements seem to bypass their intellectual self.

Alpha activity was not the only countercultural reference in participants' diaries. Dairy entries reference the *I Ching*, vibes, acid trips, the Hari OM, Tibetan chanting, gagaku, and Ukiyo-e, cats named Shanti, ESP, yogis, psychosynthesis, psychocybernetics, Zen archery, the books of Carlos Castaneda, and the music of Pran Nath. The countercultural associations of alpha activity, including its Orientalism, likely resonated with participants' myriad additional countercultural materials and concepts. Participants' Orientalist associations with alpha activity were, in other words, overdetermined.

Participants also recorded changes that the project and specific *Sonic Meditations* made in their lives, including perceived changes in the brain. One participant discussed their experience of the "Name Mantra," a *Sonic Meditation* where participants mentally repeated their name, audibly vocalizing it at the end. In a thirty-five-minute version of the *Sonic Meditation*, they noted,

My focus was always to keep the sound swirling in the upper part of my head... I... took the sound swirl to a higher part inside my head and poured in energy... I felt myself begin to rise to joy then surge to a suspended momentary blissful ecstasy... I hadn't experienced such a jolt like that since my Kundalini Yoga Ashram days in Tex[as] last summer... Unfortunately my brain actually feels quite fried even now 6 hrs. later. Like blown circuits and actual cell damage. I really had my mind blown - burned-out... I remained calm and fairly relaxed during the meditation[,] often my focus was on my 3rd eye and other body chakras.¹⁵¹

In a way, this participant's experience of a perceived brain change induced by a *Sonic Meditation* fulfilled Oliveros's dream for the Meditation Project: felt causal effects of the compositions on participants' cognition. Notably, the participant described their experience with mixed valence: "ecstasy" and "cell damage." Perhaps not as uniformly "healing" an experience as Oliveros might have desired.

Meditation Project diaries provide evidence that the othering and primitivist essentializations of Orientalism were at play for participants.¹⁵² Tai Chi instructor Al Huang, for example, was a lightning rod for criticism and adoration. One participant wrote: "Al Wong's [sic]

¹⁵¹ UCSD Special Collections, MS 0102, Box 11.

¹⁵² These Orientalist essentializations were also at play for other members of UCSD. When a friend of George Winne Jr. was interviewed after his self-immolation, he did not recall any signs that George would do something so radical. The only hints were that Winne, "had become quieter and more withdrawn in recent months and had taken interest in Oriental mysticism and organic foods." Joyner, "Student," 1.

lack of compassion... is an Oriental quality, I think."¹⁵³ Alternatively, another participant wrote that Al Huang was,

...one of the most beautiful men I have ever seen - his soul, his energy, his essence, his body, his face, his movement, his relation to all things around him. I feel very much in touch with him and would like to be close to him, near him. I will make a gift for him.¹⁵⁴

In both cases, Huang is cast as a stereotype: either coldly indifferent or transcendent and similar to the speaker.¹⁵⁵ Participants also recorded their responses to Meditation Project meetings and dreams in their diaries and three entries stand out. One relates being in an East Indian and Mexican ritual that made the writer wonder "what this meant about my past," thus linking non-Western practices with an eternal pastness and noting potential identification with othered groups.¹⁵⁶ In reflecting on a performance of "Removing the Demon" during the project that day, another participant wrote:

I can't say that contact was made with racial memory but the images conjured up were definitely prehistoric in some sense. (Kinesthetic not visual images). I can't pin anything down about it I guess because it evoked almost exclusively the kinesthetic which doesn't seem too susceptible of symbolic representation.¹⁵⁷

Here the eternal pastness is linked with race and the non-verbal or intuitive. Another participant recorded the following dream:

A small village of people (20-30) all together in a plaza? except lower more confined, like an open garden like ceremonial space. There is a ceremony going on - all are facing circularly into the center towards a leader (raised above on a platform[]). There is movement with the arms similar to a Ty [sic] Chi movement. [T]he people seem to have brown skin. There is some kind of chanting/moaning going on; hard to distinguish - I feel like I know the people and I may even be one of them.¹⁵⁸

Here again an "Oriental" practice is performed by a racialized other with an accompanying feeling of identification on the part of the dreamer. The desirability of Orientalist associations was explicit for Meditation Project participants. Measurable alpha activity as an index of meditative states could seamlessly integrate into this web of associations.

Edward Said plotted a way out of the binds of Orientalist binaries in his later work, *Culture and Imperialism* and it superficially resonates with Oliveros's Meditation Project.¹⁵⁹ The path forward, Said argued, would be built on bridging cultural difference, disavowing racial hierarchy, and a hybrid thinking where concepts' complex influences are traced. Some have directly argued

¹⁵³ UCSD Special Collections, MS 0102, Box 11.

¹⁵⁴ UCSD Special Collections, MS 0102, Box 11.

¹⁵⁵ Another participant wrote "There is a vanity to Al Huang that puts me off[f]." and "Al looking pretty fancy and in control. A little show off." UCSD Special Collections, MS 0102, Box 11.

¹⁵⁶ It is unclear if the author of the diary is describing an actual event or a dream as the entries before and after it are marked as dreams. UCSD Special Collections, MS 0102, Box 11.

¹⁵⁷ UCSD Special Collections, MS 0102, Box 11.

¹⁵⁸ UCSD Special Collections, MS 0102, Box 11.

¹⁵⁹ Edward W. Said, *Culture and Imperialism*, 1st ed. (New York: Knopf, 1993).

against Said's proposed path away from Orientalism. For example, historian John MacKenzie argued that Said's "manifesto" in *Culture and Imperialism* leaves no room for unmanipulative scholarship in the past and rests on a naive teleological belief in a progressive future, making it a "Whiggish Utopia."¹⁶⁰ Others have demonstrated that while Said's path sounds positive, it is not effective. In her book *Cold War Orientalism*, Christina Klein argued that mid-20th-century American depictions of Asia in middlebrow culture satisfied key elements of Said's "manifesto," such as "sentimental insistence on bridging differences" and "liberal disavowal of racial hierarchy," yet did nothing to hinder the global assertion of American power.¹⁶¹ Indeed, rhetorical attempts to bridge differences and disavow racial hierarchies can exacerbate binaries and reinforce hierarchies. Jane Iwamura's work on "virtual orientalism" traced the history and media representations of three "Oriental Monks," D. T. Suzuki, Maharishi Mahesh Yogi, and Kwai Chang Caine from the TV show *Kung Fu*. Iwamura showed how seemingly positive portrayals of Asian characters can effectively reinforce racialization. For example, the figure of the Oriental Monk as "ideological caregiver" aiding "dominant white Americans gain spiritual insight and, often, political mission" bolsters the system of Western dominance even while serving "as a vehicle for social critique." It casts white Americans as "protectors, innovators, and guardians of Asian religions and culture and wrest[s] the authority to define these traditions from others."¹⁶² Iwamura described the situation as a "modernized cultural patriarchy."¹⁶³

In the case of the Meditation Project, the presence of Al Huang as Tai Chi instructor is an embodied example of such an ideological caregiver for the group, aiding participants in their journey towards greater enlightenment while simultaneously acting as a visual reminder of the "Oriental" nature of the practices in which they were engaged. By the time the Meditation Project began in 1973, much of the modernized cultural patriarchy that Iwamura described was in place: Ornstein, Tart, White, and others had already taken versions of Asian spiritual traditions and practices and melded them into an imagined, pan-Asian source of wisdom. In addition, figures like Lester Ingber had gone through the ideological caregiver path, studying with an "Oriental Monk," acted as karate instructor, scientific advisor, and guru of sorts for the Meditation Project. But, more abstractly, alpha activity also served as a disembodied Oriental Monk, guiding Meditation Project participants, allowing for social critique made manifest in neurophysiological responses while simultaneously reinforcing racialized hierarchies. In the Cold War American Orientalism operating behind the scenes of the Meditation Project the well-worn binaries and

¹⁶⁰ John M. MacKenzie, *Orientalism: History, Theory, and the Arts* (Manchester: Manchester University Press, 1995), 20.

¹⁶¹ Christina Klein, *Cold War Orientalism: Asia in the Middlebrow Imagination, 1945-1961* (Berkeley: University of California Press, 2003), 15, <http://site.ebrary.com/lib/stanford/Doc?id=10048970>.

¹⁶² Jane Iwamura, *Virtual Orientalism: Asian Religions and American Popular Culture* (Oxford: Oxford University Press, 2011), 20-21.

¹⁶³ Iwamura, *Virtual*, 20-21.

hierarchies persisted. White Westerners could “advance” to a higher state of being with healed consciousness and the story could end there, with the Orientalized East imagined as the home of a mined psychic resource.

When Oliveros began writing the *Sonic Meditations*, one motivation was social and political turmoil viewed on T.V. and witnessed on campus. Many in the American counterculture believed they had diagnosed a white social illness and identified a treatment. Newly quantifiable states of consciousness seemed to provide a path forward but they carried with them Orientalized associations that reinforced racialized social hierarchies. Music, especially the mantra-like use of repetition and meditative drones, became part of the prescription. The Meditation Project was an experiment, a sort of clinical trial: could musical meditation improve participants’ lives? Oliveros interpreted her data in the affirmative and later linked the *Sonic Meditations* and the data of the Meditation Project with her interest in Deep Listening practices and retreats.¹⁶⁴

The desire for calm and toolkits for achieving it resonate today. Deep Listening retreats continue; the first retreat since Oliveros’s passing took place in Northern California in August of 2018. The *Sonic Meditations* are still central to the experience and some of the scientific and counterculture literature underlying the Meditation Project is still offered up as the practice’s intellectual foundation. Alpha activity and other quantifications of meditative states as well as extremely optimistic readings of scientific literature on meditation are also very alive, with devices still promising that the cure is at hand (Image 5.11).¹⁶⁵ In addition, as scholars continue to probe the influence of settler colonialism on the methods and scope of musicological enquiry, Oliveros’s Meditation Project offers an example of how related concerns about the roles of whiteness impacted listener-participants’ experiences.¹⁶⁶ In addition to the previously-explored exoticism of similar musical techniques, the responses of Meditation Project participants in light of Oliveros’s bibliography show how listeners’ psychological states also held the potential for

¹⁶⁴ Pauline Oliveros, *Deep Listening: A Composer’s Sound Practice* (New York, Lincoln, and Shanghai: iUniverse, 2005), xviii.

¹⁶⁵ For a recent exchange in the psychology community see the following article, response, and response to the response:

N. T. Van Dam et al., “Mind the Hype: A Critical Evaluation and Prescriptive Agenda for Research on Mindfulness and Meditation,” *Perspectives on Psychological Science* 13, no. 1 (2018): 36–61, <https://doi.org/10.1177/1745691617709589>.

R. J. Davidson and C. J. Dahl, “Outstanding Challenges in Scientific Research on Mindfulness and Meditation,” *Perspectives on Psychological Science* 13, no. 1 (2018): 62–65, <https://doi.org/10.1177/1745691617718358>.

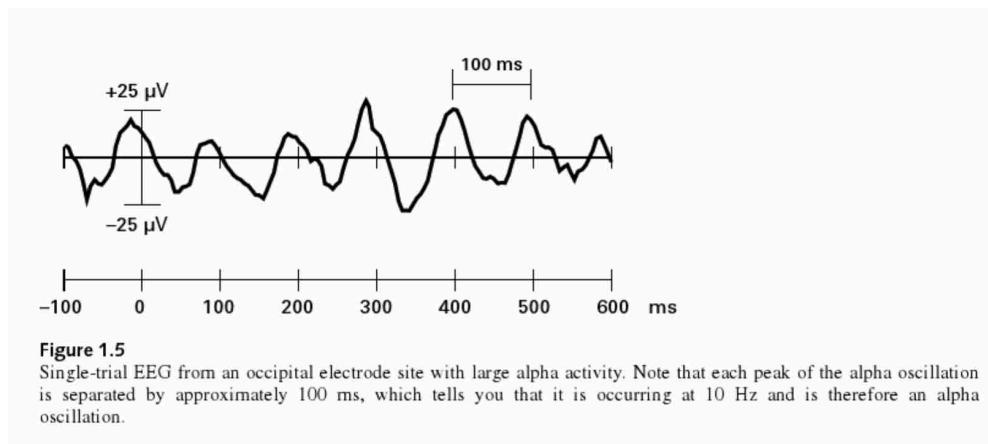
N. T. Van Dam et al., “Reiterated Concerns and Further Challenges for Mindfulness and Meditation Research: A Reply to Davidson and Dahl,” *Perspectives on Psychological Science* 13, no. 1 (2018): 66–69, <https://doi.org/10.1177/1745691617727529>.

¹⁶⁶ Tamara Levitz, “The Musicological Elite,” *Current Musicology* 102, no. Spring (2018), https://currentmusicology.columbia.edu/article/the-musicological-elite?article=the-musicological-elite&post_type=article&name=the-musicological-elite and Tamara Levitz, “Decolonizing the Society for American Music,” *The Bulletin of the Society for American Music* XLIII, no. 3 (2017).

racialization.¹⁶⁷ While the concepts of Orientalism and American whiteness have shifted since the early 1970s, the potential of racialized psychological states to influence aesthetic experiences and judgements in the American art music subculture continues.

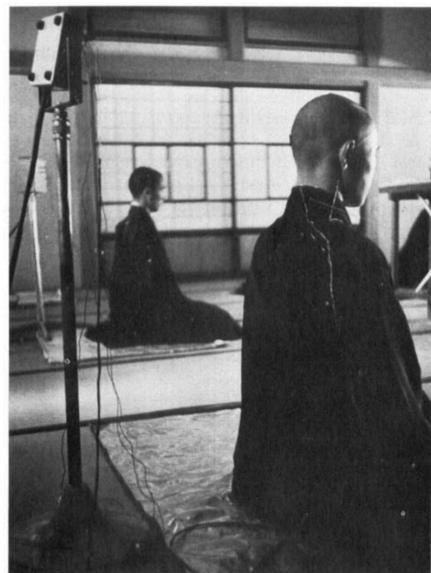
¹⁶⁷ Locke, “Exoticism in a Global Age,” in *Musical*.

Image 5.1. A visualization of alpha activity.¹



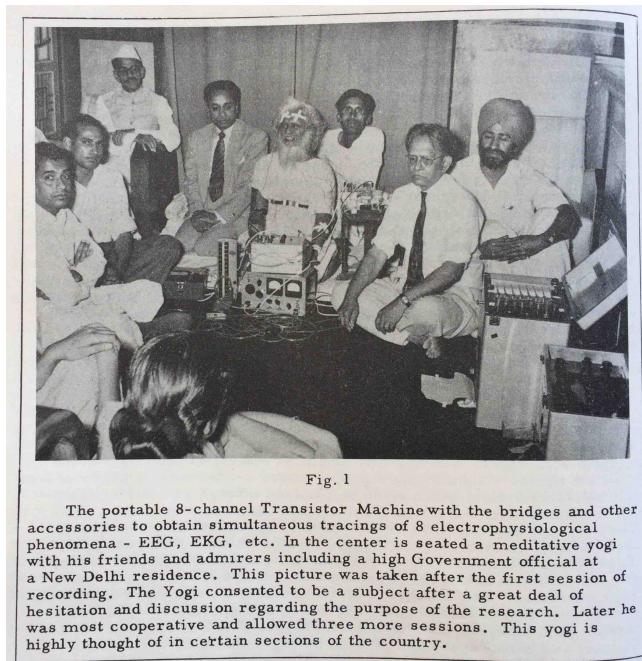
¹ Steven J. Luck, *An Introduction to the Event-Related Potential Technique*, 2nd ed. (Cambridge, MA and London: The MIT Press, 2014), 17, <http://ebookcentral.proquest.com/lib/stanford-ebooks/detail.action?docID=3339822>.

Image 5.2. An image from Kasamatsu and Hirai's 1966 article.²



² Kasamatsu and Hirai, "Electroencephalographic Study on the Zen Meditation (Zazen)," *Folia Psychiatrica et Neurologica Japonica* 20, no. 4 (1966), 317.

Image 5.3. An image from Bagchi and Wanger's experiment.³



³ B. K. Bagchi and M. A. Wenger, "Electro-Physiological Correlates of Some Yogi Exercises," *Electroencephalography and Clinical Neurophysiology Supplement 7* (1957), 134.

Image 5.4. Terry Riley *String Quartet 1960*, measures 25-46.⁴

(25)

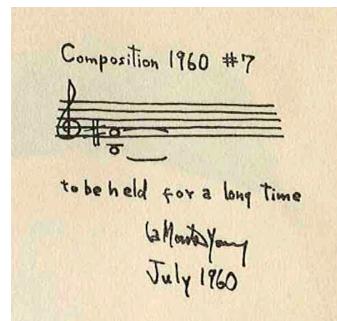
(30)

(35)

(40)

⁴ Terry Riley, *String Quartet 1960* (North San Juan: Independent Music Publishers, 2009), 2-3.

Image 5.5. La Monte Young *Composition 1960 #7*.⁵



⁵ La Monte Young and Jackson Mac Low, eds., *An Anthology of Chance Operations* (Bronx: La Monte Young & Jackson Mac Low, 1963), 117.

Image 5.6. Pauline Oliveros *Variations for Sextet*, measures 69-76.⁶ Note the cello line starting in measure 69, held into measure 76 (the staff immediately above the piano's grand staff).

⁶ Pauline Oliveros, *Variations for Sextet* (Sharon, Vermont: Smith Publications, 1974), 11-12.

Image 5.7. Pauline Oliveros *Sonic Meditations I*, “Teach Yourself to Fly.”⁷

Any number of persons sits in a circle facing the center. Illuminate the space with dim blue light. Begin by simply observing your own breathing. Always be an observer. Gradually allow your breathing to become audible. Then gradually introduce your voice. Allow your vocal cords to vibrate in any mode which occurs naturally. Allow the intensity to increase very slowly. Continue as long as possible naturally, and until all others are quiet, always observing your own breath cycle.
Variation: Translate voice to an instrument.

⁷ Pauline Oliveros, *Sonic Meditations* (Sharon: Smith Publications, 1974).

Image 5.8. Pauline Oliveros *Sonic Meditations VII*, “Removing the Demon or Getting Your Rocks Off.”⁸

Sit in a circle with persons facing in and out alternately. If the number in the group is odd, seat the left over person in the center. Each person except the center person has a pair of resonant rocks. Begin the meditation by establishing mentally a tempo as slow as possible. Each person begins independently to strike the rocks together full force maintaining the imagined tempo. When enough energy is present, shout a pre-meditated word. Once selected, the word remains the same. The shout is free of the established tempo, and may occur one or more times during the meditation. The center person is without rocks and selects a word, phrase or sentence to say or intone repeatedly either silently or audibly for the duration of the meditation.

Variations:

- a) *Persons without rocks may surround the circle and follow the same instructions as the center person, independently.*
- b) *Persons may repeat mentally, or actually, one body movement as slowly as possible. One body movement may be simple or very complicated as long as it is continuous and can be repeated exactly as a cycle. Kinetic participants could include the shout or the repeated word, phrase or sentence.*
- c) *Do this meditation in an outdoor environment. Move slowly away from the circle. Move anywhere in the environment but keep in audible contact with at least one other person. Gradually return to the beginning circle.*

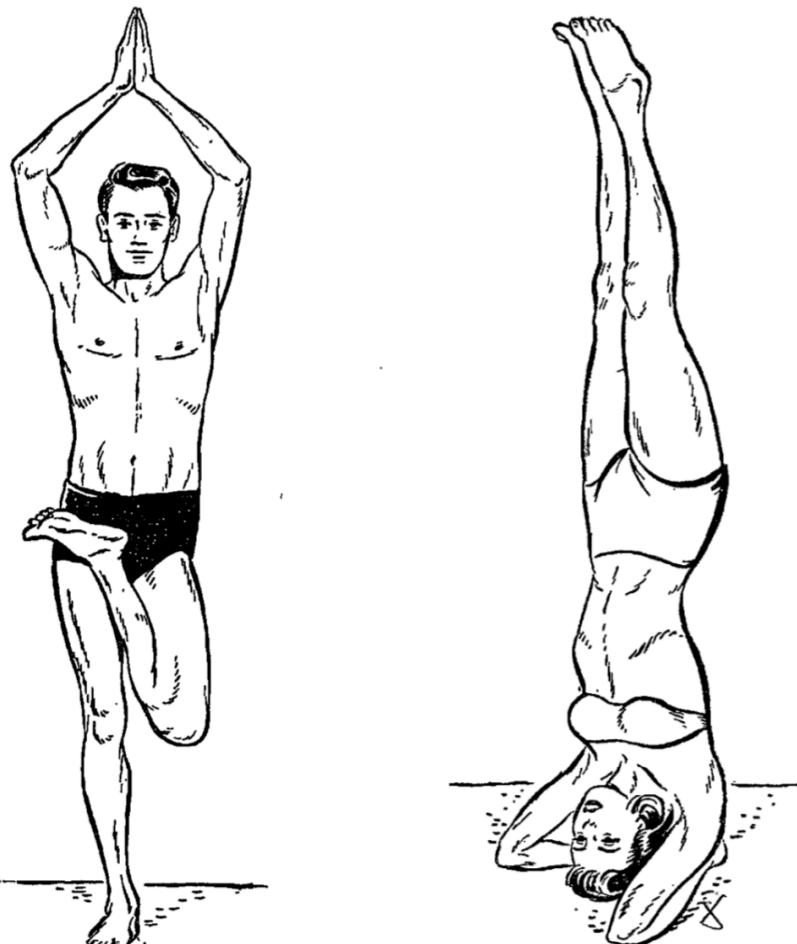
⁸ Oliveros, *Sonic Meditations*.

Image 5.9. EEG data sample from the Meditation Project. The data comes from two electrodes and begins with reference amplitudes before the participant's data is recorded.⁹



⁹ UCSD special collections, MSS 0102, Box 6, Folder 12.

Image 5.10. White Americans achieving yoga positions.¹⁰



Matsyasana or the Fish Posture, which includes Padmasana in its final atta

Pose E: The Completed Head Stand or Shirshasana

¹⁰ Walter Brown Gibson, *The Key to Yoga* (New York: Bell Pub. Co., 1962), 68, 77.

Image 5.11. Biofeedback in the 21st century: the Muse.¹¹



¹¹ “Muse: The App,” accessed December 15, 2018, <https://choosemuse.com/muse-app/>.

Chapter Six

Conclusion

This final chapter offers tools for music scholars more broadly (those whose primary interests lie beyond the confines of early American minimalism). I also consider the uses and limits of the mixed-methods approach deployed in this project and discuss future directions for such work.

This project offered an example of how Jeannie Tsai's Affect Valuation Theory (AVT) can illuminate the roles of ideal affective states in aesthetic experiences and judgements at a subcultural level. Music reception scholars of other times and places may find similar use for deploying Tsai's framework: What culturally- or subculturally-dominant ideals are at play? How does an emerging style or genre stray from or reinforce the ideals? With what consequences? More broadly, scholars analyzing the reception of cultural objects of any medium could test whether ideal affect seems to play a role. When reading AVT studies, some humanists may be skeptical of the culture-wide generalizations made by the authors. However, these generalizations are not construed as truths for each member of a given culture, but as likely, influential forces with measurable effects shared by many of its constituents. Zooming in on subcultures, in this case, locating LAP and neutral ideals within counterculture-influenced experimental/new music groups and American classical music subcultures, investigates a small sample that could be insignificant or washed away in national-level testing.

Growing scholarship on brainwashing concerns in America and other Western countries in the mid-twentieth century has only begun to take note of the role of music. In chapter three I noted how brainwashing rhetoric overflowed into the reception of minimalism but there may be additional repertoires and genres to search for this influence. Examples could be the trance and disco music mentioned by Palmer as well as musical categories that would emerge later such as New Age music.¹ Scholars might well expect the deployment of brainwashing rhetoric to evolve as the concept itself underwent the changes noted by Selisker. One fruitful project may be a longitudinal study of its use in American music reception from the 1950s to the present.²

Tracking the many reactions to minimalism also illuminated listening styles that scholars may not have previously considered such as Tom Johnson's description of tuning in at a minimal level or the functional listening of Meditation Project participants. Adorno (in)famously offered a typology of listeners in broadcast lectures during the winter of 1961-1962.³ Before proposing the types (including examples such as the "expert" listener, the "cultural consumer," and the

¹ Robert Palmer, "Trance Music—A Trend Of the 1970's," *New York Times*, January 12, 1975.

² Scott Selisker, *Human Programming: Brainwashing, Automatons, and American Unfreedom* (Minneapolis; London: University of Minnesota Press, 2016).

³ Theodor W. Adorno, *Introduction to the Sociology of Music*, trans. E. B. Ashton (New York: Continuum, 1976), ix.

“resentment listener”), he made clear that correct interpretation of the music at hand defined his categories. This, argued Adorno, was possible because, “The interpretation of musical content is decided by the inner composition of the works and is as one therewith by virtue of the theory linked with the works’ experience.”⁴ Having released the tight coupling between musical content and a supposedly correct listening experience in the ensuing decades, we might look to reception histories such as this to form new listening styles. As Keith Potter has noted, minimalist compositions “required new modes of listening” that “[e]ven Brian Ferneyhough acknowledges.... ‘It’s one of the few possible justifications for minimalist music, for instance: that the maximalisation comes through the individual, rather than through the object.’”⁵ These styles might be fruitfully treated as clothing, trying something for one occasion, and another approach for another. Or, perhaps there are multiple costume changes in the course of a single composition.⁶

What first attracted me to Oliveros’s work was a magnanimous openness that resonates with her documented desire to invite people in and help through sound. “The most important thing about composing,” wrote Oliveros, “is one’s motivation. I wish for my work to be beneficial to myself and to all who experience it.”⁷ Oliveros’s archives evidence her sincerity with dozens of folders containing responses from listeners who experienced and participated in her works. Oliveros’s expressed motivation and sincere interest in listeners’ experiences may be a useful guide for present-day composers, performers, and scholars.⁸ How might we solicit and document audience responses to performances and recordings and place them into a feedback loop with their own work?

Oliveros’s embrace of mixed-methods in the Meditation Project also sets an inspiring example. It is both wild and stunning: she integrated insights from her own compositional work, experimental psychology, psychotherapy, dance, tai chi, body awareness, religious practices, calligraphy, martial arts, and more. The project offered a strangely unique opportunity within the American classical music subculture to handle qualitative and quantitative data from listener-

⁴ Adorno, *Introduction*, 4, 6, 10, 4.

⁵ Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge: Cambridge University Press, 2000), 14-15.

⁶ For more on moving beyond structural listening paradigms, see Andrew Dell’Antonio, ed., *Beyond Structural Listening?: Postmodern Modes of Hearing* (Berkeley: University of California Press, 2004).

⁷ Heidi Von Gundun, *The Music of Pauline Oliveros* (Metuchen and London: The Scarecrow Press, Inc., 1983), 151.

⁸ I want to thank Dr. Michiko Theurer for tirelessly prompting me and our colleagues to relate the positive lessons that their research has revealed.

participants.⁹ While the sheer number of variables in the Meditation Project prevented clear conclusions about the causal role of any one of them, the idea of uniting tools from disparate areas of knowledge around a productive goal remains attractive and could build on lessons from Oliveros's work.

What might this project offer us today as listeners (regardless of our vocation)? This project critiqued the motivation for interest in cultural practices. It is not, in my current view, in the interest itself that problems necessarily arise. In other words, this project is not an investigation of cultural appropriation.¹⁰ (This would be an important, different project.) The problem I have addressed is how the *motivation* for aesthetic experiences and judgements can rest on dehumanizing foundations: seeing cultures as inferior, less developed, or somehow more pure by order of being less advanced and thus the source of value. Such an attitude regularly fails to take individuals into account, instead, it projects cultural and racial stereotypes onto individuals and often pins entire cultures into mystical, historically inaccurate, and narrow pasts. It may be fine and well that interest often springs from self benefit. But when the interest additionally relies on the ranking of human groups, it behooves each of us to question the interest and its effects. Ultimately, any of us can only rarely know the motivations and interests of another (though they may be expressed in behavior or verbally). This project examined the evidence that fit into a dehumanizing structure. The value of examining this evidence is an impetus to look at our own motivations and their effects on others.

The histories told in this dissertation demonstrate the consequences of minimal scientific literacy. Whether it is La Monte Young's belief in the mind's integer processing abilities or Heidi Von Gunden's note that Oliveros's Meditation Project was unsuccessful because there were too many variables, a more extensive training in experimental methods could have, at the very least, made agents in these histories more skeptical of claims about things like brainwashing or alpha activity. What if we equipped music students and scholars, indeed all students, with the ability to

⁹ Medical and others researchers regularly investigate the effects of interventions like music, dance, and meditation on affect, cognition, and well-being in a variety of populations. See, for two example: Takako Fujioka et al., "The Effects of Music-Supported Therapy on Motor, Cognitive, and Psychosocial Functions in Chronic Stroke," *Annals of the New York Academy of Sciences* 1423, no. 1 (2018): 264–74, <https://doi.org/10.1111/nyas.13706>; Takako Fujioka and Bernhard Ross, "Beta-Band Oscillations during Passive Listening to Metronome Sounds Reflect Improved Timing Representation after Short-Term Musical Training in Healthy Older Adults," *European Journal of Neuroscience* 46, no. 8 (2017): 2339–54, <https://doi.org/10.1111/ejn.13693>.

¹⁰ Musical ideas, styles, forms, religious stances, and cultural values in the reception of minimalism could all be investigated in an appropriation framework. Determining where various minimalist pieces and projects fall on a spectrum of wrongful to benign appropriation should include cultural specialists. See James O. Young and Conrad G. Brunk, eds., "Introduction," in *The Ethics of Cultural Appropriation* (Chichester: Blackwell Publishing, 2012), 1–10. Also see Chapter 11 of this book for examples of how sympathetic portrayals of another culture do not equate accurate portrayals, and can still be harmful. James O. Young and Susan Haley, "'Nothing Comes from Nowhere': Reflections on Cultural Appropriation as the Representation of Other Cultures," in *The Ethics of Cultural Appropriation*, ed. James O. Young and Conrad G. Brunk (Chichester: Blackwell Publishing, 2012), 273.

engage with scientific literature at a high level and the ability to run a simple study with clear hypotheses? Given the use of scientific literature in certain circles of the humanities, it would also likely transform the ways this literature is deployed.¹¹

Dismissing LAP-inducing music in the American classical music subculture for its links with Asian cultures seems a bygone logic. Much of the LAP utopianism from the Sixties seems to have collapsed by the end of the long Sixties.¹² Reviewers noted this shift in the music of “minimalist” composers themselves. For example, Riley’s collaboration with John Cale on the album *Church of Anthrax* yielded the following commentary.¹³

...the mood this time [compared to Riley’s earlier work] has more to do with emotional violence than with rainbows. The sound is sometimes mellow, but never pretty. It often mirrors the atmosphere of Mr. Cale’s dream-like liner notes, which counter Mr. Riley’s earlier utopianism with an obscure vision of unhappiness and waste (the title apparently refers to a sentence about cattle dying from polluted air and water). The instruments soar savagely, the rock beat is merciless. This may be youth’s first serious attempt at protest against mankind’s excesses in a nonverbal musical idiom. Messrs. Cale and Riley are breaking new ground in a fiercely powerful manner.¹⁴

This fits tidily with general descriptions of cultural changes at the end of the long Sixties, a time of dampened spirits, lost idealism, and anger. But what are the forces today that shape ideal affect in the American classical music subculture? While LAP-related disputes about minimalism have moved out of public discourse, are they still alive for some listeners?

I also want to address the promises and limits of deploying experimental psychology methods alongside the literature and methods more closely associated with music studies.¹⁵ These mixed methods can open up additional layers of information that are beyond any listener’s conscious awareness of a musical work. In the same way that the social sciences interrogate forces that form and operate at interpersonal and societal levels, so there are also biological and psychological forces that effect a listener’s conscious states, seemingly blossoming from processes preceding their conscious awareness. This is not only a discussion of neuroscience, it is also an investigation of how groups of people react to auditory stimuli: sussing out reported

¹¹ Ruth Leys, “The Turn to Affect: A Critique,” *Critical Inquiry* 37, no. 3 (2011): 434–72.

¹² Christopher B. Strain, *The Long Sixties: America, 1955–1973* (Chichester, West Sussex: John Wiley & Sons, 2017), 162–176.

¹³ <https://www.youtube.com/watch?v=-ASclrPGJqo>.

¹⁴ David Sterritt, “Discs: Radical Departure,” *The Christian Science Monitor*, April 5, 1971. John Cale’s footnotes for the album are indeed dark. Here are some excerpts. “...somewhere up at the North Pole hung the tarantula of love out of the sky without hope searching the earth for disaster...” “farmland lay strewn with the greedy waste of animals too sick to calve...” “All were veterans of love. They sang at the streams as they wasted time...Nothing was left to the imagination.” “As often as not there was nothing to talk about the sun was not out the air was fit not to breathe and everywhere could be seen the radiant glow of gear on the waxen countryside.” “The skin of armies lay in its yellow ochre rumple next to the fire extinguisher with plasma...” John Cale and Terry Riley, *Church of Anthrax*, CD, vol. WOU 131 A 722953 (Guilderland: Wounded Bird Records, 1971).

¹⁵ Florian Cova and Réhault Sébastien, eds., *Advances in Experimental Philosophy of Aesthetics* (London: Bloomsbury Academic, 2019), 2.

emotional responses, associations of musical parameters, differences depending on musical background or other artistic affiliations or training, etc. At the broadest level, a music scholar running experiments is testing, exploring, developing, and sifting through our theories by investigating their measurable implications. The work is inherently collaborative and can be divided: a team could have a sharp distinction between those theorizing and those conducting experiments and analyzing data. But there are benefits to having the same people involved in both sets of work: more detailed critique and support at each step of each type of work, a more integrated presentation of the group's work to themselves and others, and a greater appreciation for the strengths and limits of each type of work. This model of work could extend to other collaborative dialogues with fields who hold related questions with music studies: sociology, communications, history, literature, acousticians, etc.¹⁶ When music scholars get involved with this work, it also opens up dialogue and space for critique with sibling fields like music theory, cognitive science of music, psychology, systematic musicology, etc. One of the most exciting promises is that music scholars who conduct experiments could build up knowledge around specific repertoires and precise cultural questions, concretizing the specifics of often over-generalized knowledge about music and its effects.

Music scholars conducting experiments could not only build a literature of repertoire-specific experiments, they can also simultaneously advance experimental psychology (or whatever relevant field may be involved in the experiment).¹⁷ For example, the EEG experiment based on early Glass works not only provides new information about how we may be processing elements of relevant Glass works and music with similar elements, it also added an insight for auditory ERP studies: while auditory neuroscience literature routinely treated repetition as inherently predictable, our experiment showed that early neural responses to unpredictable repetition are significantly different from similar responses to predictable repetition. The insights that come from such work may be small, specialized knowledge, a sort of applied psychology that offers bits of new information to its parent disciplines. A panel at the Society for Music Theory offered two lines of argument about music scholars engaging in experiments.¹⁸ One argument was that music scholars should leave experiments to those in psychology departments since music scholars are unlikely to have the necessary training and unlikely to produce substantive

¹⁶ For a related stance from literary studies, see Natalie Phillips, "Literary Neuroscience and the History of Attention: An fMRI Study of Reading Jane Austen," in *The Oxford Handbook for Cognitive Approaches to Literature*, ed. Lisa Zunshine (Oxford: Oxford University Press, 2015), 55–81.

¹⁷ The phrase "experimental music studies" might be one way to categorize music scholars who conduct experiments or collaborate on them. Such a phrasing draws on Cova and Réhault's definitions of empirical and experimental philosophy (citing Jesse Prinz, 2008): "while empirical philosophers mine the existing scientific literature for data relevant to their own philosophical endeavor, experimental philosophers go one step further and conduct their own studies." Cova and Sébastien, *Advances*, 2.

¹⁸ Unfortunately, I cannot locate which year this SMT panel occurred. I recall that David Huron, Elizabeth Margulis, Zackary Wallmark, and at least one additional scholar presented.

breakthroughs in the psychological sciences. The other argument was that these small insights are valuable and build up to become substantial bodies of knowledge. I lean towards the latter but accept the premise of the former: as a subfield, music scholars interested in running experiments will need to help each other gain the required skills and will likely add small advances to the disciplines they draw on.

Such a subfield faces several additional challenges, such as training, expectations about findings, and perceived relevance within the field at large. It takes years to develop mastery of archival work, music analysis, and the existing music studies literature. This type of mixed-method project takes additional, seemingly unrelated skill sets in psychology, basic computer programming literacy, math, statistics, and more. Few institutions give students ready access to all these areas of knowledge, let alone the time and resources to pursue them. If the work is done, some look to these scientific tools as incontrovertible sources of truth. They will never be that. These tools, however trendy they may be at a given moment, never prove any theory, they only offer evidence that aligns with a theory to some degree, or not.¹⁹ Another issue raised by many astute humanists is what value present-day experiments, especially involving human subjects, has for historical subjects. This is a real and pressing issue. There are some types of responses where we may have little or no reason to suspect significant differences between present-day participants and historical subjects from a given time period. But there are also large swaths of musical responses where we may well expect significant differences. It seems to me that one task for music scholars interested in conducting experiments would be documenting cultural changes that create these differences and the forces that seem shape them, for example by conducting broad, longitudinal studies of responses to a circumscribed set of repertoire. This knowledge would not directly reveal the differences between present and past subjects but it would inform speculation and provide future scholars a foundation on which to expand knowledge of these complex responses.

Even if this work is done, who is the audience for the resulting scholarship? In this project I have tried to take the key findings from relevant literature and my own experiments. I also considered including the details of those experiments in the text. Assuming readership predominantly from music studies scholars, this document and this time is not right for such integration. As David Huron noted in his review of Jan Beran's *Statistics in Musicology*, "... Beran has written a book for which there is almost no audience" by addressing technical material head on.²⁰ Perhaps the future of music scholars conducting experiments will follow the path of

¹⁹ David Huron, "The New Empiricism: Systematic Musicology in a Postmodern Age" (Ernest Bloch Lectures, University of California, Berkeley, 1999).

²⁰ Jan Beran, *Statistics in Musicology* (Boca Raton: Chapman and Hall, 2004). David Huron, "Reviewed Work(s): Empirical Musicology: Aims, Methods, Prospects by Eric Clarke and Nicholas Cook; Statistics in Musicology by Jan Beran," *Notes* 63, no. 1 (2006), 95.

carnal musicology, where few scholars had the performance expertise and interest in integrating it into their scholarship.²¹ Or, as Huron speculated, perhaps a time is quickly coming when the necessary intersections of expertise will be more common in musicology. “Perhaps in twenty or thirty years, there will be enough musicologists with sufficient statistical savvy to appreciate [Beran’s] volume.”²²

²¹ Elisabeth Le Guin, *Boccherini’s Body: An Essay in Carnal Musicology* (Berkeley: University of California Press, 2006).

²² David Huron, “Reviewed Work(s): Empirical Musicology: Aims, Methods, Prospects by Eric Clarke and Nicholas Cook; Statistics in Musicology by Jan Beran,” *Notes* 63, no. 1 (2006), 95.

Appendix

Pauline Oliveros's Meditation Project Bibliography
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