SEMIBEGUN

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ABSTRACT

Semibegun is a radio show, a boutique tape label, and a music project focusing on expanding themes of early music. This dissertation project collects and presents a sampling of Semibegun's output between 2022 and 2023 and provides historical, compositional, and theoretical background to complement and support the musical output. Each episode of the radio show, presented in this document as a chapter, originally aired as an hour long mix of uninterrupted music on Repeater Radio, the online broadcasting arm of London-based publisher Repeater Books. Named after pioneer of magnetic recording Semi J. Begun, each mix and release pushes beyond a constrained understanding of early music as a historical period of Western music spanning Ancient to Baroque. Instead, Semibegun presents episodic explorations of early *musics*. Each episode dives into specific aspects or variations of the theme: from the earliest recordings of the earliest pieces to the music composed for instruments made yesterday. By themselves, the mixes present a narrative through curation, juxtaposition, and intervention through light remix. The writing supports and explores various aspects of the music without in-depth dissection of the mixes in terms of mixing or DJing style and without a track-by-track analysis. The audio illustrates what the text does not and vice versa. They are complementary, not a mediation of one another.

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INTRODUCTION

Semibegun is a radio show, a boutique tape label, and a music project focusing on expanding themes of early music. This dissertation collects and presents a sampling of Semibegun's output between 2022 and 2023. Each episode originally aired as an hour long mix of uninterrupted music on Repeater Radio, the online broadcasting arm of London-based publisher Repeater Books. Named after pioneer of magnetic recording Semi J. Begun, each mix and release pushes beyond a constrained understanding of early music as a historical period of Western music spanning Ancient to Baroque. Instead, Semibegun presents episodic explorations of early *musics*. Each episode dives into specific aspects or variations of the theme: from the earliest recordings of the earliest pieces to the music composed for instruments made yesterday.

Even within early music we find countless early musics. Ninth-century Byzantine hymnographer Kassia and Baroque composer J.S. Bach have very little in common stylistically, historically, and biographically. Flattening hundreds of years of music into one category reduces vibrant, diverse histories and repertoires into simply a period of development towards the establishment of classical music and common practice tonality. At the same time, the designation is not entirely useless. Early music is *not* later music and that distinction is valuable to the listeners, performers, and other specialists that create community and develop livelihoods around these large fields. Medieval manuscripts of neumic chants illuminated with penis trees and snail battles certainly defy classical sensibilities, as does the practice and culture surrounding historically informed performance. The nature of a music that doesn't conform to expectations, and often requires creative reconstruction in a way common practice European art music typically does not, opens itself to amateurs, improvisation, and both scholarly and artistic experimentation. This shared ethos accounts for a heavy crossover between "early" and "new" or "later" music.

Where is the "early" of early music? We can ask the same locating question of "late" to discover similar slippery boundaries. Late Beethoven, the mature period containing some of his boldest and arguably most compelling works, also landmarks the transition to early romanticism. The late horseshoes into early. Upon calcification, the early becomes late. Simon Reynolds makes the case that we often privilege "the emergent phase of a genre, the seventies dub-reggae producers or sixties psychedelic bands, rather than those who came later and carried on their work; the latter are settlers, not pioneers."[1] This line between settler and pioneer often remains fluid, as does the designation of these pioneers by the perspective spinning the historical narrative of genre genesis. Coupled with a personal taste for earliness or lateness, the pioneers versus the settlers, the preference Reynolds describes seems less absolute. Fans of contemporary Berlin hard techno might have no interest in the pioneering work of Kevin Saunderson or Derrick May. Charting the complicated, constantly splintering web of dance music subgenres reveals the breakneck push and pull of early and later. At the

[1] Simon Reynolds, *Retromania Pop Culture's Addiction to Its Own Past* (New York: Farrar, Straus and Giroux, 2011): 382.

Warehouse, Frankie Knuckles was spinning early house music out of late disco. The horseshoe continues.

The 18th- and 19th-century London concert series *Concerts of Antient [sic] Music* programmed 'ancient' works of anything over twenty years old.[2] Imagine programming a concert of works from the early 2000s, pieces by composers like Rebecca Saunders and George Lewis, as "A Night of Ancient Music." The scale of "early" fluctuates. Large perceivable changes in concert music can occur quite slowly, but in the niche of electroacoustic music the complication of technology expedites the appearance of aging, and that's not even taking into consideration any digital archeology that must occur before the piece is remotely playable.[3] Much early computer and electronic music does sound ancient. In contrast to concert music, pop and pop-adjacent styles age comparatively briskly, and the "early" grows in scope as it also specializes. The category "Old-school" can describe commercially produced hip hop between 1979 and 1983. Most playlists and mixes, including Spotify's own "Old School Rap Mix," almost exclusively contain music outside this range, focusing more on 90s (even as far as early 2000s) hits, what is sometimes referred to as "dad rap." The fifty (and counting) years of hip hop occasionally receives a scale adjustment. The consistently unsettled nature of early, already arbitrary, serves as a creative fount for Semibegun. By reframing a music as early, the settled can emerge as experimental, in-progress, and unsettled—whether that's a contemporary form of new music such as composing with artificial intelligence (Semibegun 019: This Machine Ain't Haunted By Anything But Man) or older like music from a much younger United States (Semibegun 007: Beyond Yankee Doodles).

The worlds of both early and what we call new music intersect frequently and intentionally throughout Semibegun and in my own creative thought and output. Although they substantially differ both stylistically and conceptually, kinship between the two disciplines of early and new manifests quite often. In the introduction to *Historical Performance and New Music Aesthetics and Practices*, the title of which illustrates this intersection, Rebecca Cypess points to shared values between the worlds of historically informed performance (HIP) and new music. These values include a focus on timbre and variation in sound production, and flexibility of both performer and musical score.[4] This flexibility contrasts with the perceived rigidity of common practice classical music and its very particular performance standards (although, much new music continues to share this rigidity). Realizing the skeletal notation of a 14th-century dance tune requires a similar amount of study, personality, and openness to experimentation and speculation as interpreting an indeterminate graphic score.

Classical music's inflexibility is in part due to the invention of the Gutenberg Press which, along with the standardization of music notation and tuning systems, enabled the dissemination of published

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[2] David Breitman, *Piano-Playing Revisited: What Modern Players Can Learn from Period Instruments* (New York: University of Rochester Press, 2021), 3.

[3] There are limitless examples of obsolescence that quickly date a piece, so here is a handy template for you to try: Controlling/manipulating/generating electroacoustic sound with a _____ (*outdated device, software, language, technique*)? What is this, _____ (*year in which that device, software, etc. was very popular).* Example: Manipulating electroacoustic sound with a Wiimote? What is this, 2012? Try with Kinect, Oculus, magnetic tape, RCA Mark II…

[4] Rebecca Cypess, "Introduction" in *Historical Performance and New Music Aesthetics and Practices*, ed. Rebecca Cypess, Estelí Gomez, and Rachael Lansang (London: Routledge, 2023): 1.

music and musical instruments across Europe. Print privileged a focus on pitch, harmony, and the development of an easily reproducible musical language, pointing away from the timbral and sonic emphasis that connects HIP and new music. In his essay about the origins of electronic music, Andrew Hugill criticizes print for its role in the dominance of pitch and equal temperament in the larger canon of common practice Western music.[5] Beyond the standardization of tuning, which also led to inflexibility of intonation by settling on twelve-tone equal temperament as the dominant tuning system, the emphasis on pitch de-emphasizes timbre, and innovations in instrument design—such as from harpsichord to fortepiano and the modern grand piano—illustrate this shift from harmonic richness to pitch-centrism and tonal clarity. By the turn of the century, composers began to rebel against the purity of tone and concordance of harmony. Luigi Russolo sought the pleasure of combining the noise-sounds of automobiles, urbanism, and war as a replacement to the pastoral symphony in his 1913 manifesto *The Art of Noise*. For Russolo and the futurists the situation was dire: "We must break at all cost from this restrictive circle of pure sounds and conquer the infinite variety of noise-sounds."[6] Composers like Edgard Varèse and Charles Ives pushed the limits of symphonic form to overcome these restrictions. With a new focus on sound production, composers looked outside their windows (sirens in Varèse's *Ameriques* and marching bands in Ives' *Three Pieces in New England*), within other cultures, occasionally in the past, and towards a speculative future of technology to come for new sounds. And with the advent of recording and synthesized sound, the delivery of an expanded sound palette through electronic instruments and reproduction technologies in the early 20th-century aided a 20th- and 21st-century reorientation around timbre.

Through print we have the author as central. The mass distribution of notated music after the invention of the Gutenberg Press encouraged the rule of authorship, establishing composers as the owners of their music, and the rise of the genius-composer. By casting a fixed version in ink, print discourages the collective culture of creation and ownership commonplace in oral and even manuscript cultures. As Marshall McLuhan notes, "Print is the extreme phase of alphabet culture that detribalizes or decollectivizes man in the first instance… Print is the technology of individualism."[7] The rise of liberalism and modernity's emphasis on individuality, authorship, and property cast the genius and the masterwork as foundational master narratives.[8] Remix challenges the Gutenberg Parenthesis, the era in which the stable, autonomous, original composition reigns. A culture of recontextualization and appropriation, what Scott Haden Church in *Turntables and Tropes: A Rhetoric of Remix* refers to as the "post-parenthetical era," unsettles the stability of the masterwork through its potential for de- and re-construction and the collective authorship that process necessitates. The post-parenthetical era then re-establishes connection to the narrative fluidity and collectivity of pre-parenthetical oral culture, another relationship between the earlier and later.

Semibegun aims not to extract lessons from history or revive practices, but to wade through the murky space of development and experimentation often found in the "early," transitional, pre-

[5] Andrew Hugill, "The Origins of Electronic Music," in *The Cambridge Companion to Electronic Music*, ed. Nick Collins and Julio d'Escrivan (Cambridge: Cambridge University Press, 2017): 9.

[6] Luigi Russolo, *The Art of Noise* (Ubuclassics, 2004): 6.

[7] Marshall McLuhan, *The Gutenberg Galaxy* (Toronto: University of Toronto Press, 1962): 158.

[8] Scott Haden Church, *Turntables and Tropes: A Rhetoric of Remix* (University Park: Michigan State University Press, 2022): 23.

canonized phase of a style or practice. The project operates within a spirit of remix culture that attempts to thwart the immovable masterwork by positioning the DJ-composer as a creative listener, one who forms new narratives through juxtaposition and recomposition in the creation of the mix. My methods are not grounded in librarianship or the meticulousness of an archivist. I am drawn to discovery as a digger flipping through milkcrates in the basements of Internet Archive and secondhand shops, searching for the unheard, underheard, and forgotten, or the overheard demanding new light, then piecing those materials together to illuminate the precarity and experimentation in something that seems historically secure. Through this process speculative histories can form, some more novel and convincing than others. As Andreas Huyssen comments, "History in a certain canonical form may be delegitimized as far as its core pedagogical and philosophical mission is concerned, but the seduction of the archive and its trove of stories of human achievement and suffering has never been greater."[9] Semibegun is not a podcast. Each mix contains no talking, only music. Curating a listenable mix, meaning one that sounds good, takes priority to creating a narrative that unfolds linearly and didactically. Thus, the schemes presented break and swerve when the material demands it.

The following chapters cover the topics of select episodes from the Semibegun radio show and select tape releases. Each chapter includes the air or release date, a short description, and the track listing before the main body of text. The chapters vary in length and style. For instance, "002: Later Music for Period Instruments" focuses on approaches (particularly my approach) to composing new music for earlier instruments like harpsichord and viola da gamba, while "004: Constructing Intonation with Ben Luca Robertson" takes the form of an interview about instrument design, tuning systems, post-punk, and more. "001: Early Recordings of Early Music 1928 – 1939" and "018: Stockhausen Serves the Worms" both have tape releases and radio mixes that differ slightly, so the tape track list is used for both. At the end of the document is a full episode list (episodes 001 to 021) with air date and short description, a select list of my own composed works that align with Semibegun, and the bibliography.

[9] Andreas Huyssen, *Present Pasts: Urban Palimpsests and the Politics of Memory* (Stanford: Stanford University Press, 2003): 5.

001: EARLY RECORDINGS OF EARLY MUSIC 1928 – 1939

Air/Release Date: June 8, 2022

This mixtape contains early music recorded between 1928 and 1939, shortly after the switch from acoustic to electrical recording. Here, different ideas of "early" intermingle with one another: early music, early recording technology, and early historical performance practice. On these recordings, in varying quality and amidst layers of crackle, we hear lamination of experimentation.

TRACKS[10]

Side A:

1. Antoine Dornel (1680 - 1757) – ***Le pendant d'oreille***
   Pauline Aubert, harpsichord; 1935
2. Jachet van Berchem (c. 1505 - 1567) – ***Jehan de Lagny***
   Marcelle Gérar, soprano; 1935
3. Melchior Franck (1580 - 1639) – ***Pavane***
   Munich String Quartet; 1930
4. Valentin Haußmann (c. 1560 – c. 1611) – ***Tanz***
   Munich String Quartet; 1930
5. J.S. Bach (1685 - 1750) – ***Prelude and Fugue in B-flat No. 21***
   Arnold Dolmetsch, clavichord; c. 1932
6. Robert Morton (c. 1430 - c. 1479) – ***Trois Chansons***
   Guillaume de Van, dir., violas & trombone; 1939
7. Anonymous (13th century) – ***13th Century Motets, MS H 196 Montpellier***
   Chorale Yvonne Gouverne; c. 1939
8. Johann Pezel (1639 - 1694) – **"Gigue" from *Fünff-stimmigte blasende Musik***
   soloists from L'Opéra de Paris & Garde Républicaine, cornets & trombones; 1933
9. Orlando Gibbons (1583 – 1625) – ***The Silver Swan***
   St. George's Singers; 1929
10. J.S. Bach – **"II. Largo ma non tanto" from *Concerto for 2 Violins in D Minor***
    Arnold and Alma Rosè; 1928
11. John Farmer (c. 1570 – c. 1601) – ***Fair Phyllis***
    St. George's Singers; 1929
12. N. René/Nicole Regnes (16th century) – ***Gros Jehan menoit hors de Paris***
    Marcelle Gérar (soprano); 1933
13. Anonymous (14th century) – ***Danses du 14e siècle: Estampie française; Ballo italiën: Il lamento di Tristano***
    Gaston Crunelle, piccolo; Albert Debondue, musette; Clayette, tabor; 1935

[10] Dates, titles, credits, and other information for the track listing were compiled from Medieval.org and Archive.org.

Side B:

1. Magister Franciscus (14th century) – ***De Narcisus***
   Guillaume de Van, dir., flute, trumpet, viola; 1939
2. Anonymous (12th century) – ***Congaudeant Catholici***
   Choir of the Gregorian Society of the Berlin State Academy of Church and School Music; c. 1930
3. Thomas Weelkes (1576 – 1623) – ***Fantasy for a Chest of Six Viols***
   The Dolmetsch Family, viols; 1929
4. Guillaume de Machaut (c. 1300 – 1377) – ***Credo from Messe de Nostre-Dame***
   Paraphonistes de St.-Jean des Matines, choir & brass; 1936
5. Anonymous (13th century) – ***Sumer is icumen in***
   St. George's Singers; 1929
6. Anonymous (13th century) – ***Danses du 13e siècle: Danse anglaise; Dance française; Stantipes anglais***
   Gaston Crunelle, piccolo; Albert Debondue, musette; Clayette, tabor; 1935
7. Daniel Norcombe (1576 - c. 1626) – ***Divisions on a Ground***
   Rudolph Dolmetsch, virginal; Arnold Dolmetsch, viol; 1929.
8. Juan Vásquez (c. 1500 - c. 1560) – ***Villancico: Vos me matasteis***
   Maria Cid, soprano; Emilio Pujol, vihuela; 1935
9. William Byrd (1543 - 1623) – ***The Bells***
   Pauline Aubert, virginal; 1935
10. Seikilos (1st or 2nd century) – ***Seikilos Epitaph (Skolion of Seikilos)***
    Prof. Dr Hans Joachim Moser & Chorus; 1930
11. Mesomedes (2nd century) – ***Hymn to the Sun***
    Prof. Dr Hans Joachim Moser & Chorus; 1930
12. Claude Gervaise (1525 – 1583) – ***Allemande (Danceries Françaises du 16e siècle)***
    Curt Sachs, dir., string orchestra; 1935
13. Claude Goudimel (c. 1514 – 1572) – ***Psalm 25, A toy, mon Dieu, mon cœur monte, a 4***
    Curt Sachs, dir., vocal quartet; 1935

When considering a now well-established object's earliest form – for instance, the slow, multi-ton computers of the 1940s – it's tempting to focus on differences between contemporary or later versions solely as faults that have been remedied through years of improvement. Especially when observing how a calculator that once filled an entire room now fits in a pocket, the improvements aren't restricted to design and efficiency, but have profound cultural consequences. If today you were served the rose and nut flavored cake that passed as pizza in Renaissance Italy,[11] you would properly respond "thank god we've come such a long way." Unrecognizable to most, the peculiar (yet probably very delicious) dish expands upon what we customarily accept as pizza. In historical context, this unfamiliar pie-cake challenges our conceptions of what pizza is and pushes the limits of what it can be. By dismissing a linear narrative of progress and notions of primitivism, pre-canonized forms, like

[11] Helewyse de Birkestad, "When is pizza not a pizza?," Medieval Cookery, April 14, 2004, <https://www.medievalcookery.com/helewyse/pizza.html>.

our early pizza, provide invigorating perspectives for experimentation and alternative narratives to recontextualize contemporary forms.

Similarly, the early music recorded before World War II offers more than simple indications of how far the technology has come. Although surface noise and limited frequency range can easily push the musical content into the background, the performances on these records extend beyond the curiosity of the antique object. Beyond the noise and constrained fidelity of historical recording and reproduction, the contemporary listener confronts unconventional and by today's standard's outdated interpretations of historical music. Developments in the decades following the war contributed to the "accuracy" of historically informed music practice while technological advancements minimized the presence of the medium. However, the stunning performances of renaissance vocal music available in excessively high definition today should not render these early recordings obsolete. These recordings comprise a particular chapter in the recorded history of music, one that brings its own conceptions of "authenticity" to the table.

The period of "early music" commonly comprises the European Middle Ages to the Baroque era (and sometimes includes ancient music)—over a thousand years—and covers greatly varying styles across centuries, composers, cultures, religions, and purposes. Simply, early music consists of myriad early musics. Similar in spirit to much twentieth and twenty-first century concert music, the distinctiveness of early music may seem convention-defying to the conservative listener: angular form, metrical ambiguity, peculiar timbres, and expectation-thwarting harmonic movement. Musicologist Thomas Forrest Kelley credits the appeal of earlier repertories with their ability to provide a "means of connecting with worlds so different from our own that they give us reason to question our assumptions about how music works, what it does, and what it should sound like."[12] A visual analogue like the medieval paintings that feature a flattened Madonna holding an elderly baby Jesus or bizarre marginalia depicting such delights as creatures with trumpets sticking out of their rear ends, similarly confronts the viewer with fantastical abstractions, eccentric displays of piety, and fascinating intersections of culture, class, aesthetics, and religious spectacle which together verge on uncanny. Modern and contemporary music shares a similar questioning and confrontational spirit, which likely explains the overlap in early and new musical interests for performers, audiences, and composers.[13] Kelley's remark can also apply to repertoires of early recording, where the grain of the phonographic media amplifies a perceived otherworldliness in late 19th/early 20th century music. The amplification compounds at the intersection of early music with early recording and reproduction technology.

This mix contains music recorded between 1928 and 1939, with content spanning Ancient Greek to Baroque periods. Here, different ideas of "early" intermingle: early music, early recording technology, and early historical performance practice. All of the tunes were transferred from 78-rpm shellac discs by a variety of sources on the Internet Archive. Anyone who has taken a survey course in Western music history will likely recognize some of the music. Almost a century later, textbooks like the *Norton Anthology of Western Music* still include classics like *Sumer is icumen in* and *Seikilos Epitaph* (*Skolion of Seikilos* in Parlophone's *2000 Years of Music* collection), albeit with updated scholarship. Likewise,

[12] Thomas Forrest Kelley, *Early Music: A Very Short Introduction* (New York: Oxford University Press, 2011), 2.
[13] Can program notes for a new piece of sound art or electro-acoustic music be complete without a bit of questioning and confronting the nature of sound in contemporary culture?

the selected thirteenth and fourteenth century dances are still quite popular with professional and amateur performers as are the English madrigals *The Silver Swan* and *Fair Phyllis*. Deeper cuts emerge as well, like *Gros Jehan menoit hors de Paris* by one N. René. The earliest works date to the first few centuries of the common era, and the latest almost hug the beginning of the Classical period.

The majority of the selections come from three anthologies of historical music: *2000 Years of Music, L'Anthologie Sonore,* and *Columbia History of Music by Ear and Eye*. The music directors of these records, some of whom were musicologists responsible for rediscovering repertoire and developing its performance practice, presented authoritative performances for the time.[14] German musicologist Curt Sachs directed two of the earliest historic anthologies of early music: *2000 Years of Music*, produced through the German label Parlophone in 1930 and *L'Anthologie Sonore*, founded a few years later after leaving Germany for France. Both collections prioritized Sachs' principles to showcase "ten centuries of music," "absolute musical authenticity," and "musical quality" in terms of curation that satisfies musicological and "our modern human sensitivity."[15] The accompanying textbook for *2000 Years of Music* offers peculiar perspectives on the early music canon, for instance this claim about the groundbreaking character of opera: "For the first time in its history, music was called upon to express human emotions where before it had been content to remain absolute. Such music required naturally a new form and that form was Opera."[16] Although occasionally questionable, many of the recordings in the twelve-disc collection sound quite lovely even if the interpretations seem dated.

Columbia worked with Percy Scholes, writer of the first edition of *The Oxford Companion to Music*, as the artistic director for the series *Columbia History of Music by Ear and Eye.* Featured on many of the Columbia recordings, the Dolmetsch family performed on clavichord, virginal, harpsichord, and viols when piano and modern strings would have been considered acceptable substitutions to many. The heavy, affected string orchestra of violins, violas, gambas, basses directed by Curt Sachs on Claude Gervaise's *Allemand*e *(Danceries Françaises du 16e siècle)* indicates this attention to instrumentation may not have always been viable. Many of the harmonic subtleties inherent to the viol are replaced with a glassier sound in Weelke's *Fantasy for a Chest of Six Viols*, performed by the Dolmetsch Family, suggesting they recorded poorly (or were poorly recorded). Entirely absent from most of these performances is the now ubiquitous practice of straight tone, or singing without vibrato. St. George's Singers vibrate throughout the two madrigals *Fair Phyllis* and *The Silver Swan*. This tendency is not restricted to the voice: the string quartet's punchiness doused in heavy vibrato on Melchior Franck's *Pavane* more appropriately suits a Fritz Kreisler piece than a dance from the early 1600s. A reviewer in 1932 may have agreed with this assessment when he describes the recording as "pleasing and

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[14] Timothy Day, *A Century of Recorded Music: Listening to Musical History* (New Haven: Yale University Press, 2000), 80.

[15] Pierre F. Roberge, "L'Anthologie sonore," Medieval.org, <http://www.medieval.org/emfaq/cds/ans99999.htm>.

[16] Curt Sachs, "Two Thousand Years of Music: A Concise History of the Development of Music from the Earliest Times down to the End of the Eighteenth Century," trans. Mark Lubbock in *2000 Jahre Musik auf der Schallplatte: Alte Musik anno 1930*, ed. Pekka Gronow, Christiane Hofer, and Frank Wonneberg (Vienna: Gesellschaft für Historische Tonträger, 2018), 157.

surprisingly fresh."[17] Sharing a similar level of intensity, the ensemble performing Guillaume de Machaut's beautiful 14th century *Messe de Nostre-Dame* belt in a style not unlike American shape note singing. Recordings from 2017 by the Vienna Vocal Consort and 1996 by Oxford Camerata contrast the 1936 version with the delicate clarity that tends to feature in contemporary renditions.

Some of the more curious performances come from the label L'Oiseau Lyre, a passion project led by socialite Louise Hanson-Dyer that began producing records in 1938. Alongside a crew of young and seasoned scholars, she recorded editions from the label's publishing arm Éditions de l'Oiseau-Lyre, including selections from the 13th-century Montpellier Codex. The motet from this codex of medieval polyphony features delicate high voices employing narrow vibrato and, perhaps most interestingly, the interjection of an unedited reference pitch given by a piano during a brief pause at around the two-thirds mark. The far clumsier performance of Magister Franciscus's *De Narcisus* by a jarringly out-of-tune and inspiringly lifeless ensemble of flute, viola, and trumpet paints a certain rugged early twentieth century approach. For even the uninitiated listener, the decision to cut something like this to tape seems questionable.

A poor record was not always just the result of inauthenticity or poor artistic direction. Technology also hindered the process. The starting year of this mix's range, 1928, roughly corresponds to a significant point in the history of recording: the early years of the electrical recording era. The acoustic era, the period between 1877 and 1925, effectively ended when the widespread adoption of microphones ushered in the electrical era.[18] Almost all phonographs of the acoustic era operated without electricity, and instead captured and reproduced sound mechanically. Electrically amplified recording increased the ease of the capture process and the quality of sound.[19] The flexibility afforded by new microphone systems allowed for the capture of sounds around a wide area, ending the practice of hellishly cramped recording sessions around an acoustic horn. This led to more comfortable working conditions and an expansion of what and how music ensembles could practically record. Additionally, increases in captured frequency range meant higher fidelity in the reproduction of voices and instruments. Acoustic recording could only reproduce sound within a frequency range of 168 to 2,000 Hz (the human ear can hear, ideally, between 20 and 20,000 Hz).[20] This limitation accounts for diminished speech intelligibility on wax cylinder recordings. The presence of important timbral information that aids interpretation, for instance the sibilance sounds of 'f,' 's,' and 'th,' decreases in such a limited frequency space. Particularly high voices like sopranos have a pallid, wraithy quality due to this timbral flattening, audible in the highest vocal part of *Fair Phyllis* and the top of the song's range in *Jehan de Lagny*. Although out of the scope of this mix, the rare turn-of-the-century recordings of castrato Alessandro Moreschi demonstrate similar acoustic qualities.

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[17] Harvey Grace, "Musical History by Gramphone" in *2000 Jahre Musik auf der Schallplatte: Alte Musik anno 1930*, ed. Pekka Gronow, Christiane Hofer, and Frank Wonneberg (Vienna: Gesellschaft für Historische Tonträger, 2018), 209. Originally published in *The Musical Times* (February 1, 1932), 133-5.

[18] Timothy D. Taylor, "Sound Recording Introduction" in *Music, Sound, And Technology in America: A Documentary History of Early Phonograph, Cinema, and Radio*, ed. Timothy D. Taylor, Mark Katz, and Tony Grejada (Durham: Duke University Press, 2012), 12.

[19] Day, *A Century of Recorded Music*, 16.

[20] Ibid., 7.

The audio industry was certainly aware of the technological limitations, as were critics and consumers. Overwhelming negative reviews of sound film recordings by Metropolitan Opera coloratura soprano Marion Talley described her vocal performance as "intolerably piercing shrieks," ending her screen career as an unfortunate consequence of being out of reproducible range.[21] In an example of misogyny in early twentieth century acoustics, a Bell Labs engineer goes further to extend the issue of high voice intelligibility to a general acoustic diagnosis of women's speech being "more difficult to interpret than man's… due in part to the fact that woman's speech has one-half as many tone's as man's, so that the membrane of hearing is not disturbed in as many places."[22] While higher voices do suffer more from a lower frequency range of reproduction, which certainly was the case in 1928, this is generally a non-issue in everyday speech for people with average hearing. Wanting to spin the situation, Edison instead praises the early phonograph's low fidelity for its ability to eliminate non-essential material and vocal imperfections, even improving or correcting these "mutilations" by passage through the mechanism.[23] While the machine would reduce some potentially irritating vocal qualities like a speaker's harsh sibilance, that lack would also reduce clarity in a practical application like transcription.

Despite technological shortcomings, marketing for the early phonograph focused on its purpose as a device to record speech. It was even commonly referred to as a "talking machine." Sound recording technology emerged alongside a revolution in business management which sought to increase efficiency through technology and reorganization.[24] Professional managers oversaw employees using new technologies like typewriters and dictation phonographs in newly compartmentalized departments like accounting and communications. As the "scientifically managed office" came into vogue, gender roles in the office began to shift. Men, who previously worked as secretaries, became managers of a primarily female fleet of technologically proficient secretaries. As more women entered the workforce at the beginning of the twentieth century, advertising began reflecting the contemporary workplace with images of men dictating onto a phonograph cylinder while women transcribe them.[25] Edison had non-entertainment applications of the technology on his mind from the beginning. In an article from 1878 titled "The Phonograph and Its Future," Edison emphasizes the phonograph's application in communication and dictation well over its potential as a device for entertainment or education. He first lists dictation, then audio books for use in "asylums of the blind, hospitals, the sick-chamber, or even with great profit and amusement by the lady or gentleman whose eyes and hands may be otherwise employed."[26] With the two- and later four-minute run time of wax cylinders, a recording of even a small novel would require quite a lot of storage space and

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[21] Richard Koszarski, "On the Record: Seeing and Hearing the Vitaphone," in *The Dawn of Sound*, ed. Mary Lea Bandy (New York: The Museum of Modern Art, 1989), 18.

[22] John C. Steinberg, "The Quality of Speech and Music," *Transactions of the Society of Motion Picture Engineers* 12, no. 35 (September 1928), 641. doi: 10.5594/J13125.

[23] Thomas A. Edison, "The Phonograph and Its Future," in *Music, Sound, And Technology in America: A Documentary History of Early Phonograph, Cinema, and Radio*, ed. Timothy D. Taylor, Mark Katz, and Tony Grejada (Durham: Duke University Press, 2012), 31. Originally published in *North American Review* 126 (1878), 530-36.

[24] David L. Morton Jr., *Sound Recording: The Life Story of a Technology* (Westport: Greenwood Press, 2004), 45.

[25] Ibid., 46.

[26] Edison, "The Phonograph and Its Future," 34.

constant cylinder loading. A work like Tolstoy's *Anna Karenina*, with an audio length of about thirty-five hours, would require over a thousand two-minute cylinders. After books Edison lists education purposes primarily for children, and then music, praising the phonograph's ability to reproduce a song with "marvelous accuracy and power."[27] As music proved more complicated than speech to record, over a decade would pass before the first commercial recordings in 1889.

Decades later, the jump to electrical amplification in the mid 1920s increased the captured frequency range to 5,000 Hz (down to 100 Hz on the lower end), and again up to 8,000 Hz by 1934. Because microphones could now capture a greater dynamic range while offering more spatial flexibility than performance into a horn allowed, recorded music could achieve more levels of depth and expressivity. The limitations imposed by acoustic recording dramatically impacted performance practice, requiring musicians to abandon artistic standards, conservatory and stage training, and even sacrifice the integrity of their instruments. Certain instruments had to be modified to project and reproduce convincingly amidst the harsh hiss of wax and shellac. Hammer felts were stripped from pianos and trumpet horns were attached to violins. Understandably, similar modifications weren't as readily applied to 17th-century harpsichords and violas da gamba. The harpsichord performed by Wanda Landowska on a 1923 recording of Handel's *The Harmonious Blacksmith* is almost unrecognizable, a mere suggestion of the instrument. Compared to the harpsichord recorded over a decade later in the opening track *Le pendant d'oreille* by Antoine Dornel, which is by no means crystal clear, the Landowska recording's limitations transform the harmonically rich harpsichord into an amorphous specter, morphing between organ, piano, and harpsichord. The higher frequencies afforded by electrical amplification allowed for more accurate reproduction of instrumental timbres and increased speech clarity. However, pre-World War II recording technology falls short in reproducing the range of human hearing. Acoustic recording could not adequately capture delicate instruments like the clavichord, but even the clavichord performances featured on *2000 Years of Music* sound thin and unfocused in the early electrical era, further smothered under intense surface noise.

The material of the media–the shellac, its wear, and its mediation–contributes significantly to the audible grain on these recordings and the perception of the media as aged. Between about 1896 and 1948, record discs were primarily made from shellac (a resin secreted by tree insects) mixed with fillers to aid against wear and to color the record.[28] These fillers are largely responsible for that frying pan sound so typical of early recordings. In addition to the frequency limitations already discussed, the surface noise contributes to unintelligibility by masking or overpowering frequency content of the instruments and drowning out particularly soft passages. It's noteworthy that different recordings in the mix have different flavors of surface noise, from overwhelmingly noisy to barely present, likely a result of how the records were digitally transferred and subsequently treated in post-production. Johann Pezel's *Gigue* has almost no surface noise while Bach's *Prelude and Fugue in B-Flat* swims in a haze of crackle. Different needles, different EQ settings, and different amounts of noise reduction all impact the resulting sound. Too much noise reduction and the sound becomes flat. Too much surface noise and the saturation makes it hard to listen to for an extended period. Although likely originally

[27] Ibid., 35.

[28] Morton, *Sound Recording*, 38.

recorded mono in the 1920s and 1930s (commercial stereo recording was only introduced in the 1950s),[29] the transfers are almost all stereo files. Judging by the variations in surface noise between the channels, some of these tracks aren't just dual mono but were instead converted to digital in stereo. The result is spatialized surface noise which, depending on preference, either adds a layer of depth to the frying pan sound or increases irritation.

The texture or grain of media, like Barthes' grain of the voice, is the presence of the media's material in performance conveyed through the physical and digital body of the recording.[30] The grain exists in both presence, like the hiss of tape and the crackle of vinyl, and in absence, like the flattening and data loss of MP3 compression and streaming. When we listen to a record, we hear the history of that object perform in real time: the wear of the grooves, the scratches, the dust, the specific pressing. Even with a new, clean, well pressed vinyl record on a well-maintained player, the needle drop breaks the illusion that we're listening only to the recording. Surface noise exists because the record exists, because it performs and is performed. It is both enacted and self-inflicted.

How we hear or don't hear the texture of media varies depending on a person's background and experience with recorded sound. Someone who grew up listening to records and cassettes, likely an older listener, may more easily hear past the surface noise. Listeners who grew up with the comparatively (and debatably) frictionless media of CDs, MP3s, and streaming more readily recognize record noise as something other and additional to the recording.[31] They may respond first to the quality of the recording before commenting on its content. A very early acoustic recording reads as an historical sound object on an historical format which itself is often aged and decayed (e.g. the voice of one of the last castrati recorded over a century ago on a wax cylinder that has gathered dust for that same amount of time). Together the grain and content are heard as old and ethereal, out of time and place. Even if the recording is new, it can still sound "old."

In a video from 2018 titled "Recording on 100-Year-Old Equipment," popular YouTuber-guitarist Rob Scallon attempts to record acoustic guitar on a wax cylinder phonograph supposedly from "Edison's New York studio."[32] The humorless operator wearing a sport coat plays a few cylinders for Scallon who comments, "Sounds like we're listening to ghosts." The operator responds, "Well, we are," true since everyone on the recording is most certainly dead. Perhaps this, hearing voices of the dead doubly preserved in wax and YouTube content, is the future Edison envisioned in 1878 when he described the phonographic goal of "indefinite multiplication and preservation of [captive] sounds, without regard to the existence or non-existence of the original source."[33] The recording process only goes so well for our friend. Even after playing at the top of the instrument's dynamic range directly

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[29] Ibid., 95.

[30] Roland Barthes, "The Grain of the Voice," in *Image*, *Music, Text* trans. Stephen Heath (New York: Hill and Wang, 1995): 188. "The 'grain' is the body in the voice as it sings, the hand as it writes, the limb as it performs."

[31] MP3 compression and data loss through streaming creates layers of digital artifact comparable to that of certain analog media. A similar essay could be written about comedy skits created and uploaded to YouTube in 240p from 2006.

[32] Rob Scallon, "Recording on 100-Year-Old Equipment," YouTube video, January 15, 2018, <https://youtu.be/1n2b0NdL6_E>.

[33] Edison, "The Phonograph and Its Future," 32.

into the horn, on playback the guitar barely cuts through the heavy layer crackle. Scallon appears disappointed by the results. He tries again, this time recording an “old timey tune” with vocals. It sounds mildly better, but mostly because the black and white video of him playing the song in a pair of overalls and a fake beard sells the act better.[34] The video ends with a message to the viewer coming right out of the phonograph, the traditional YouTuber call to action to “smash that like button” trapped within a limited frequency band and buried under noise. This is the texture of media: the sound of the material, the recording, the playback, the decay and wear, often the content, and the perception of another world within these sounds.

In addition to frequency range and noise, limited space on discs provided another unique challenge to the performers and producers in the early twentieth century. Cylinders and single-sided discs of the early 1900s could hold about two minutes of noisy, limited frequency range audio. From the late 1920s, play time per side doubled to a whopping four and a half minutes. The format demanded musicians arrange, abbreviate, and even compose to fit within these technical limitations. A 1923 recording of Chopin's *Scherzo no. 1 in B minor* lasts four and a half minutes; the 1926 release of the same piece on piano roll lasts eight of the fifteen total minutes available to the format.[35] Even in an abridged form, a 1903 release of Verdi's *Ernani* by the Italian branch of the Gramophone Company HMV spanned the length of forty single-sided discs. The twenty-four 10” sides of *2000 Years of Music* totals only a little over an hour, each side rarely going over three minutes. In the accompanying textbook, Curt Sachs addresses the effect of time constraint on the interpretations but offers a fun way for the listener to contribute to the disc’s performance to achieve the intended artistic results: “It is advisable when playing this record to slightly retard the speed indicator of the gramophone (say to 76 revolutions). In order to record the whole movement on the usual three-minute length disc, the players had to increase the Tempo. The customary 18th century pitch being lower than that of the present day, any idea of consequent loss of effect is counter acted.”[36] With so many necessary interventions and concessions, the performer, and too the listener, must creatively engage the technology to convey a coherent version of the work even if that means veering further from a “true” representation of the music.

J. A. Fuller Maitland, a student at Cambridge in the 1870s, describes the attitude towards early music in his studies at the time: "the professorial lectures which often admitted the existence of madrigals, virginal music, and such things, nearly always took it for granted that there was no beauty such as could appeal to modern ears, so that the respect with which we were encouraged to approach them was purely due to their antiquity."[37] There's more to these recordings than an interest in the antique sound object. There's beauty, expressivity, risk, and fun. We can take this place at the intersection of early music and recorded music history as creative input for the possibilities of early music experimentation as a listener, composer, or performer. Even if the results are inauthentic within the

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[34] RobScallon2, “My Uncle the Philanthropist - Mr. Wibblespoon (recording into wax),” YouTube video, January 18, 2018, <https://youtu.be/TBpQR2z2eko>.

[35] Day, *A Century of Recorded Music*, 7.

[36] Curt Sachs, “Two Thousand Years of Music,” 159.

[37] Brian Blood, "The Dolmetsch Story," Dolmetsch online, modified January 6, 2022. <https://www.dolmetsch.com/Dolworks.htm>.

current field of historically informed interpretation, these recordings exhibit a technologically informed performance practice as equally evolving and malleable as the content recorded. This is not a case against the pursuit of authenticity or re-creation of historical music in the form originally heard. Although abbreviated, noisy, and at times garish, mass audiences in the twentieth century first heard this repertoire through mechanical reproduction. Early recording produced its own unique and authentic form of early music.

Preference for “late” over “early” in terms of technology, interpretation, scholarship, and performance practice would place much of the recorded music featured in this mix into the dustbin, only to be retrieved for novelty and study, never listening. Virtuosic listeners and audiophiles demand high quality recordings by extraordinarily skilled and specialized musicians. For music filled with idiosyncrasies, there's often little room for accepted experimentation other than by rule-breaking amateurs and composers. On these recordings, in varying quality and amidst layers of crackle, we hear experimentation in folds. From the original recordings made nearly a century ago to the MP3s now streaming through the internet, the extensive technological mediation produces an audible chasm between manuscript and digital file. Vibrato and crackle, verging on sacrilege, fill the negative space that gives contemporary recordings their magnificence and sterility. This mix presents artifacts and distortions, speculative histories of performance practice, musical decisions to puzzle over and laugh at, and compelling moments of experimentation that exhibit form in progress.

002: Later Music for Period Instruments

Air Date: June 22, 2022

Period instruments—"authentically" restored and reproduced instruments such as the viol, harpsichord, and recorder, on which early music is performed–play between the realms of old and new, moving beyond the bounds of the period in these twenty-first century pieces. Includes works by Molly Herron, Niccolo Seligmann, La Nòvia, Sarah Davachi, Kali Malone, La Tène, Joanna Newsom, and more.

TRACKS

1. Niccolo Seligmann – ***Resilience***
   viola da gamba; 2020
2. La Nòvia – ***Maintes fois - Nuit de noces***
   mixed ensemble w bagpipe, hurdy gurdy, banjo, vox; 2021
3. Heather Mease – ***Kill Slay Mother***
   Science Ficta, violas da gamba; 2021
4. Kali Malone – ***Velocity of Sleep***
   Peter Söderberg, theorbo; 2017
5. Molly Herron – ***Lyra***
   Science Ficta, violas da gamba; 2021
6. Niccolo Seligmann – ***Pipelines***
   viola da gamba; 2020
7. Jorge Torres Saenz – ***Kokíla***
   Águeda González, harpsichord; 2007
8. Wolgang Mitterer – ***Inwendig losgelöst: beilaufig tanzelnd***
   Freiburger Barockorchester, baroque orchestra and electronics; 2006
9. Freya Waley Cohen – ***Caffeine***
   Tabea Debus, recorder; 2019
10. Molly Herron – ***Roll***
    Science Ficta, violas da gamba; 2021
11. Emil Wojtacki – ***Compline (Ángeloi): Canticum Simeonis and Antiphon***
    Cantata Profana, mixed baroque ensemble; 2016
12. La Tène – ***Parade Du Soliat***
    hurdy gurdy, bagpipes, percussion, electronics; 2018
13. Sarah Davachi – ***Stations IV & V***
    organ; 2020
14. Niccolo Seligmann – ***After the Flood***
    viola da gamba, 2020
15. Joanna Newsom – ***Peach, Plum, Pear***
    voice, harpsichord; 2004

What do iPods, harpsichords, Wii Remotes, and the RCA Mark II have in common? They're all period instruments! Post-obsolescence, some things physically and culturally remain in landfills, as

microplastics at the bottom of the ocean, while others float around in storage and imaginations until the time comes for second chances. The Elblag koboz waited hundreds of years at the bottom of medieval latrine for excavation and resurrection by early music scholars.[38] The RCA Mark II, a mid-century period instrument and once statement piece of the Columbia-Princeton Electronic Music Center, now sits bolted to the floor in someone's office at Columbia. Perhaps someday that office will become a latrine, and the instrument will too find a renaissance post-discovery. Or maybe not. How many times has Bach been "revived" and "rediscovered" since his death? Black is always in style and seemingly so is counterpoint, but maybe not everyone has always gotten the memo. This is all to say that what we perceive as obsolescent can cycle and recycle, within reason. The Airpods at the bottom of the ocean—those will unfortunately remain there and continue to pile. But if there's a harpsichord sunken in the sea, an archeomusicologist will not let it stay there for long.

This mix focuses on later music written for earlier instruments since the year 2000. Another installment (or two) could easily cover composing for period instruments over the course of the last century. Of the period instruments, the harpsichord may have the greatest reach in the popular imagination as well as in the contemporary musical landscape.[39] I can't quickly name pieces written for krummhorn or sackbut over the last hundred years, but many of the major twentieth century composers wrote for harpsichord in some capacity. The instrument features in Igor Stravinsky's opera *The Rake's Progress,* ensemble pieces by Elliot Carter and Francis Poulenc, and in solo works such as György Ligeti's "Continuum" and "Hungarian Rock." Earlier than any of these pieces, Maurice Ravel indicated the use of either harpsichord or piano for his short song "D'Anne jouant de l'espinette" ("To Anne as she plays the spinet") published in 1900. Judging by the piece's dynamics and articulation markings, he likely did not write the piece for the instrument but included the option for programmatic reasons. Insertions into the electroacoustic realm include John Cage and Lejaren Hiller's piece *HPSCHD* for harpsichord and computer-generated sound, receiving high praise from critic Simon Reynolds who called it "the worst avant-classical purchase I ever made."[40] But never did the harpsichord entirely re-enter the canon as a contemporary instrument. Occasionally it becomes a modern period instrument such as with Wanda Landowska's experiments building modern hybrid piano-harpsichord instruments in the early part of the last century and similarly performing with a hybridized style.[41] Many composers write beautifully for the instrument and evade pastiche, but rarely do I fail to source-bond its timbre to earlier music. It brings to the composer, the listener, and the performer the baggage of its period status. Performer and Professor of Harpsichord Joyce Lindorf describes this tension in "Contemporary Harpsichord Music: Issues for Composers and Performers" as it relates to the instrument's revival: "As the harpsichord was re-discovered for both early and contemporary music, the instrument itself went through an evolutionary process, and performers and composers arrived at a crossroads."[42] I don't mean to sound too disparaging against the instrument

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[38] Ian Pittaway, "The Elbląg 'gittern': a case of mistaken identity. Part 1/2: Why the koboz was misidentified," Early Music Muse, 24 May 2023, <https://earlymusicmuse.com/koboz1/>.

[39] Including and beyond Sir Thomas Beecham's "two skeletons copulating on a tin roof in a thunderstorm" famous timbral descriptor.

[40] Simon Reynolds, *Retromania*, 385.

[41] Joyce Lindorf, "Contemporary Harpsichord Music: Issues for Composers and Performers," DMA thesis, (The Julliard School, 1982), 25.

[42] Ibid., 1.

and the history its sounds contain. In this house, we love Rameau, Couperin, Byrd, continuo, and the rest. Many composers want to lean into the instrument's connection with a rich, earlier musical history, and sometimes contemporary composers want to thwart that relationship.

To the former approach, composers and AI programs dedicated to the practice of making new music that sounds like old music aren't hard to find. As a digital humanities marriage between those two, the "Beethoven X" project unites machine learning experts and musicologists to finish Beethoven's final unfinished symphony. As for communities, the Facebook group "Historical Composition" describes itself as "a place for composers of early music that aren't dead quite yet, and for all advocates of composition in styles that prevailed in the past. Here members may feel comfortable sharing their compositions, discussing technique, improvisation, and all things pertaining to the living art of historical composition." It has a relatively active community, one that approaches historical composition quite seriously and narrowly; no P.D.Q. Bachs, no Stravinskys or Schnittkes, no parody, no patchwork postmodernists. The music is purely pastiche, as Frederic Jameson says, "blank parody, parody that has lost its sense of humor."[43] A return to the past that on one hand appears to be a reactionary return to older forms also parallels postmodern, contemporary interests in revival, such as the recent resurgence of breakbeats. Although in contrast, much of that music is not as humorless. I like poking my head around the Historical Composition group from time to time. The music is interesting technically and the dedication to the subject is as impressive as any other fandom's devotion. However, without at least a touch of parodic intent the work sounds almost like fanfiction.

I centered the issue of how to approach or not approach the viola da gamba as a period instrument when composing my own piece in this mix. Originally, I wanted to compose something akin to Molly Herron's treatment of the ensemble on her album *Through Lines*, playing with familiar gestures and while motioning towards familiarity through pitch content and devices like imitation. Molly Herron figured out a very lovely way to do it without merely producing pastiche, as did Kali Malone with theorbo in *Velocity of Sleep* and Sarah Davachi with a fifteenth century pipe organ in the *Stations* pieces. I, however, could not figure out how to achieve the balance I envisioned through dots and lines. Instead, I chose to compose through this issue of the instrument and performer as historically informed through exploration of memory. The text score follows:

> *the house of the mother of the*
>
> about things remembered, things unremembered, misremembered, remembered only through media and the accounts of others, real and unreal, memories. perform memories of sounds that exist or that may exist, as they rise to the surface, familiar, and sink back down at just approaching the edge of recognition, on the tip of the tongue. fluctuate between modes of being stuck, trapped in a state of repetition, and unstuck, churning through ideas that still never quite materialize. quietly, but not always softly, rising just to conversational level before pulling back. move together through these regions.
>
> 1

[43] Frederic Jameson, "Postmodernism and Consumer Society," in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (New York: The New Press, 1998), 131.

wait
begin sparsely, separately

2

continue as necessary
stuck and unstuck

3

material constructed from surroundings
yours becomes yours becomes theirs becomes yours
converge, in a sense

4

movement slows until at rest on individual ideas, very softly
end together

(~7 minutes)

The piece, *the house of the mother of the,* premiered for four viols (played by Science Ficta) accompanied by a two-channel video installation in a small living room scene. A CRT and a projector played different generations of home movies both in terms of media and family. A heavily edited and digitally distorted 8mm film from my mom's childhood projected onto the wall while a little TV set on a wooden table played camcorder video of my paternal grandmother's birthday party some twenty-five years after the 8mm film. My dad's voice adds commentary from behind the camera which came through the TV on stage. In both video channels my mom occasionally comes into view either as a baby or as an awkward woman in her mid-twenties. We both don't handle family functions very well in much the same ways.

The title "the house of the mother of the" references a pair of architectural sculptures memorializing Jan Palach's self-immolation in protest of the Soviet Union's invasion of Czechoslovakia: "The House of the Suicide and the House of the Mother of the Suicide."[44] Both structures are large steel cubes donning crowns of tall spikes. The House of the Suicide's shiny stainless steel and fanned thorns contrasts the Mother's rusty exterior with dulled protrusions pointing straight towards the sky. Sketches by architect John Hejduk from the early 1980s refer to the spikes as "metal shards of memory."[45] The subtle contrasts in design point to different types of memory overlapping—the familial memory of a lost child and the national memory of a lost struggle. A poem by David Shapiro, "The Funeral of Jan Palach," sits between the two structures in Prague, just outside of the Rudolfinum.

When I entered the first meditation
I escaped the gravity of the object,

[44] After reinstallation in 2016, the structures go by a new name: "House of the Son and House of the Mother."
[45] "The House of the Suicide," Living Prague, accessed 21 September 2023, < https://livingprague.com/architecture-design/house-of-the-suicide/>.

I experienced the emptiness,
And I have been dead a long time.[46]

In BOMB magazine architect Carlos Brillembourg places the poem as the mediator between the event and the architecture.[47] Gesturing beyond the silence of their media, the poem and structures both motion towards the intense sonic imprint and dissonance of the event. In four stanzas, Shapiro depicts a sound world simultaneously within the vacuum of space, the clamor of media coverage, the quieting of snow, and Jan Palach's amplified voice and political message within the flaming roar of his death. The Houses mirror this incongruent sonic environment with the quiet, inward-facing mother in contrast to the son's outward explosion of spikes representing, according to Hejduk's daughter, the sonic event of Jan's death as a "sound going out into the universe as an act against the apathy of the students in 1968."[48] I was inspired by the communication and exchange between all the elements: the two structures, the severity of media and form, and the devastating text and deafening silence between them. I reinterpreted these ideas through film, video, and the media's texture as well as the score's text and its resulting realization. The performance intertwines many threads of overlapping memory, from cultural memory within the texture of a particular medium like film grain or these Renaissance instruments, to personal memory within the content of these films or the trained hands of specialist performers.

the house of the mother of the reverses the roles between parent and child and inverts the cultural significance. My grandfather died by suicide after a long struggle with mental health and the death of my grandmother. The event impacted my mom profoundly and over time I watched her rewrite the narrative of the relationship with her parents from one of resentment oversteered into reverence. The two channels help illuminate, for me, the complexity of this person I love through documentary footage of her life. There is nothing conclusive to draw from it, but the juxtaposition is meaningful enough.

The premiere succeeded in some of this vision but not in terms of sound, unsurprising since no explicit instructions for the expectations of sound production were included in the score. Science Ficta did a fine job, but the piece was not what I envisioned. In the back of my mind sat wasted plans to compose canons and motets and lush harmonies in just intonation. So, I put away the recording for a while not knowing what to do with it. Eventually I decided to reinterpret the recorded material in the spirit of the score. I completely recomposed the piece by cutting the audio and arranging the samples into motivic ideas that expand and compress, disappearing into the texture and reappearing as a memory recalled. I collapsed the two channels of video into one, analog and digital grain intermingled. The video now takes up only a portion of the screen to mimic the focus of the small television on stage. The track *Kill Slay Mother***,** included in this mix, is just a fixed version of the piece

[46] David Shapiro, "Poetry and Architecture, Architecture and Poetry," *BOMB*, Fall 1992, < https://bombmagazine.org/articles/poetry-and-architecture-architecture-and-poetry/>.
[47] Ibid.
[48] Mimi Zeiger, "John Hejduk's The House of the Suicide structures get new life in Prague," *The Architect's Newspaper,* 19 January 2016, <https://www.archpaper.com/2016/01/hejduks-house-suicide-structures-get-new-life-prague/>.

without video and is part of an album *No One Nothing Never*. The audio in both the album and video versions are the same, but without video the work changes and so the name changes as well.

The crossroads between early and new opens as many possibilities for experimentation as it does possible pigeonholes. That tension is worth exploring, exploding, and subverting. The artists in this mix negotiate that balance. None present pure imitation of historical styles and conversely none completely exit the orbit of the historical imagination. Getting close through exploration of timbre and texture feels fabulous, but not getting there isn't a failure. The "period" of period instruments can expand and redefine itself. We can hear the harpsichord as a period instrument of 2000's hip hop and 1960's baroque rock and avant-garde concert music. What's the fun in sound without these cultural associations?

003: Drum Machine Family Photos

Air Date: July 6, 2022

This episode pages through the drum machine's family photo albums featuring instruments from the 1930s to the 1980s: The Wurlitzer Sideman, EKO Computerhythm, Roland CR-78, Linn LM-1, Maestro Rhythm King, Oberheim DMX, Roland TR-909, Leon Theremin's Rhythmicon, Raymond Scott's Rhythm Modulator, and other percussion and rhythm machines. From the most reverb-drenched 909s on Schoolly D's Philly gangsta rap to the wild yet sweet tones of Raymond Scott's highly sampled space-age jingles, hear demos, loops, early uses, and later applications of older drum machines and their rhythmic relatives.

TRACKS

1. Wurlitzer Sideman RHUMBA Preset
2. Leon Theremin's Rhythmicon played by Andrei Smirnov
3. Raymond Scott – ***Bandito the Bongo Artist***
4. Sly and the Family Stone – ***Spaced Cowboy***
5. Schoolly D – ***P.S.K. 'What Does It Mean'?***
6. Ashra – ***Sunrain***
7. Timmy Thomas – ***Why Can't We Live Together***
8. Raymond Scott – ***The Rhythm Modulator***
9. Wurlitzer Sideman BEGUINE Preset
10. Bruce Haack – ***Party Machine (Prince Language Edit)***
11. Run DMC – ***Sucker M.C.'s (Krush-Groove 1)***
12. Linn LM1 Demo
13. Little Sister – ***Somebody's Watching You***
14. Personal Bandana – ***EZ/CZ***
15. Suicide – ***Rocket USA***
16. Joe Hicks – ***Life & Death in G & A***
17. Wurlitzer Sideman TANGO Preset
18. EKO Computerhythm Sample and Loop Demo
19. Raymond Scott – ***Lightworks***
20. Isao Tomita – ***Bolero***

What is a drum machine? Does it really not have a soul? Generally speaking, a drum machine is an electronic instrument that creates synthesized and/or sampled percussion sounds with preset and/or programmable patterns of rhythm. One can certainly make electronic percussion without the use of a drum machine which many composers did and continue to do. Edgard Varèse's 1958 *Poème électronique* features wild electronic sounds organized on tape, many of them percussive. The high hats in Donna Summer and Giorgio Moroder's 1977 landmark dance hit *I Feel Love* were created with a Moog's white noise generator, a synthesizer but not necessarily a drum machine proper. Software like Pro Tools and Max/MSP offer myriad ways to craft and organize percussion without explicitly using a drum machine, even a software one. Hardware and software, analog and digital, sampled and synthesized, sometimes drum machines combine all the above. Even in their differences,

these examples have an undeniable family resemblance, but the practical and theoretical limits of a drum machine aren't of primary concern here. Instead, we're looking at snapshots of its ancestors, developmental stages, and early adolescence.

Depending on the source and qualifications, a few different instruments hold the title of "first." Written 700 years before the invention of what we typically recognize as a drum machine, engineer Ismail al-Jazari described programmable drum playing automata in his 1206 text *The Book Of Knowledge Of Ingenious Mechanical Devices (al-Jāmiʿ bain al-ʿilm wa al-ʿamal al-nāfiʿ fī ṣināʿat al-ḥiyal).*[49] This description ticks two main boxes in drum machine functionality—percussive sound production and programmable patterns—so the title of "first" or "oldest" drum machine gets thrown around. From the at least the eighteenth century, European self-playing machines like musical clocks and other automata performed programmed rhythms on demand or on the hour.[50] But for the purist who demands lights, buttons, knobs, and electricity over a floating robot band's pegs and levers, we must jump to the twentieth century to meet our modern contenders.

Léon Theremin, far more famous for the instrument bearing his surname than any contributions to drum machine history, built the Rhythmicon (also called the Polyrhythmophone) in 1931 in collaboration with composer and music theorist Henry Cowell. Using a system of spinning discs, light, and photoreceptors, the machine produces both pitch and rhythm in connection to the harmonic series when one of its keys is pressed.[51] The result, although far more rhythmically complex than what a 16-step sequencer can typically manage, lacks the basic percussive kick-snare sounds among other drum machine essentials. Synthesizer scholar Thom Holmes contends that the Rhythmicon is decidedly not a drum machine because a drum machine "is *not* a sequencer for melodies and tones, nor a way to specify a short series of notes that could be repeated automatically."[52] But we're getting closer.

Over the next few decades, composers and engineers continued to craft electronic rhythm and percussion with similar unorthodox results (although what would be orthodox in uncharted territory?). Inventor Raymond Scott, recognizable today for the heavily sampled electronic experiments and jingles by producers like J Dilla and Madlib, established his audio technology company Manhattan Research Inc. in 1946. Scott developed keyboard synthesizers and electronic

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[49] Avi Golan, "The Musical Boat for a Drinking Party," <https://aljazaribook.com/en/2019/08/07/the-musical-boat-en/>

[50] A particularly beautiful example of an early music machine, David Roentgen's eighteenth-century automaton of Queen Marie Antoinette pounds away on a little hammered dulcimer. Later, in the early twentieth-century, self-playing dance organs often included a percussion section complete with pitched and unpitched instruments like bells and cymbals. Unrelated to the drum machine discussion (so far, at least), one of the most famous automata of the 1700's was a duck called *The Canard Digérateur* which purported to digest grain and then defecate it!

[51] Peter Hoslin, "The Legend of the Rhythmicon, the World's First Drum Machine," <https://daily.redbullmusicacademy.com/2015/06/rhythmicon-feature/>

[52] Thom Holmes, "Drum Machines: A Recorded History, Part 1: Analog Drum Machines," https://www.thomholmes.com/post/drum-machines-a-recorded-history-part-1-analog-drum-machines

drum generators throughout the 1950's and 1960's, utilizing them in his surprisingly experimental (not to mention fun) jingles and compositions.

Prior to the transistor, drum machines like the Wurlitzer Sideman generated simple preset rhythms using electro-mechanical methods such as rotating disks. Harry Chamberlin created the Rhythmate in 1949, a tape-based machine with loops of acoustic drums playing a variety of patterns. It didn't receive widespread distribution (the first model only sold about ten units, probably because it didn't sound very good) but the tape-based technology behind it—and the more successful Chamberlin keyboard—would later become the Mellotron, albeit unscrupulously when Chamberlin's sales associate began manufacturing copies overseas without his consent. The Rhythmate's legacy includes another controversy: the American Federation of Musicians decried the use of the machine over the familiar fear of job loss in the face of automation.[53] Critics believed the Rhythmate would put acoustic drummers out of business, a criticism that carried on to other machines like the Wurlitzer Sideman. This continued to morph and solidify into the "Drum Machines Have No Soul" bumper sticker sentiment which, although hard to imagine, still lingers unironically, fed by concern over potential economic consequences of automation and cultural preoccupation with "authenticity."

A variety of pre-programmed drum machines, mostly created as rhythm units to accompany organs, were available throughout the 1960s. Despite their limitations, these machines began appearing on commercial recordings. The famously sampled drum machine in Timmy Thomas' 1972 hit *Why Can't We Live Together* is one such unit in a Lowrey organ.[54] The Wurtlizer Sideman, the first commercial tube-based drum machine, debuted in 1959 and sold throughout the next decade. Other similar noteworthy machines from the era include the Rhythm Ace series from Ace Tone, an early incarnation of Roland, and the Maestro Rhythm King Mk2 famously used by Sly and the Family Stone in the 1971 psychedelic funk album *There's a Riot Goin' On*.

For the introduction of the fully programmable drum machine proper, we turn to the EKO ComputeRhythm. Released in 1972, it boasted a version of the now familiar 16-step grid to program patterns (along with a punch card system for saving them!) and an array of standard percussion sounds produced by way of subtractive synthesis.[55] Manuel Göttsching uses the machine on *Sunrain* by Ashra. While the instrument potentially led an equally popular double life as a prop on sci-fi sets, the ComputeRhythm had a lasting impact on instrument design. Equipped with microchips, the similarly named Roland "CompuRhythm" CR-78 burst onto the scene in 1978 with the ability to easily program rhythms. Although not their first drum machine, the success of the CR-78 helped cement the Roland name.

Drum machine prevalence and popularity grew as more instruments came to market and found their way into countless diverse applications throughout the 70s and 80s. The reverb-drenched 909s on a

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[53] Terry Matthew, "Atomic Age Drum Machines: the Ghost Orchestras of Harry Chamberlin," <https://5mag.net/gear/audio-archeology/first-drum-machine-chamberlin-rhythmate/>

[54] Oliver Wang, "Timmy Thomas: Rhythm King," November 1, 2015, <https://soul-sides.com/2015/11/timmy-thomas-rhythm-king.html>. The original assumption in this article is that Timmy Thomas used a Maestro Rhythm King on this track. Later edits confirm he used a Lowrey organ with percussion presets.

[55] HAINBACH, "The First Modern Drum Machine | Eko Computerhythm," <https://youtu.be/XYFg_t8Hjxs/>

song like Schoolly D's *P.S.K. What Does That Mean?* gives us a window into a drum-machine driven production style that hip-hop didn't run with. Just Roland alone has a long, rich history of genre-shaping machines, many of which are still utilized, emulated, and sampled today. The sound and shape of the 808, for instance, continues to transform no longer tethered to the instrument. This mix barely scratches the surface of the musical developments these early instruments helped facilitate, but it attempts to provide snapshots of the drum machine's formative years.

004: Constructing Intonation with Ben Luca Robertson

Air Date: July 20, 2022

Featuring Semibegun's first guest, composer and instrument designer Ben Luca Robertson, this mix presents an approach to microtonality informed by the guitar tuning experiments of post-punk and no-wave while situated within a history of intonation theory that stretches back to antiquity. Hear Ben's music and instruments alongside Siouxsie and the Banshees, Joy Division, Sonic Youth, James Tenney, Harry Partch, This Heat, Glenn Branca, and Cocteau Twins. Read the conversation with Ben below to learn more about his thoughts on composition, just intonation, actuated string instruments, punk rock scordatura, Pythagoras, ancient greek flute hole aesthetics, and anything that isn't twelve tone equal temperament.

TRACKS

1. Ben Luca Robertson – ***Artemisia #34-53***
2. Joy Division – ***Exercise One***
3. Sonic Youth – ***Death To Our Friends***
4. Siouxsie And The Banshees – ***Hybrid***
5. Glenn Branca – ***Symphony No. 3 "Gloria," Second Movement***
6. James Tenney – ***Critical Band***
7. Dancing for the Flesh (Ben Luca Robertson) – ***Thamnophis sirtalis***
8. Harry Partch – ***Barstow: Eight Hitchhiker Inscriptions from a Highway Railing at Barstow, California***
9. This Heat – ***24 Track Loop***
10. Cocteau Twins – ***Blind Dumb Deaf***
11. Siouxsie And The Banshees – ***Israel***
12. Ben Luca Robertson – ***Artemisia #54-83***

ABOUT BEN

Born in 1980, Ben Luca Robertson is a composer, experimental luthier, educator, and co-founder of the independent record label, Aphonia Recordings. Growing up in the American Pacific Northwest, impressions of pine trees, channel scablands, volcanic outcroppings, and relics of boomtown decay bear a haunting influence upon his music and outlook. His compositions reflect an interest in autonomous processes, landscape, and biological systems—often supplanting narrative structure with an emphasis on the physicality of sound, spectral tuning structures, and microtonality. In the past, Ben has worked with regional biologists to sonify data from migrating salmon and composed music based upon taxonomic classification and geographic distribution of rare snake species. Beyond the natural world, the droning hum of high-tension wires, lilting whistles from passing freight trains, and small-town punk rock hold equal sway in this sonic landscape. Ben's current practice focuses upon the intersection between actuated string instrument design and just intonation. By definition, these actuated instruments utilize electronic transducers, such as electro-magnets, to induce ghostly vibrations in strings. To realize his compositions, Ben constructs bespoke instruments and scales—at times pairing these new instruments and extended tuning techniques with traditional chamber

ensembles. His latest piece, *Artemisia*, features performances by viola da gamba consort, Science Ficta, as well as a pair of newly-conceived actuated instruments: Rosebud I and II.

FOUNDATIONS

JUST INTONATION

Per Harry Partch in *Genesis of a Music*, "A system in which interval and scale building is based on the criterion of the ear and consequently a system and procedure limited to small (whole)-number ratios."[56] Therein, each ratio represents the fractional proportion between two frequencies. For example, the interval between the frequencies 550 and 440 Hertz can be represented as the just ratio, 5/4.

EQUAL TEMPERAMENT

A system of tuning and scale construction in which the octave is divided into a set number of equal intervals. The familiar, twelve-note chromatic scale is one example of equal temperament, wherein the octave is divided into twelve equal intervals (or semitones).

SPECTRAL MUSIC

An approach to sound spectra, acoustic properties of sound, as compositional material. Composers with spectralist features in their work include Tristan Murail, Gérard Grisey, Horațiu Rădulescu, and James Tenney. For a more thorough introduction to spectralism, please read Joshua Fineberg's article "Spectral Music."

INTERVIEW

HEATHER MEASE: As a composer and instrument builder who focuses on tuning as material for composition and design, what was your particular entry point into the world of just intonation?

BEN LUCA ROBERTSON: Well, my introduction to just intonation was a bit circuitous. I never followed a particular teacher or 'school' of thought. Instead, I suppose that I've always sought out extended tuning practices as a means to an end—a way of accessing sonorities that are beyond the reach of traditional harmony. Really, my first conscious exposure to microtonal music came by way of post-punk and no-wave—particularly, early Sonic Youth records like *Bad Moon Rising* & *EVOL*. From either records sleeves or some anecdotal / pre-internet source, I somehow figured out that they were tuning their guitars in weird and unconventional ways. Not necessarily just intonation; but certainly microtonal. You know, open tunings where you might have four consecutive strings tuned to 'D'—however some of those 'D's' were either sharpened or flattened slightly. Listening back in retrospect, these narrow intervals often mirror the just 'commas' and other intervallic features Harry Partch describes in *Genesis of a Music* or those carefully notated pitches in pieces, like James Tenney's *Critical Band*. As a teenager, this stuff blew my mind! These bands were creating sonorities every bit as strange & otherworldly as those generated by a synthesizer—simply by re-tuning their guitars! Sort of like Punk rock scordatura!

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[56] Harry Partch, *Genesis of a Music* (New York: Da Capo Press, 1974), 71.

Of course, Sonic Youth led me to Glenn Branca—and *Symphony No. 3 (Music for the first 127 Intervals of the Harmonic Series)* was my first introduction to tuning systems derived from spectral content. This kind of physical logic really appeals to me and—as far as I'm concerned—just intonation is just one facet of spectral tuning. Mind you, at this point I didn't know that spectral music was a thing. Honestly, I didn't hear or read about French spectralists like Grisey or Murail until years later.

Anyway, going back to post-punk, I also heard microtonality as a byproduct of certain effects processing. Take Steve Severin's bass tone with Siouxsie & the Banshees or The Glove. That deeply detuned, goth-rock chorus effect on tracks like *Israel* or *Like an Animal* introduces a parallel stream of narrow—dare I say, comma-like!—intervals on top of the bass melody. Intentionally just? Probably not. But certainly outside equal temperament.

HM: Your own instruments, particularly Rosebud which is used alongside Viol consort in *Artemisia*, have a vaguely guitar-like appearance with multiple strings and pick-ups. A layman could point out similarities to something like pedal steel. An actuated stringed instrument could potentially take many forms, but do you think this is another influence of post-punk?

BLR: Absolutely! Both familiarity with this music and what six vibrating strings paired to a humbucker pickup can do definitely factored into that. In addition to being the primary means of amplification, (the sound of) guitars and guitar pickups are also the timbral world I grew up with—whether that's post-punk or country-western music. It's familiar territory and it's close to my heart.

HM: When you create a new instrument, compose for it, and perform with it, do you feel you're operating within already established territories, for instance in the extended universe of post-punk and no-wave, or do you find yourself in territory that you yourself must define?

BLR: No one's an island, right? However, without trying to sound too iconoclastic, I'm a lot less interested in cultural reference than I am sound or other physical systems. Whether it's punk rock or art music, I'm really most comfortable operating in the periphery of any established scene or movement. That said, practical knowledge from other instrument-makers—particularly folks working with actuated instruments—has been essential to my practice. For example, there's more than a hint of Nicolas Collins' 'Backwards Guitar' in the construction of my instrument 'Rosebud I'—you know, aluminum frame construction and electric guitar pickups for amplification and sound processing. Likewise, I installed the same electro-magnets as those used in Andrew McPherson and Edgar Berdahl's actuated pianos. Practically speaking, following these design specifications allowed me to resonate strings using manageable amounts of electrical current. You know, these past approaches just work and I'm happy to stand on the shoulders of giants!

In regards to theory and performance, I do lean heavily upon principles best codified by Harry Partch. The connections between Otonality, Utonality, and the harmonic/sub-harmonic series are concise and irrefutable in the way he presents them. In fact, it's a shame Partch isn't included in most music theory pedagogies! More specifically though, I find a lot of parallels between my approach to composition and Partch's conception of 'Tonal Flux'—basically, the idea of connecting two, stable sonorities by way of extremely narrow intervals—or 'commas.' I mentioned those earlier in reference to Sonic Youth and Souxsie and the Banshees. Both groups seem to hint at that sound, through either

re-tuning or effects processing. However, unlike Partch, I tend to treat commas as free-standing elements, as opposed to something which pivots between two states. I think of commas as more integral to my compositions.

Going back to spectra, I often steer that intervallic range and structure of my music around pyscho-acoustic principles—specifically, quantitative assessments of perceptual consonance and dissonance, or what some researchers term 'roughness'. Particularly, I've taken a lot of influence from researcher Pantelis Vassilakis' modeling of spectral roughness. As part of my live rig, I've implemented his algorithms in programming environments like Max/MSP and Pure Data. During a performance, these algorithms modify the balance of synthesized harmonics. Think of it like a thermostat, with a defined roughness value as the temperature setting. The same way a thermostat turns the heat up or down to match a certain temperature, my algorithm changes the balance of harmonics to match a defined roughness threshold. Essentially, I treat roughness as just another musical parameter to be performed.

Anyway, these are all generally pragmatic; as opposed to cultural or aesthetic influences.

HM: One of the things that strikes me most about Harry Partch's music, besides being theoretically rich, is the significance of culture and mythology, whether Ancient Greek or Californian, in both his compositions and instrument designs. Thinking of pieces like *Castor and Pollux* and *Barstow: Eight Hitchhiker Inscriptions from a Highway Railing at Barstow, California* or instruments like his Kitharas. The Greek elements relate to tuning, construction, and content, so in this way the extra-musical influences in his work become tangibly musical. It goes way beyond surface level. I'm curious what, if any, comparable influences might be found in your own work?

BLR: This is an area where Partch and I may differ. I have an inkling that if he were alive to hear my music, he may not like it! Partch was really concerned with corporeality and creating pieces that involve theatre, where the performance requires acting out both its musical contents and cultural references. While I think his views on corporeality in performance are fascinating, they don't necessarily touch on what I do. My concern is generally less rooted in culture than it is in sound itself. In this regard, our views diverge quite drastically. In fact, in some of his writings, Partch is more than a bit incredulous regarding the role of spectra in just intonation. Instead, his interests in sound and tuning manifest in modeling facets of the human voice. Again, our concerns are quite different here.

When I do reference extra-musical materials, I tend to orient towards biological processes, landscape, and other autonomous systems. This is where sonification comes into play—converting things like scientific data into sound or musical parameters. Hence, my collaboration with biologists to sonify the migration of Chinook Salmon. When sound can both reflect and serve the natural environment, all the better. That's corporeal enough for me!

HM: In your own writing you primarily reference theorists of the twentieth century onwards like Partch, James Tenney, and Ben Johnston. There's also so much early music and theory from antiquity, Pythagorean tuning perhaps most notably, that engages with various tuning systems. The ubiquity of twelve-tone equal temperament in western classical music is a more recent development than some

might think. Do you see the treatises on tuning from antiquity as something completely other from the current space you're working in?

BLR: No. Not at all. Like Pythagoras, Ptolemy, or Aristoxenus, I'm also engaged with empirical research—or at the very least, seek a physical logic for constructing sound and interval. Of course, their understanding of the physical world—specifically, sound and psychoacoustics—was limited by other factors; be they scientific or cultural.

In some ways, I think musicologist Kathleen Schlesinger provides the most concise bridge between tuning practices in Antiquity, Partch's theories, and the physicality of instrument design. Her analysis of the physical proportions of the Aulos (an early reed instrument) frames Greek modal scales firmly within just intonation. While her work precedes Partch by decades, there are numerous parallels between them as researchers, if not practitioners. Like Partch's conception of Utonality, Schlesinger classifies the seven Greek modes based upon intervals between the first thirteen sub-harmonics—or undertones. Both Schlesinger and Partch also emphasize an integral relationship between tuning and instrument design. However, instead of the divided string—or 'monochord', Schlesinger predicates historical tuning practices upon equally-spaced placement of holes on reed flutes. With her work, there is also a physical logic which I find really engaging.

HM: By working with viola da gamba ensemble Science Ficta on *Artemisia*, you have some experience with composing for period instruments and musicians with backgrounds in historically informed performance practice. From that experience, how do you perceive the tuning approaches of early music versus those of modern and contemporary music? Do you feel there is kinship between what you do with actuated stringed instruments and what a viola da gamba player does?

BLR: Yes! There's definitely a kinship between these two practices. That's what made it so great to write for this ensemble. In each case, physical design and proportionality are linked to tuning structure. In the case of the Viola da Gamba, moveable frets enable flexible tuning. With my own instruments like Rosebud II, moveable bridges and multiple courses of string allow similar flexibility. Again, I think about instrument design as a means to manifest specific tuning structures. This pre-compositional process often occurs in advance of constructing (or modifying) the actual instruments.

Of course, the main difference between the two practices (the viola da gamba player and my own) is the mode of physical activation: while the viol player's bow initiates vibration of the strings, my actuated instruments rely upon electronic transducers, such as vibrating bridges or electro-magnets, to induce sympathetic vibrations from the strings. That said, both are physically embodied performances involving the periodic movement of sounding bodies, specifically strings.

When I composed *Artemisia* for Viol consort and actuated instruments, I put a lot of thought into the relationship between performed and actuated frequency content—essentially notating common just intervals between harmonics shared by each instrument. Without getting too technical, the viol provides the signal which drives the transducer, which brings the actuated instrument's strings into sympathetic vibration. When performed notes from the viol coincide with harmonics generated by the strings of the actuated instrument, sympathetic resonance occurs. Like a ventriloquist and

dummy, the viol is speaking through the actuated instrument—viol as ventriloquist; the actuated instrument as the dummy.

HM: My final question to you. What is on the horizon for your practice? Is there a specific piece to be composed, an imagined instrument to be built?

BLR: To be honest, I still feel like I'm learning to play these instruments. For instance, In the later stages of composing *Artemisia*, I began experimenting with preparation. The same way Cage would prepare the inside of a piano, I prepared the strings of these actuated instruments using strips of foil, straws, and other objects. Consequently, there's a secondary level of interaction that's happening between the actuated instrument's performer, the signal that's being used to resonate the strings, and these other physical interventions that affect timbre. In some cases, the act of preparation even imitates other instrumental techniques. For example, when I bring a string into a sustained resonance and press a straw down onto the vibrating surface, I end up producing a rapid ricochet effect similar to a 'buzz roll' (on a drum). Thus, through experimentation, I came upon a technique for introducing percussive elements into a practice more or less rooted in sustained drones. To sum it all up: I created tuning structures, instruments which enable those tuning structures, and now I'm learning how to actually play these instruments and understand what these interactions can afford.

HM: The discovery and exploration of your performance practice is an interesting point. When you create a new instrument you must also invent a performance practice. It's a form of early music—it allows exploration, experimentation, and potentially leads to some amount of codification. You're certainly past the primordial ooze stage, but there's still so much more ground left to cover. I think this speaks a lot to your ability as an instrument designer, that they have the flexibility to grow with you as a composer and you the flexibility to grow with them.

BLR: The funny thing about creating new instruments is that there's no one there to teach you to play them! You know, it's not like I can take lessons.

June 23, 2022

005: GOTTA SWITCH-ON TO GO OFF

Air Date: August 3, 2022

In 1968 Wendy Carlos released *Switched-On Bach*, a virtuosic demonstration of the Moog's musical capabilities through arrangements of pieces by baroque composer J.S. Bach. The certified platinum album introduced and legitimized the synthesizer to many and spawned countless imitations ranging from charming to utterly bizarre: *Switched-On Nashville, Switched-On Santa, Turned On Joplin, The Happy Moog!,* and *The Sounds Of Love...A To Zzzz (Sensually Sinthesized)*, just a few of the records that make it into this episode. An hour of the fun and the questionable of these electrified tunes from this pivotal point in electronic music history, solidifying the synthesizer as an instrument within the mainstream.

TRACKS

16. Wendy Carlos – ***Brandenburg Concerto No. 3 in G Major, II. Adagio***
    Switched-On Bach; (1968)
17. Sy Mann – ***My Favorite Things***
    Switched On Santa; (1969)
18. Gil Trythall – ***Kansas City***
    Switched On Nashville (Country Moog); (1972)
19. The Electronic Concept Orchestra – ***Both Sides Now***
    Moog Groove; (1969)
20. Jean-Jacques Perrey & Harry Breuer – ***In A Latin Moog***
    The Happy Moog!; (1969)
21. Mike Hankinson – ***Sonatina Op. 36 No.5 - III. Rondo (Muzio Clementi)***
    The Unusual Classical Synthesizer; (1972)
22. Wendy Carlos – ***Two-Part Invention in D Minor***
    Switched-On Bach; (1968)
23. Wendy Carlos – ***Two-Part Invention in F Major***
    Switched-On Bach; (1968)
24. Chris Stone – ***Maple Leaf Rag***
    Gatsby's World - Turned On Joplin; (1974)
25. Gil Trythall ***– Harper Valley P.T.A.***
    Switched On Nashville (Country Moog); (1972)
26. Joseph Byrd – ***The Yankee Doodle Boy***
    Yankee Transcendoodle; (1976)
27. Dick Hyman – ***Blackbird***
    The Age of Electronicus; (1969)
28. Richard Hayman – ***Goin' Out Of My Head***
    Genuine Electric Latin Love Machine; (1969)
29. Fred Miller – ***Scented Wind***
    The Sounds of Love ...A to Zzzz, Sensuously SINthesized; (1972)

30. Hans Wurman – ***Eine Kleine Nachtmusik (Serenade In G, K. 525), I. Allegro (Mozart)***
    The Moog Strikes Bach... (To Say Nothing Of Chopin, Mozart, Rachmaninoff, Paganini And Prokofieff); (1969)
31. Sy Mann – ***Santa Claus Is Coming To Town***
    Switched On Santa; (1969)
32. The Moog Machine – ***Aquarius / Let The Sunshine In***
    Switched-On Rock; (1969)
33. Jean-Jacques Perrey & Harry Breuer – ***Space Express***
    The Happy Moog!; (1969)
34. Richard Hayman – ***The Peanut Vendor***
    Genuine Electric Latin Love Machine; (1969)
35. Gershon Kingsley – ***Pop Corn***[57]
    Music To Moog By; (1969)
36. Gil Trythall – ***Tennessee Waltz***
    Switched On Nashville (Country Moog); (1972)
37. The Mighty Moog – ***Malagueña (Ernesto Lecuona)***
    Everything You Always Wanted To Hear On The Moog (But Were Afraid To Ask For); (1971)
38. Joseph Byrd – ***The Stars and Stripes Forever***
    Yankee Transcendoodle; (1976)
39. Isao Tomita – ***Ballet Of The Chicks In Their Shells***
    Pictures At An Exhibition; (1975)
40. Hans Wurman – ***Waltz In C-Sharp Minor, Op. 64, No. 2 (Chopin)***
    Chopin À La Moog (With Lots Of Strings Attached); (1970)
41. Wendy Carlos – ***Prelude and Fugue #2 in C Minor***
    Switched-On Bach; (1968)

"My dear young friends, have you heard the news?" Leonard Bernstein addresses his young concert-going audience, "They suddenly found out that Bach is in—in with old and young, rebels and hippies, scholars and dropouts. Everyone who likes music suddenly likes Bach."[58] Since his death almost three hundred years ago, the music of Johann Sebastian Bach has undergone multiple waves of rediscovery and renewed popularity. Gottfried von Swieten, Sarah Itzig Levy, Felix Mendelssohn, the list of historical figures who "revived" his works goes on and on into the early music popularization of the 1960's, which Bernstein highlights above in an edition of his Young Peoples Concert's dedicated to "Bach Transmogrified." From the rise of early music personalities like David Munrow on British radio and television, the parodic antics of Peter Schickele's fictitious character P.D.Q. Bach, the foreground placement of harpsichord in pop recordings by producers like Phil Spector, and the success of albums

[57] "Pop Corn" from Gershon Kingsley's *Music to Moog By* is one of the few originals, inspired by a Jewish folk tune. Although the track deviates slightly from the mix's theme, I originally included the tune assuming it was, in fact, an arrangement. "Pop Corn" was already familiar because a "rave" rendition of the song is in Dance Dance Revolution 4th Mix (released December 1999) and In the Groove (a rhythm game in the style of Dance Dance Revolution) included a remix by the French DJ Canblaster in one of its releases in the 2000's. Through these games I became acquainted with electronic music.

[58] *Young People's Concerts*, "Bach Transmogrified," aired 27 April 1969 on CBS.

like Joshua Rifkin's *The Baroque Beatles Book* and Wendy Carlos' *Switched-On Bach* certainly confirm that Bach & co. were indeed back in ever new ways.

To echo Bernstein, Bach's music lends itself to transmogrification, arrangement, adaptation, remix. Even switched-off, performers subject his work to an array of timbral treatments on clavichord, harpsichord, lute, many types of organs, and frequently on piano. Leopold Stokowski arranged pieces for symphony orchestra, and I've certainly played fugues from the *Well-Tempered Clavier* in chamber ensembles of contemporary instruments. Robert Schumann attempted to bring the solo cello and violin pieces into the Romantic era by adding a piano accompaniments to make them "more accessible to his contemporaries."[59] Between the improvisatory elements of early music performance practice and its instrumentation's timbral richness and variability, the music almost demands some level of transmogrification. So, with her Moog modular synthesizer and its purported endless possibilities for sound production, Wendy Carlos electrified Bach. And then, for a moment, everything switched-on.

The mix for this episode dives into the synthesized timbres and textures of the *Switched-On* "Moogsploitation," an explosion of exploratory synthesizer records on the market in the late-60's and 70's following the success of Wendy Carlos' platinum selling album *Switched-On Bach.* The quality of these synthesized arrangements of rock, pop, ragtime, country, classical, and jazz vary in terms of recording and performance. What the records lack in quality, however, they make up for in audacity and cornball charm. But perhaps more significantly, "switching on" required experimentation in pure electronic music outside of the avant-garde context. As a result, the recordings presented a buffet of electronic sonic potentials to the mainstream through a vehicle of familiarity and fun. The results of these experiments, effected by choice of source material to arrangement and technique, hover along a spectrum from kitschy to bizarre with real moments of beauty along the way. My approach to this repertoire involves reframing a certain negative perception of these records as a strength. Instead of a cheap application of new music technology, these recordings present a different kind of experimentalism that clashes stylistically, and in many ways politically, with the mid-century avant-garde approach to electronic composition. Switching on catalyzed a release of electronic music from the exclusive realm of specialists and helped socialize the synthesizer (particularly the Moog) to a wider audience of listeners and practitioners across numerous popular genres; not as a moment of devaluation but one of expanse.

"The *Switched-On*-style of classical-meets-pop synth records are incredibly strange relics from a time long gone, and they still retain a haunting, sometimes daunting, quality."[60] With a touch of Fisherian melodrama, this comment in a 1996 issue of Beastie Boys magazine *Grand Royal* points to a problem when evaluating these records fifty years after release. They are doubly novel, gimmicky in content and alien in vintage. Some of the novelty comes from age, although "haunting" is an interesting descriptor that conjures ill-suited ideas of horror as opposed to uncanniness. The timbral palette of Wendy Carlos' Moog 900 Series, shaped by the recording/mixing decisions of her and producer

[59] David Breitman, *Piano-Playing Revisited: What Modern Players Can Learn from Period Instruments* (New York: University of Rochester Press, 2021), 3.
[60] Andy Blinx, "Wendy Carlos: From Bach to the Future," *Grand Royal* Spring-Summer (1996): 59.

Rachel Elkind, emerges as specifically and deliberately out of time while also undeniably belonging to the late 1960's.

Rivaling Bach and his dusty contemporaries was the public interest in the New Frontier. The synthesizer perfectly underscored the uncharted areas of science and space with sounds of fantasy, speculative futures, and unknown worlds. The 1956 science fiction film *Forbidden Planet* featured the first fully electronic score. A synthesized sonic world conjured by composers Bebe and Louis Barron shifts fluidly between underscoring, sound design, and diegetic music. The same synthesized tones heighten a scene's tension, animate spaceship technologies, and illustrate the music of a 20,000-year long-gone civilization on this alien planet. The electronic sounds of *Forbidden Planet* flesh out another world's past and our own world's vintage conception of future. American composer and bandleader Sun Ra, too, used his Moog to probe the depths of the intergalactic world he and the Arkestra created, described by Robert Barry in *The Music of the Future*, as "a means of launching music into outer space."[61] And as millions fixated on our own launch into space through their television, viewers heard the soundtrack of Mort Garson's Moog in the CBS recap broadcast of the 1969 Apollo 11 moon landing ("one small step for man, one giant leap for Moogkind").[62] Perhaps the "haunting" quality of the 1960's synthesized sound refers to a nostalgia for the future, or lost futures. Space *was* the place, but the space-age utopia of Disney's Tomorrowland never came to pass. Today's space race is an ego-fueled competition between a few billionaires, and electronic music no longer signals the future as much as it does the present and, for the contemporary musicians like those making 90's throwback rave music, the past.

In mid-century academia, electronic music veered into and around the realm of scientific and technological research. As stories of innovation tend to go throughout the twentieth century, many key early advancements in music technology resulted in the service of military research. Leon Theremin developed his eponymous instrument while researching radio technology at Lenin's Red Army Military Radiotechnical Lab, and later assisted in an act of espionage, allegedly leaking secrets of the Manhattan Project to aid the Soviets' own nuclear project.[63] German-American engineer Semi Joseph Begun made advances in magnetic recording with funding from the National Defense Research Committee (NDRC) during World War II.[64] Even Bob Moog worked on developing an instrument intended for Department of Defense research.[65]

Outside of the military, the bulk of electronic music production before the late 60's took place within state-sponsored facilities in Europe like the BBC Radiophonic Workshop and Westdeutscher Rundfunk (WDR) and in the States within private universities like the Rockefeller Foundation-funded Columbia-Princeton Electronic Music Center. Much of the Center's artistic output married a strain of avant-

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[61] Robert Barry, *The Music of the* Future (London: Repeater Books, 2016), 51.
[62] "Mort Garson – Journey to the Moon and Beyond," *Bandcamp*, 21 July 2023, <https://mortgarson.bandcamp.com/album/journey-to-the-moon-and-beyond>
[63] Alex Glinsky, *Switched On: Bob Moog and the Synthesizer Revolution* (New York: Oxford University Press, 2022), 31.
[64] "NIHF Inductee Semi Begun Invented Magnetic Recording," *invent.org,* <https://www.invent.org/inductees/semi-joseph-begun>. The name Semibegun comes from Semi J. Begun.
[65] Glinsky, *Switched On*, 90; 121-122.

garde concert music austerity with synthesized and tape-based composition techniques. A collection of pieces made there can be heard on the 1964 album *Columbia-Princeton Electronic Music Center* featuring resident composers Bülent Arel, Halim El-Dabh, Vladimir Ussachevksy, Milton Babbitt, Otto Luenig, and Mario Davidovsky. Babbitt employed the massive, exorbitantly expensive, user-unfriendly RCA Mark II Synthesizer to fulfill his serialist fantasies by painstakingly programming every compositional parameter on punch cards. As a graduate student at Columbia, Wendy Carlos found it difficult to produce the more traditionally tonal work she wanted to make. As an assistant to Ussachevsky, she was inspired by neither the aesthetics nor much of the machinery floating around the Center. The inaccessibility and exclusivity of this music-making approach was not entirely unintentional. Roshanak Kheshti describes the attitude Carlos rejected as one "rooted in the idea that the vanguard of aesthetic innovation would be, at least initially, intolerable to the general public of any society."[66] In an interview with Moog historian Thom Holmes in 2001, Wendy Carlos confirms this attitude: "I think the established composers were just too much in love with their abstract systems to consider that the music coming out of it was, by and large, fairly forgettable and kind of hateful," made with "arrogance and pomposity."[67] Ussachevsky, co-founder of the Columbia-Princeton Electronic Music Center, tried to the thwart the use of the Moog by pop musicians ("they're just going to do junk with it") by suggesting to Bob Moog that he forgo a traditional keyboard for his new modular system.[68] He added a keyboard controller anyway.

Resistance to the type of music Carlos wanted to make did not deter her, but it did push her from the realm of academia. She contacted Bob Moog and in 1966 began ordering modules for the electronic music studio she was building in her New York City apartment. She took naturally to the instrument as a performer and a critical engineer. She developed a friendly relationship with Bob Moog and they would meet over coffee to brainstorm improvements to the synthesizer. In 1967, Moog invited her to produce a nine-minute demo disk for the Moog 900 Series with a variety of sound effects, soundscapes, and a pop arrangement.

After hearing a realization of Bach's *Two-Part Invention in F Major* Carlos made during her last year of graduate school, her friend Rachel Elkind suggested they create an entire album of electronic Bach. They pitched the idea to Columbia Records, and with her Moog, a mixing board, and an 8-track tape recorder, the album was completed between spring and summer of 1968.[69] The Moog, a finnicky monophonic instrument that went out of tune constantly, required the individual recording of each contrapuntal line. Although billed as a solo synthesizer project, the music was as much a feat of recording and editing as it was of synthesizer programming and performance. After a painstaking production process, Columbia Records released *Switched-On Bach* in October of 1968. By the end of the year, the record charted at No. 2 on the classical charts. Early the following year it crossed over into *Billboard's* Top 200. It reached its highest position at No. 10 and would remain in the Top 40 into the summer of 1969.

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[66] Roshanak Kheshti, *Switched-on Bach* (New York: Bloomsbury Academic, 2019), 78.
[67] Thom Holmes, *Electronic and Experimental Music: Foundations of New Music and New Listening*, (New York: Routledge, 2002), 158.
[68] Glinsky, *Switched On*, 75.
[69] Ibid., 136-7.

Switched-On Bach was neither the first album for solo synthesizer (not even first for solo Moog)[70], nor the first to gain some mainstream, cross-over attention. In 1966, composer Morton Subotnik moved to New York City with his Buchla, the West Coast rival of the R. A. Moog company, to perform uptown electronic music at hippie discotheque the Electric Circus in Manhattan's East Village. Not long after arrival, he received a $1,000 commission to create an album of solo synthesizer music for Elektra's subsidiary label Nonesuch. A year later, *Silver Apples of the Moon* debuted to positive reviews, having found a niche between the audiences of the academic avant-garde and psychedelic rock.[71] But it was the success of *S-OB* that really spurred the dawn of the solo synthesizer record.

Gil Trythall brings electronic music to the Grand Ole Opry with *Switched On Nashville* (and if you like that, why not try *Switched-On Buck* to satisfy everyone's need to hear more Buck Owens?). The Moog receives a festive treatment in *Switched On Santa*. An out of tune "Maple Leaf Rag" from *Gatsby's World – Turned On Joplin* plods along, honoring Scott Joplin's preferred slower tempo. *The Happy Moog!* is entirely as advertised. On *Yankee Transcendoodle*, Joseph Byrd (of experimental rock band The United States of America) presents patriotic classics as they were meant to be heard—on an Arp 2600—to commemorate the bicentennial. Richard Hayman's noisy rendition of Little Anthony and the Imperials R&B hit "Goin' Out Of My Head" matches the experimental sound design of Dick Hyman's bird song interlude in "Blackbird." The Moog Machine's "Aquarius/Let The Sunshine In," a tune popular with Moogsploitation records for its space-hippie vibes, sits on the weaker end of the spectrum with its lifeless, discordant tones and a blundering beat change. The rest of *Switched-On Rock* doesn't boast much higher quality. The blue ribbon for most absurd goes to *The Sounds of Love ...A to Zzzz, Sensuously SINthesized*, an album by Fred Miller that features a woman's voice moaning over dreadful arrangements of Ravel and bizarre original tunes that range from plaintive to brutal. However, *The Sounds of Love* follows the release of Mort Garson's *Music for Sensuous Lovers* the year prior, yet another duet for synthesizer and sex sounds.

While some of the poorly mixed, carelessly performed, terribly uninspired arrangements approach unlistenability, the opposite end of the spectrum harbors occasional sonic beauty. The Mighty Moog's arrangement of *Malagueña* by Cuban composer Ernesto Lecuona is an exquisite example of electronic orchestration with a fullness and depth that matches, if not surpasses, that of the modern symphony orchestra. And we cannot discuss electronic orchestration without including master of synthesizer arrangements Isao Tomita, whose work demands equal attention to what's being given to Wendy Carlos. While he did release his own *Electric Samurai: Switched-On Rock* featuring tunes like *Jailhouse Rock* in 1974, he's far better remembered for his work electrifying the classical canon. His 1975 synthesizer arrangements of Modest Mussorgsky's solo piano behemoth *Pictures at an Exhibition* rival's the classic 1922 orchestration by Ravel. The expanded possibilities of the synthesizer's timbral palette ushered in a new era of orchestral imagination. And while electronic instruments have made guest appearances in the modern orchestra throughout the last century, whether in Olivier Messiaen's *Turangalîla-Symphonie* or in the Floating Points/Pharoah Sanders/London Symphony Orchestra collaboration *Promises*, the synthesizer has certainly not supplanted the orchestra. Nor has the synthesizer arrangement record maintained much popularity beyond the mid-70s. A few novelty

[70] Six months prior to the release of *S-OB*, the label *Nonesuch* put out *Tragoedia*, a 37-minute work for solo Moog composed by Andrew Rudin.
[71] Glinsky, *Switched On*, 119-121.

albums have re-emerged in the popular conscious. For a while *Mother Earth's Plantasia* by Mort Garson (whose other credits include both the Apollo 11 underscore and one of the pornographic synthesizer records) was available for purchase from Urban Outfitters. However, most of these records remain in obscurity in record shops and the occasional vinyl rip uploaded to YouTube. I had to locate a physical copy of Joseph Byrd's *Yankee Transcendoodle* to listen to it (athough someone has kindly uploaded it to YouTube since). Almost all of Wendy Carlos' discography including *Switched-On Bach* is currently out of print and unavailable on streaming services. This fad of the late 1960s and 1970s is now preserved by a few dedicated fans and the vintage stores who unwittingly maintain their *Switched-On* stock.

Did *Switched-On Bach* achieve more success than projects like *Silver Apples of the Moon* solely due to its more populist aesthetics? In the moment, yes, but instead of a populism opposed to progressivism, Carlos' work socialized an instrument and sound world that up until then largely existed in an exclusionary field. As a piece of queer remix, *S-OB* maintains its relevance. Although her work was incredibly influential, I would argue that experimental electronic and academic electroacoustic music today shares more in common stylistically with the legacy of *Silver Apples* than any of the *Switched-On* iterations, even the good ones. But much of that music lacks levity. *S-OB* does not. "To me, the project had a smile around the corners of the mouth. I never considered *Switched-On Bach* to be pompous and awesome. It was good fun. I had fun doing it and expected people to smile when they heard it."[72]

A glance at the album cover confirms a tone not overly burdened by self-seriousness. A Bach-like figure donned in Rococo fashion stands (or sits, depending on the pressing) in front of a Moog modular synthesizer with electrical cables and manuscript paper littered on the rug below. On the sequel's cover, the figure floats in space while a cable tethers the baroque composer's space suit to his life-sustaining synthesizer. Keith Emerson's first impression of the Moog on *S-OB* was that it sounded "like a load of elephants farting counterpoint with whoopee cushions in accompaniment," and that wasn't necessarily meant in a bad way.[73] Within a week after his initial listen, he tracked down a Moog in London to experiment with and perform at an upcoming concert. Not long after he was in a studio laying down the synthesizer solo at the end of *Lucky Man* on Emerson, Lake, and Palmer's debut album.

Simon Reynolds deems the seepage of synths (and themes of outer space) from the avant-garde into pop and rock as going "low-brow."[74] In many instances, Bob Moog also agreed that his synths appeared on mediocre, gimmicky pop records. After the recording session for *The Zodiac: Cosmic Sounds*, a psychedelic concept album that features Moog sound effects as punctuation, he remembered being none too thrilled with the instrument's application in this context: "I thought that was such a crock of shit… I didn't know if I wanted to have my synthesizer associated with that."[75] He especially disliked the exceptionally terrible *Switched-On* albums, particularly because many of these

[72] Blinx, "Wendy Carlos: From Bach to the Future," 60.
[73] Keith Emerson, *Pictures of an Exhibitionist*, (London: John Blake, 2004), 166.
[74] Simon Reynolds, *Retromania*, 390.
[75] Glinsky, *Switched-On*, 115.

"cruddy records" had his name in the title.[76] However, this opinion did not apply to *S-OB*. On the back of the LP, he's quoted calling it "the most stunning breakthrough of electronic music to date."[77]

With her electronic orchestrations of Bach, Wendy Carlos gave an accessible form of purely electronic music to the masses. By providing a blueprint for sonic exploration and experimentation outside of an avant-garde context, any and every music could switch on. Whether or not the music benefited from the electrifying treatment is another thing entirely. The deluge of *Switched-On* music signals loosening of the academic monopoly on electronic music making and, especially in the work of Isao Tomita and Wendy Carlos, demonstrates a refreshing and aesthetically fulfilling balance between sonic excellence and joy. The deluge of *Switched-On* music signals loosening of the academic monopoly on electronic music making and, especially in the work of Isao Tomita and Wendy Carlos, demonstrates a refreshing and aesthetically fulfilling balance between sonic excellence and joy. Bob Moog knew and worked closely with a lot of musicians during his life. He spurred the synthesizer revolution. In the liner notes for the *Switched-On Boxed Set* he gives Carlos the credit for popularizing his instruments: "Throughout the world, far more people know of electronic music and the synthesizer through *Switched-On Bach* than through any other musical endeavor."[78]

[76] Ibid., 171.

[77] Robert Moog, liner notes for Wendy Carlos, *Switched-On Bach*, Columbia Masterworks MS 7194, 1968, Vinyl Record.

[78] Wendy Carlos, *Switched-On Boxed Set, Book Two: Original Notes* (Minneapolis: East Side Digital, 1999), 38.

008: THE TRAUTONIUM

Air Date: September 28, 2022

This episode focuses entirely on one instrument: the Trautonium. Unlike its more popular early electronic siblings the Theremin and the Ondes Martenot, the Trautonium suffers from neglect. Given the level of timbral depth, warmth, and expressivity the instrument can achieve, it deserves a renaissance (preferably one more substantial than just adding the Hindemith pieces to the common practice repertoire). Until that happens, or perhaps to inspire such a thing, listen here to an hour of dulcet tones from Paul Hindemith, Oskar Sala, Peter Pichler, a German Coca-Cola commercial, sound effects from Hitchcock's *The Birds*, and an array of YouTube enthusiasts keeping the warm sawtooth-like sounds flowing.

TRACKS

1. Oskar Sala – ***Echo-Structures***
2. Paul Hindemith – ***Langsames Stück und Rondo***
3. LudoWic – ***Mixtur Trautonium (Subharmonics)***
4. fœfœ – ***Alleg(r)o für mixturtrautonium***
5. Oskar Sala – ***Caprice with Variations***
6. Peter Pichler – ***The Hunt***
7. Niccolo Paganini – ***Il Carnevale di Venezia*** performed by Oskar Sala, 1930s
8. Oskar Sala giving a Trautonium demonstration in the Netherlands, 1941
9. German Coca-Cola advertisement, 1950s
10. Harald Genzmer – ***Scherzo für Mixtur-Trautonium und Klavier***
11. Oskar Sala – ***Interlude with Some Percussion Effects***
12. Peter Pichler – ***Funky Town***
13. Ghost Money – ***Improvisation for modular mixtur-trautonium***
14. Paul Hindemith – ***Concertino for Trautonium with Strings***
    I. Leicht bewegt
15. LudoWic – ***Trautonium Jam***
16. Paul Hindemith – ***The little Electro Musician's Favorites: 7 Trio Pieces For 3 Trautoniums***
    I. Langsam
    II. Langsam
    III. Mäßig bewegt
    IV. Breit
    V. Mäßig schnelle Achtel
    VI. Lebhaft
    VII. Langsam
17. Harald Genzmer – ***Konzert für Mixtur-Trautonium und Orchester***
    III. Largo
18. Ghost Money – ***Contrary Motion Studies for Modular Mixtur-Trautonium***
19. Oskar Sala – ***Fantasie-Suite in drei Sätzen***

20. Manuela Kerer – *Feuernde Seele* for Mixtur-Trautonium and Orchestra
21. Sound Effects from Alfred Hitchcock's *The Birds* performed by Oskar Sala

However knowledgeable about the IRS tax code and Harley Davidson motorcycles, my mother has close to zero context for all things electronic music, music technology, and musics of any kind beyond what plays on classic rock and select pop radio stations. An affinity for certain Madonna and Rush hits represents the extent of her proximity to electronic music. More ignorant laymen exist, for sure. Her partner might be an even better candidate, although his purist dedication to outlaw country puts his specialist inclinations into a different order. My mom lives in the mountains of North Carolina along the Tennessee border, just a short drive from the Moog plant in Asheville. During a visit to the factory, an associate gave us an amateur demonstration of the Theremini, Moog's version of the early electronic instrument, on the show room floor. Afterwards, in our room at the Margaritaville Hotel in Pigeon Forge, I asked if she recognized the instrument's iconic ethereal spaghetti sound. Maybe she recognized it from films? She replied that it sounds familiar but wasn't sure from what exactly. She hadn't considered its origin, it's to her just a familiar sound in certain contexts like Halloween party mixes and sci-fi b-movie soundtracks (although maybe it was the Ondes Martenot and not the Theremin she'd heard). The Theremin remains one of the oldest and most recognizable electronic musical instruments, and it absolutely deserves attention. Various companies sell them complete or as kits. They're not terribly difficult to build from scratch. Many people own one. Some of those people actually play it too. But there are quite a few other instruments from the earlier twentieth-century arguably more interesting and versatile in terms of sound and performance. We're here to talk about one of those instruments: the Trautonium.

The Trautonium's inventor, German electrical engineer Freidrich Trautwein, intended the design of his instrument to free the performer from the restrictions of the piano keyboard's fixed intonation. A performer pushes a wire into a metal plate to complete a circuit which generates sound. Chromatic tuning is marked for convenience and the continuous wire allows for glissandi, vibrato, and other expressive gestures. The performer can also easily play microtones, although the instrument's microtonal potential is less often exploited in the repertoire than its gesturally expressive capabilities. The original monophonic Trautonium used a simple vacuum tube system to generate sawtooth-like sounds. But the Trautonium's warmth and timbral palette extend well beyond a simple sawtooth generator. Its special tone quality results primarily from the subharmonic oscillators (independent dividers that generate new frequencies from the fundamental) and the formant filters (a series of bandpass filters that shapes the sound like a form of subtractive synthesis). The harmonic vibrancy coupled with the filters' ability to dial in the tone makes other instruments from the 1920s and 30s sound quite plain in comparison. Oskar Sala, the most famous performer on the Trautonium's short roster, contributed quite a few of his own innovations including the subharmonic oscillators in the next generation of the instrument, the polyphonic Mixtur-Trautonium. Sala primarily used this expanded instrument in his records and sound design projects after World War II.

So, it sounds great with flexible intonation and a lot of expressive potential. Do people still play the Trautonium? A few companies still make various models, like Doepfer's modular A-100 Trautonium System and Trautonik's reproductions (and Moog's Subharmonicon similarly produces subharmonics with different sonic goals than the Mixtur-Trautonium proper), but few performers play the

instrument seriously and few composers write for it. Historically this is also true. German composer Paul Hindemith wrote music for the instrument as did his student Harald Genzmer. Hindemith's *7 Trio Pieces For 3 Trautoniums*, a personal favorite, demonstrates the versatility of the instrument's character through a series of miniatures. Genzmer's *Scherzo für Mixtur-Trautonium und Klavier* and Hindemith's *Concertino for Trautonium with Strings* present the Trautonium in context, and stark contrast, with familiar acoustic instruments. Strings unsurprisingly melt into the instrument's texture while the piano offers a timbral and percussive counterpoint. Not many concert pieces have been written since the 1950s, although within the past decade there have been a few like Manuela Kerer's 2016 piece *Feuernde Seele* for Mixtur-Trautonium and orchestra. A handful of others from 2019 were written specifically for performance by Peter Pichler, perhaps the only current Trautonium player with the level of skill and enthusiasm to rival Oskar Sala and continue the craft. Like Sala, he also composes and scores films as well as performs the instrument's limited repertoire. In addition to Pichler, a small number of Trautonium enthusiasts primarily on YouTube perform short solo compositions and improvisations with their instruments. These include Ghost Money and LudoWic, both producing very lovely work. Other than the composers and performers just listed, there's not a lot going on currently in the Trautonium world, at least not easily visible on the English-speaking part of the internet. It's not impossible that there exists a large haven of Trautonium enthusiasts somewhere, churning out new works at this very moment.

Certainly, many of the instruments developed before the mid-twentieth century have been *more* neglected and forgotten than the Trautonium. Scrolling through the list of instruments on the 120 Years of Electronic Music website, most of these names are unknown to me. Unlike the Rhythmicon or the Electrophon, the Trautonium did receive a limited commercial production run as the "Volkstrautonium" by German company Telefunken; but due to various factors including price and user-unfriendliness, no one really bought them.[79] Despite this lack of commercial success, Paul Hindemith and Oskar Sala provided enough PR for the instrument by way of impressive musical output. The Ondes Martenot, invented around the same time with several design similarities, attracted even more major composers including Olivier Messiaen, Arthur Honegger, Darius Milhaud, and Edgard Varèse. Its ethereal sound shows up in more movies. The number of active performers also outnumbers that of the Trautonium, with high profile musicians like Jonny Greenwood of Radiohead still bringing attention to the Ondes. This does not make one instrument superior to the other (although the Trautonium arguably achieves more timbral variety). The comparative lack of attention towards the Trautonium does, however, indicate a need to promote the subject of this essay. The people deserve a Trautonium renaissance! So perhaps start by listening to what the instrument has offered, then imagine what else it might do.

[79] "The 'Trautonium' Dr Freidrich Trautwein. Germany, 1930," *120 Years of Electronic Music*, accessed October 1, 2022, <https://120years.net/wordpress/the-trautoniumdr-freidrich-trautweingermany1930/>.

018: Stockhausen Serves the Worms

Release Date: May 5, 2023

Ten composers and electronic musicians of various musical backgrounds were given the task to "remix/deconstruct/recompose/resample" a piece of electronic music composed before 1965, an era of electronic music primarily as a practice of researchers, specialists, and avant-garde composers prior to greater popularization of the synthesizer in the late 1960s. The artists were given a set of example pieces to choose from, including Stockhausen's "Gesang der Jünglinge", Varese's "Poeme Electronique," Oram's "Pulse Persephone", and works from the album *Columbia-Princeton Electronic Music Center,* while also encouraged to use other pieces of personal interest to them. Most of the artists approached the sonic and formal content of this music by building a new context for those samples and ideas. This method compares to traditional composition exercises of incorporating mechanics, theory, and appropriated motifs into a personal style, in these cases into contemporary popular and experimental music such as ambient, noise, dance, etc.. The act of decomposition—taking a piece apart sample by sample to construct an entirely new piece—provides an avenue to subvert, and even feel present within, a repertoire that does not reflect a diversity of identities and stylistic approaches while also allowing for appreciation and experimentation. The directions taken reflect a multiple approaches on this spectrum.

TRACKS

Side A:

1. Onokio – ***tristle)+eco***
   on Delia Derbyshire
2. emme – ***concrete***
   on Pierre Schaeffer and Pierre Henry
3. Heather Mease – ***All the Voices of Feeling Died in the West***
   on Milton Babbitt and Luciano Berio
4. Matias Vilaplana – ***Verdad Greasè (intensities)***
   on Varèse
5. Amber Bouchard – ***On "Artikulation"***
   on György Ligeti
6. Becky Brown – ***Creative Commoncrete Ph (Attribution III.0)***
   on Iannis Xenakis and Kevin MacLeod

Side B:

7. Onokio – ***TL***
   on Derbyshire
8. Kittie Cooper – ***gasses (and goldfish) expand to fill their containers***
   on Daphne Oram and Hildegard Westerkamp
9. orchid dealer – ***pulse persephone (orchid dealer edit)***
   on Oram

10. Bridget Ferrill – ***Gesang der Concret Jünglinge (Ph)***
    on Karlheinz Stockhausen and Iannis Xenakis
11. Carlos Johns-Dávila – ***Candreés***
    on Xenakis

WHO DO YOU SERVE?

Reflecting on a particular history of early electronic music, a certain narrative that often begins somewhere around Russolo's *The Art of Noises*, passes through Cage's *Imaginary Landscape*, Varèse in the Philips Pavilion, Stockhausen at West German National Radio, and Babbitt and Ussachevsky at Columbia-Princeton Electronic Music Center, the canon reflects back uncanny distortions like a funhouse mirror in a museum. Textbooks and survey courses tend to collapse histories into linear grand narratives that prioritize masterworks and genius. As the old guard wanes, the narrative changes. But the influence this certain history has had on me since my formative years as a composer remains a source of dissonance that I revisit. This personal investigation underscores the impulse for this project.

The heavy-handed title references Cornelis Cardew's *Stockhausen Serves Imperialism,* a 1974 Marxist critique attacking Stockhausen as the poster child of the bourgeois avant-garde complicit in and reproducing a "cultural super structure of imperialism."[80] He gives John Cage a good thrashing, too. The title of this project labels Stockhausen as worm food not just for provocation. *Stockhausen Serves the Worms* positions the composer and the canon of which he belongs as worm food both literally—he is buried in Kürten, under a monument engraved with an excerpt of his massive operatic cycle *Licht* —and figuratively as fertilizer for the decomposition and creation of new works. A meditation and exercise on influence, on how composition functions as a discipline, on intersections of music histories, on real and imagined pasts and futures of electronic music. A different approach to dragging Stockhausen's corpse than through the streets of conservatory curricula, the project offers a mode of decomposition: literally, musically, metaphorically, breaking canonic pieces down and appropriating their parts for fertilizer in the creation and inspiration of new works.

For Cardew, the work of Stockhausen or Cage, of anyone who falls into the category of genius, cannot be untangled from the political context of its creation and the position of its creator:

> The true nature of a piece of music, like any work of art, is inextricably bound up with the ideological stand or world outlook of its creator, and that the content of a piece of music is not something mysterious, unattainable or elusive. On the contrary, creative listening, that is, listening to music that involves the mind as well as the ears and heart, can attain a measure of understanding of what a composer is saying about the world.[81]

As time passes, the context in which the listener/student contacts the work becomes progressively more important. Beyond the historical canon, the field of academic electroacoustic music perpetuates

[80] Cornelius Cardew, *Stockhausen Serves the Worms*, (Ubuclassics, 2004), 47.
[81] Ibid., 44.

the "extreme lengths of intellectual corruption and dishonesty" surrounding both genius and the American academy as, first and foremost, a business.[82]

Decomposition expands "creative listening" to include remix and revision, granting access to the material of masterwork for appropriation in ways often deemed formally inappropriate. Stockhausen's *Gesang der Jünglinge*, considered a landmark in the repertoire, is unmovable, a fixed work closed for participatory reinterpretation by the listener. It sits on a plinth in the electronic music museum, in the sanctuary of St. Stockhausen. Mixing recordings together to transform and shape material over time defines traditional DJing. Playing with the material of this repertoire through remix and decomposition opens new avenues to converse with a body of work that often feels alienating. The diversity and range of contemporary electronic music and its practitioners clashes with the primarily white, inaccessible (stylistically, technologically, institutionally), overwhelmingly male dominant historical narrative of early electronic music.

More radical instincts might draw the conclusion that this canon needs to retire. Appropriating this music stymies the subversive potential of decomposition. In any type of appropriation, especially with any satirical or parodic intent, the subject of critique often reproduces itself. Even if rendered completely unrecognizable, the spirit can still linger in program notes and the decomposer's hand. A piece that samples and shreds advertisements, like Negativland's album *Dispepsi*, still reproduces those advertisements and the corporate motives baked into them. For instances when the company no longer exists, as with J Dilla's "Lightworks" and HydroDalek's incredibly catchy mashup of an HHGregg Christmas sale commercial with Daft Punk's "Doin' it Right ft. Panda Bear," the style and texture of targeted advertising remains. On the flip side, this exact thing is a source of the music's strength. It adds layers of humor, familiarity, catchiness. The baggage in the appropriation is a necessary burden, but it is what it is. Sampling Stockhausen reproduces Stockhausen. It raises him from the grave for a good thrashing, and before kicking dirt back over his corpse he gets another taste of sunshine.

Stockhausen Serves the Worms serves an outlet for my own resentment towards a narrative that I later found intentionally misleading. As a counterpoint to an approach of complete desecration, a lot of the hits are impressive pieces of music and worthy of study. Much of the dissonance I feel towards the avant-garde sits between the willing influence and unwitting reception. Before graduate school, I could name a few female composers but had not spent anywhere near the amount of time with their work as I had with György Ligeti's *Artikulation* or Milton Babbitt's *Philomel.* I learned about Daphne Oram's *Oramics* but did not hear much of her work and Wendy Carlos was brushed off for creating schlocky Bach arrangements. I can't blame everything on a conservatory education, and I take some responsibility as a young person who had access to a large library and a smart phone. But now I make art about musical daddy issues. Not every artist on the compilation approaches the material with these same impulses and experiences. At least one person was generally unfamiliar with the music of the early electronic canon. Some of the artists took a less charged approach, using the opportunity to explore material and form.

When I reached out to the participants to pitch the idea, I included a list of example pieces that included: *Gesang der Jünglinge* by Karlheinz Stockhausen, *Pulse Persephone* by Daphne Oram, *Poème*

[82] Ibid., 33.

électronique by Edgard Varèse, *Artikulation* by György Ligeti, the 1964 compilation album *Columbia-Princeton Electronic Music Center,* and a few other big names and pieces. I also pointed out that there is precedence for this project, as in other music that reimagines, samples, and remixes earlier electronic music. Some Delia Derbyshire record must have floated around crate digging circles. Madlib sampled a few of her tracks on the 2014 album Piñata with Freddie Gibbs, followed by Paul White who sampled *Pot Au Feu* on the 2016 Danny Brown track *When it Rains.* Most of the artists stuck with the examples I suggested, but I did encourage the exploration of music beyond the list. Some stuck to one piece, others combined a few of them. A couple artists went a little more outside the box. Track 11 by Carlos Johns-Dávila uses an acoustic piece by Xenakis as starting material. He then electrifies the piece with processing and added percussion. Track 8 by Kittie Cooper incorporates Hildegard Westerkamp's *Kits Beach Soundwalk* into the mix with *Pulse Persephone* by Daphne Oram. Although outside the mid-60's cut-off, Cooper blends the Westerkamp with the Oram both thematically and sonically. The cut off point of the mid-to-late 1960's was intended to keep the material within an era of a pre-socialized electronic music that was rooted in the avant-garde and institutional exclusivity. But ultimately, flexibility accommodated the exploration of individual interests, styles, and narratives: from sound collage to tape loops to two-step to ambient.

My own piece in this project captures the impetus for this project and particularly the ambivalence I feel regarding these two pieces for voice and electronic sound, Milton Babbitt's *Philomel* (1964) and Luciano Berio's *Visage* (1961). I deeply admire the craft of these works, now even more so after combing over their details note by note. Bethany Beardslee and Cathy Berberian do much of the leg work purely through sublime performance. My qualms partially stem from content and the ways in which Berio and Babbitt compose that content through the voice. However, I state that grievance not without caveats. The issue is not simply Philomel's rape and mutilation translated into the language of blank male-dominated avant-garde virtuosity (although that too leaves me uneasy). Maybe more objectionable is the context of its encounter: studying Berberian's moans in windowless classrooms packed with young men in conservatory basements, the works presented as landmarks of a windowless electronic music history. In the resampling process I worked through the source material with an eraser, an attempt at speculative composition and history through absence, only to occasionally recompose the same piece with the remaining scraps. The title refers to a line near the end of Philomel: "Finally, as all the voices of feeling died in the west…"

If I had to draw an actionable conclusion to this project, it would be that, if nothing else, decomposition is a great composition exercise. Like score study or learning counterpoint, making something from something constitutes at least a part of most music making processes regardless of it foregrounding itself. This project does not claim a radical outcome. It cannot right wrongs. While overall the new pieces vary more stylistically than the source materials, their origins are still within earshot. Babbitt and his scheme of pitch selections, rhythms, and musical direction transmit through the samples of voice and the RCA Mark II. And I can hear my own education, in the footsteps of Princeton, New York, Cologne, reproducing itself.

STOCKHAUSEN SERVES THE WORMS NOTES + BIOS

1. TRISTLE)+ECO *AND* 7. TL

"2 insomniac elixir" could be a collective descriptor for these couple tracks, it was a new adventure for me: working with tape in such an ad-hoc way; using what I had around; straying away from "THE FIXED BOX". i used my fingers to keep the tension in the tape so it fed through the machine correctly for longer loops out of the shell. you'll hear moments in *tristle)+eco* where my hands slipped and the sound decays / crumples away as the tape loses its position and falls out of the machine, I exploited that "error" and began using that "in-between" technique where at certain angles I could manipulate the tape in and out of the recording head, as to get irregular shapes / rhythms of sounds, patterns drawn in cold breath canvas window, sort of intentional "bumps" in the tape, or you can envision the way you can crumple up a plastic straw's paper encasing like an accordian or caterpillar before administering a water droplet to see the thing expand. i think that's why tape is still relevant, or holds a special place to some, to me at least it is the elasticity of what you can do texturally that I found most compelling. Derbyshire is the godmother of these techniques as the rest of us pick her pieces up off the floor and examine them under our own mothlights. EQUIP USED: SC-88PRO, Quadraverb, hand-me-down "The Entertainer" mixer, Fostex X-18 tape machine.

Onokio is a musician and “computer psychologist” (with a background in listening), a composer of electronic and organic sounds, and a programmer bent on bridging the imaginary gap between technology and nature by exploring combinations of frequencies.

2. CONCRETE

To create this piece, I worked from the source material of Pierre Schaeffer and Pierre Henry’s *Symphonie pour un home seul*. Their piece, as its title suggests, was intended to be performed individually: by one man manipulating tape and turntables. I was drawn to working with this piece because it seemed to underscore a musical philosophy quite contrary to my own. Whereas my own musical education and my approach to musical experience is deeply collective in nature, this composition by Henry and Schaeffer seemed to be abandoning the power of collective, participatory musical experience in favor of *individual* technical achievement and innovation. At the same time though, the piece they created is sonically very rich and generative. So I wanted to recontextualize the sonic world they created within a more familiar, collective and danceable format. What came out of this process was something like a techno/experimental club track incorporating many different percussive elements in conversation with each other: a robust and layered rhythm section which builds over the course of the track – the kind of 'collective' instrumentation which is the basis of much of the music I make.

I sampled and manipulated the source material to varying degrees. The track I created consists almost exclusively of sampled audio, with the exception of a kick drum. All manipulation of source material was done digitally, in Ableton.

emme is a musician & percussionist based in Philadelphia.

3. All the Voices of Feeling Died in the West

The inspiration for this remix project ties directly to the ambivalence I feel regarding the two pieces sampled here for voice and electronic sounds, Milton Babbitt's *Philomel* (1964) and Luciano Berio's *Visage* (1961 I deeply admire the craft of these works, now even more so after combing over their details note by note. Bethany Beardslee and Cathy Berberian do much of the leg work purely through sublime performance. My qualms partially stem from content and the ways in which Berio and Babbitt compose that content through the voice. However, I state that grievance not without caveats. The issue is not simply Philomel's rape and mutilation translated into the language of blank male-dominated avant-garde virtuosity (although that too leaves me uneasy). Maybe more objectionable is the context of its encounter: studying Berberian's moans in windowless classrooms packed with young men in conservatory basements, the works presented as landmarks of a windowless electronic music history.

In the resampling process I worked through the source material with an eraser, an attempt at speculative composition and history through absence, only to occasionally recompose the same piece with the remaining scraps. The title refers to a line near the end of Philomel: "Finally, as all the voices of feeling died in the west…"

Heather Mease composes music from samples, synthesizers, violin, voice. Semibegun is the product of a love woven between early and later musics. www.hmmease.com.

4. Verdad Greasè (intensities)

I chose *Poème électronique* as the source material for this piece. The eclectic collection of sounds can deceptively lead one to think that it would be an excellent piece to take samples from and remix. However, once I started sampling different moments I realized that the true value of the piece was not in the particular timbres themselves, but rather the relationship between each of the different sounds. I decided to not sample any of it and rather take Varèse's approach to composition as 'organized sound' and carry it out with my own collection of timbre.

The collection was produced with three different synths (MiniMoog, Oberheim Matrix 12 and Arp Odyssey) in an attempt to explore their timbral range. The first half of the piece is the result of the curation and organization of this collection, using different tools to highlight the resemblances and contrasts between each of the sounds. The second half of the piece diverges from the idea of organized sound and moves closer to the idea of Zones of Intensities, also expressed by Varèse. Paraphrasing from "Liberation of Sound," he describes these zones as sound masses that move through different planes, differentiated by various timbres, colors and loudnesses, where the work can flow as rivers flow.

Matias Vilaplana Stark is a Chilean music technologist, composer, and improviser. In his music he explores different processing techniques and live looping to create slow evolving textures that coalesce into distinct soundscapes. matvilap.github.io

5. On "Artikulation"

(Artikulation – a conversation, exchange , call and response)

Foundation of looped samples from the original recording, plus new addition of cello and vocals.

Disfigured conversations with yourself, crossed wires with others, smoke signals diluted by wind, illegible. Lockable smartphone nuked the art of the pocket dial unscramble, decoding lover, friend, stranger's 5 minute long voicemail, nobody knowing yet that you have sleepwalked your way into unintentional sonic reconnaissance. The desperate search for meaning in the garbled overlay of voices. Dissonant motion of the body among other bodies among fabric. Happy to hear laughter, and nauseatingly nervous. What is your embodied experience of being able to latch on to nothing? A syllable is not a sentence and means nothing isolated from its cohort. It takes more than a syllable to make a person and overflow a heart. I hear your voice on the radio and I keep chasing you through the channels – dangerous hobby while driving. Broken mirrors all over the gas station parking lot, stealing propane tanks. Throwing memories around like dry snowballs; they mostly miss, or fall apart. Ache for a note tucked into a borrowed book, unambiguous.

Amber Bouchard is an acoustically-oriented electronic musician, poet, visual artist, and ice ball earth proponent based in Richmond, Virginia.

6. Creative Commoncrete Ph (Attribution III.0)

I picked *Concrete Ph II* because it's one of few from the Old Guard that I enjoy and would listen to without irony. The sounds of the burning charcoal are almost too monolithic to be of use – while I'm sure I could have processed them, it made more sense to do granular synthesis on something else that was similar.

Somehow in this process I started thinking about Creative Commons audio used in YouTube videos, mainly tracks by Kevin MacLeod that have become ubiquitous to the point that they've become their own tropes. Specifically, I looked for songs that are most frequently used for cute/quirky/fun/playful/ bright content, like animal videos or craft tutorials. Good MacLeod examples are "Investigations," "Life of Riley," "Jaunty Gumption," and "Quirky Dog." These typically use plucked strings, pitched percussion, and "funny" wind instruments (detuned flute, oboe, bassoon) that felt like they could be easily pushed somewhere adjacent to Xenakis's charcoal.

I initially thought to use "Life of Riley",* but granulating it blurred the ukulele to the point of being unrecognizable. "Sneaky Snitch,"** on the other hand, leaves a lot of silences, which lends itself well to a half-linear granulated experience of the original track. This description constitutes an attribution

to *Sneaky Snitch* by Kevin MacLeod, but in keeping with the piece title, *Creative Commoncrete Ph (Attribution III.0)* is also released under a Creative Commons 3.0 Attribution license. It's not nearly as functional as the original, so I'm not sure it would be applicable for cat videos anymore, but it's open to anyone to use and transform. I'm *sure* this is what Xenakis would have wanted.

> * tasting notes: fast ukulele strumming plus xylophone melody, conjures images of someone's beach vacation photo reel with diagonal page-turn transitions or a narrated timelapse of decorating cupcakes
>
> ** tasting notes: synthesized pizzicato strings with oboe countermelodies; conjures visions of narrative cat content, in which one cat, dog, child, drunken adult, trundling bug, or other conceivably mischievous ambulatory creature has been characterized as a mostly-innocuous villain with a plan described (?) to the viewer over two minutes of subtitled inner dialogue and casual skulking

Becky Brown is a composer, harpist, artist, and web designer, interested in producing intensely personal works across the multimedia spectrum. becky-brown.org

8. GASSES (AND GOLDFISH) EXPAND TO FILL THEIR CONTAINERS

I chose to work with *Kits Beach Soundwalk* (Hildegard Westerkamp, 1989) and *Pulse Persephone* (Daphne Oram, 1965) for this piece, alongside my own field recordings and recordings of my own DIY electronic instruments. I thought that both of these artists have a way with opening things up and looking at their insides, and I wanted to explore that aspect of both works while honoring the differences in the artists' respective practices.

In one section of *Kits Beach Soundwalk*, Hildegard Westerkamp creates this beautiful fantasy that underneath the noise of Vancouver are the voices of barnacles—all you have to use to find them are your ears, and maybe a hydrophone and some filters if you've got access to them. This section felt especially meaningful once I moved to the city where she made these recordings. I'm starting to have a better understanding of just how much busyness and noise and container ships and barnacles are all cohabitating the messy layers of this place. Trying to dig around for the barnacle sounds has started to feel extra worthwhile.

In my imagination, Daphne Oram spent a lot of hours tinkering and opening up various hatches on the Oramics Machine and moving things around with tweezers or whacking the side of it with a wrench, like a wacky inventor from a movie. When I listen to her work, I feel like I can almost hear her shuffling around all these tiny components and bits of tape, and sticking them back together in strange configurations. I imagine Hildegard Westerkamp doing the same trying to uncover the sounds of barnacles, and I tried to channel that way of working in my reinterpretation of both of these pieces.

Kittie Cooper is a sound and intermedia artist, performer, and educator based in Vancouver, BC. kittiecooper.com

9. PULSE PERSEPHONE (ORCHID DEALER EDIT)

I dissected Daphne Oram's piece and rearranged/processed different sections, focusing on the subtle rhythmic patterns. After adding different field recordings, I sculpted the track with a musique concrete approach attempting to create a bit of an atonal wall of haze. The main drone that flows throughout the track was shaped in an attempt to create a muted, behind the wall formula 1 engine.

Orchid Dealer's record ***Soft Reactions in the Sun*** is available via enmossed.

10. GESANG DER CONCRET JÜNGLINGE (PH)

To make this mashup I used a technique I often use in my composition and live performance practice — loading samples into my octatrack and intuitively building patterns out of the sounds: a sort of macro granular synthesis to construct new worlds. Normally I work with my own material (string recordings, noise, etc) and pop songs (Britney, Evanescence), and I used that same irreverence here, working as if the source material was my own to pull apart and rebuild.

Bridget Ferrill is a composer based in Berlin. Her music plays between composition and noise, exploring augmented instruments, handmade electronics, and experimental computer music. She has released music on Subtext Recordings and ENXPL. bridgetferrill.com

11. CANDREÉS

In this project I wanted to explore the stochastic process pioneered by Xenakis with the Moog theremini controlling a granular synthesizer in his composition, *Cendrées* for mixed choir and large orchestra. The material that was recorded was reorganized into this remix of a contemporary Dionysian ritual seasoned with wails and moans from the score and a heavy beat to shake ya fanny to.

Carlos Johns-Dávila is a Peruvian American composer and multimedia artist based in Brooklyn, NY. He enjoys playing theremin and Peruvian flutes. See more of his work at www.wtfxr.com.

FULL EPISODE LIST

001: Early Recordings of Early Music 1928 – 1939 (mixtape and radio mix)

Air/Release Date: June 8, 2022

This mixtape contains early music recorded between 1928 and 1939, shortly after the switch from acoustic to electrical recording. Here, different ideas of "early" intermingle with one another: early music, early recording technology, and early historical performance practice. On these recordings, in varying quality and amidst layers of crackle, we hear experimentation in folds.

002: Later Music for Period Instruments

Air Date: June 22, 2022

Period instruments–"authentically" restored and reproduced instruments such as the viol, harpsichord, and recorder, on which early music is performed–play between the realms of old and new, moving beyond the bounds of the period in these twenty-first century pieces. Includes works by Molly Herron, Niccolo Seligmann, La Nòvia, Sarah Davachi, Kali Malone, La Tène, Joanna Newsom, and more.

003: Drum Machine Family Photos

Air Date: July 6, 2022

This episode pages through the drum machine's family photo albums featuring instruments from the 1930s to the 1980s: The Wurlitzer Sideman, EKO Computerhythm, Roland CR-78, Linn LM-1, Maestro Rhythm King, Oberheim DMX, Roland TR-909, Leon Theremin's Rhythmicon, Raymond Scott's Rhythm Modulator, and other percussion and rhythm machines. From the most reverb-drenched 909s on Schoolly D's Philly gangsta rap to the wild yet sweet tones of Raymond Scott's highly sampled space-age jingles, hear demos, loops, early uses, and later applications of older drum machines and their rhythmic relatives.

004: Constructing Intonation with Ben Luca Robertson

Air Date: July 20, 2022

Featuring Semibegun's first guest, composer and instrument designer Ben Luca Robertson, this mix presents an approach to microtonality informed by the guitar tuning experiments of post-punk and no-wave while situated within a history of intonation theory that stretches back to antiquity. Hear Ben's music and instruments alongside Siouxsie and the Banshees, Joy Division, Sonic Youth, James Tenney, Harry Partch, This Heat, Glenn Branca, and Cocteau Twins. Read the conversation with Ben below to learn more about his thoughts on composition, just intonation, actuated string instruments, punk rock scordatura, Pythagoras, ancient greek flute hole aesthetics, and anything that isn't twelve tone equal temperament.

005: Gotta Switch-On To Go Off

Air Date: August 3, 2022

In 1968 Wendy Carlos released *Switched-On Bach*, a virtuosic demonstration of the Moog's musical capabilities through arrangements of pieces by baroque composer J.S. Bach. The certified platinum album introduced and legitimized the synthesizer to many and spawned countless imitations ranging from charming to utterly bizarre: *Switched-On Nashville, Switched-On Santa, Turned On Joplin, The Happy Moog!,* and *The Sounds Of Love...A To Zzzz (Sensually Sinthesized)*, just a few of the records that make it into this episode. An hour of fun, questionable, and surprising electrified tunes from this pivotal point in electronic music history.

006: Opus 1

Air Date: August 17, 2022

Instead of curating a program that features magnum opera by classical titans as Beethoven's late piano sonatas and Brahms' Fourth Symphony, this episode presents a collection of those composers' early substantial works. These pieces, all composed by composers while under the age of 30, demonstrate nascent stylistic trademarks while wearing influence unabashedly. Although often overlooked, even willfully buried in their respective composers' catalogs, these compositions stand as fully realized works that signal great things to come. Except for maybe Stravinsky's *Symphony in E-flat Major Op. 1*. It's hard to say what's going on there exactly.

007: Beyond Yankee Doodles with Ben Zucker

Air Date: September 14, 2022
Guest curated by Ben Zucker

This episode, guest curated by Ben Zucker, features some of the earliest music composed in the United States, secular and sacred, vocal and instrumental. The music here represent a variety of 'firsts' in the USA's musical history from various practical dimensions: Powerfully sung hymns and fuging tunes, German-influenced missionary chamber music, piano sonatas depicting battle, form-expanding marches and dances from the earliest free Black communities. More than just milestones, these pieces form a dialogue with other contemporary composed music and demonstrate styles as singular as the historical circumstances they emerged from. In their coexistence, this music offer a window into a musical culture full of potential, unable to be reduced to just one timeline or footnote.

008: The Trautonium

Air Date: September 28, 2022

This episode focuses entirely on one instrument: the Trautonium. Unlike its more popular early electronic siblings the Theremin and the Ondes Martenot, the Trautonium suffers from neglect. Given the level of timbral depth, warmth, and expressivity the instrument can achieve, it deserves a renaissance (preferably one more substantial than just adding the Hindemith pieces to the common practice repertoire). Until that happens, or perhaps to inspire such a thing, listen here to an hour of dulcet tones from Paul Hindemith, Oskar Sala, Peter Pichler, a German Coca-Cola commercial, sound

effects from Hitchcock's *The Birds*, and an array of YouTube enthusiasts keeping the warm sawtooth-like sounds flowing.

009: Antique Bangers: Medieval Dance Music

Air Date: October 12, 2022

Link arms with a cutie and dance to some Antique Bangers! This episode, the first of a multipart series focusing on dance music, features an hour of estampies, saltarellos, ductia, and other bangin' medieval dance tunes. Limited as the repertoire of extant medieval European dance music may be, contemporary early music performers play the living hell out of these tunes, constantly giving them new shape. Historically accurate or not (leave that debate to the people not on the dance floor), these speculative interpretations go hard.

010: Antique Bangers: Talking Machine Grooves

Air Date: October 26, 2022

"Do the young people get tired of general conversation? A Victrola will furnish the latest dance music and set their feet to sliding," so boasts the Victor Talking Machine Co. in a magazine advertisement from 1913. Dance music was HOT in the early days of commercial recording and radio broadcast. Polkas, waltzes, mazurkas, rags, fox-trots and significantly JAZZ entered homes and commercial establishments around the U.S. and across the Atlantic, changing the way people listened, performed, composed, and most importantly danced. Come listen to an hour of Antique Bangers from 1893 to 1930 by Jelly Roll Morton, James Reese Europe, Fletcher Henderson's Orchestra, The Missourians, Bix Beiderbecke and the Wolverines, Louis Armstrong and his Orchestra, the ODJB, and many more!

011: Vitaphone: Sound Film at 33 1/3 RPM

Air Date: November 23, 2022

Short musical variety acts comprised the bulk of the earliest sound films produced with the Vitaphone sound-on-disc system. Introduced in 1926, these recordings of short vaudeville-style acts and operatic scenes known as the "Vitaphone Varieties" preceded the feature. Warner Bros. produced over 1000 of these shorts (of those less than 250 are restored or restorable). As the first widely adopted synchronized sound and image format, Vitaphone effectively solved the synchronisation problem between sound and moving image, which required the 16-inch discs be played at the now standard 33 1/3 rpm. The system was not the first solution nor was it the best and far more forgiving sound-on-film formats would completely replace sound-on-disc only a few years later. Hear some of the earliest musical acts committed to film (sans film) on this episode dedicated to the short lived Vitaphone!

012: Ghosts and MP3s

Air Date: December 7, 2022

What are the sounds lost through MP3 compression? Simply encoding detritus? What is the music that this codec deletes and what does it sound like? Composer Ryan Maguire sought the answer to these questions with Ghost in the MP3, an archealogical project to recover these lost artefacts and reformulate them into something new. Ghost in the MP3 revisits various test tracks used in the

codec's creation—Tom's Diner, Fast Car, a Haydn trumpet concerto, and others—to confront the origins and limitations of the format. His music is at once eerie, beautiful, sensitive, incredibly sharp. Enjoy an hour of Ryan's shimmering artifacts and beyond on this episode of Semibegun: Ghosts and MP3s.

013: Beep Boop Merrily on High

Air Date: December 21, 2022

Twas the night before Christmas
A short break from our jobs
More time to push buttons
And twiddle some knobs

But all of the sudden
Came a raucous delight!
The most perfect tone
From a patch point just right

Just then, who appeared?
Why, it's Jolly St. Nick!
Sleigh lured by the tones
He hurried down quick

And what's in his sack?
A sweet Christmas ham?
No, it's Santa's own rig
He's ready to jam!

014: Automaton Dreams of Music Machines

Air Date: January 4, 2023

Before the era of acoustic recording… another flavor of mechanical sound reproduction reigned! Barrel organs, dance organs, street organs, player pianos (with and without mechanical violins), speelkloks, carillon, and androids—more than just the hourly chimes of poppy's cuckoo clock! Start the new year off right with an hour of lighthearted music performed by automata, (mostly) self-playing mechanical music machines, from the 18th to the mid-20th century.

015: Music of a Genesis: Video Game Bangers of the Late 1990's and Early 2000's

Air Date: February 15, 2023

Hardware pushing video game bangers from the 1990's and early 2000's. An hour of funky basslines and killer breaks, 16-bit and up, from the Sega Genesis to the Dreamcast and other consoles around and between! Ape Escape, Streets of Rage, Iggy's Reckin Balls, Armored Core, and more. With special guest Brandon Hurtado, world's first strand-type audio electronics designer at Wildfire Laboratories in Richmond, VA.

016: David Loves a Good Rackett

Air Date: March 16, 2023

This episode presents a minimally didactic, maximally vibrant sampling of medieval and renaissance recordings directed by woodwind specialist and early music personality David Munrow. In the 1960s and 70s, Munrow was a key figure of early music popularization through a robust catalog of recordings and educational programming for radio and television. Tune in for an hour of good ol' fashion early music with a dash of mid-century British music appreciation!

017: Anyone Can Be a Cowboy

Air Date: March 29, 2023

In the 1930s, against the backdrop of a crushing Depression and westward migration across the Dust Bowl, a new American Hero occupied the B-movie and country music landscape. Dressed in pristine wrangler costumes and a large white hat, singing cowboys like Gene Autry and Roy Rogers crooned their emotions in a popular country western style while riding across the silver screen in pursuit of villains and gals. Off-screen, many musicians across the country took up themes of the American west, based both in myth and reality, and performed in groups with names like Tex Russell and His Hollywood Cowboys and Girls of the Golden West. A completely American music with strong influences of swing, blues, Tejano, European folk, and hill billy music, these Singing Cowboys, Western Swing Bands, Blues Yodelers, and Mexican-American Songsters of the 1930's to 1950's flesh out the sound of the American West and its characters. Anyone can be a cowboy out here in the everywhere west!

018: Stockhausen Serves the Worms

Air Date: April 26, 2023; Release Date: May 6, 2023

Prior to the prevalence of electronic sound in the mainstream, electronic music-making was primarily a practice of researchers, specialists, and avant-garde composers within state-sponsored facilities like the BBC Radiophonic Workshop and Westdeutscher Rundfunk (WDR) in Cologne and within private universities in the States like the Rockefeller Foundation-funded Columbia-Princeton Electronic Music Center. This special episode of Semibegun, a preview of the upcoming tape release "Stockhausen Serves the Worms," presents an hour of remixes, recompositions, and deconstructions of music made in these facilities. Pieces by Delia Derbyshire, Daphne Oram, Iannis Xenakis, Edgard Varèse, and György Ligeti reimagined by fantastic contemporary musicians including Bridget Ferrill, Matias Vilaplana, Amber Bouchard, and Onokio.

019: This Machine Ain't Haunted By Anything But Man

Air Date: July 5, 2023

Co-hosted by composer and artist Becky Brown, this episode explores historical and emerging artistic practices involving computer-generated music and artificial intelligence technologies. A realization of Beethoven's unfinished symphony, Barack Obama singing an Ice Spice verse, and "relaxing jazz" generated from text: this non-exhaustive but occasionally exhausting collection of music touches many sonic associations with AI technologies. Sometimes artifact-laden, formally abrupt, uncanny,

austere, speculative, and humorously absurd, creative potentials and limitations fold in on themselves.

020: Everything New is Old Again

Air Date: August 2, 2023

The renewed interest in and popularity of early music of the 1960s yielded recordings featuring unconventional--experimental, even--interpretations and arrangements of canon heavy weights. The success of Wendy Carlos' Moog arrangements on Switched-on Bach and the parodic hijinks of Peter Schickele's PDQ Bach demonstrate this trend. Quoting Bach tunes and sampling Gregorian chants is still in heavy rotation (don't we all do it?), so celebrate the upcoming 20th episode of Semibegun with a fun mix of wacky classics from *The Baroque Beatles Book* to Mozart performed on vegetables to club remixes of Hildegard von Bingen!

021: Revolution and Mania: Japanese Rhythm Games in the 1990's

Air Date: August 30, 2023

This episode narrows in on a specific corner of video game music history: the origins of rhythm games. Tune in for an hour of dance tunes from the earliest mixes of Dance Dance Revolution, Beatmania, IIDX, Pop'n Music, and Bust a Groove on Semibegun 21: "Revolution and Mania: Japanese Rhythm Games in the 1990s." Viva la revolución!

022: Through the Crates and Around the Corner: The Wacky World of Library Music

Air Date: January 14, 2024
Guest curated by Orson Abram

What is library music? Viewed initially as background music for various forms of media primarily made in Europe from the 1960s to the 1980s, library music brought many session musicians together to make music they wouldn't be able to otherwise, from schlocky conventional muzak to psychedelic drum-centric freakout jams. Over the years, library music has served as the source material for many hip-hop producers and has influenced some of the most prolific artists of the 21st Century. Guest curated by composer-filmmaker-researcher Orson Abram, this mix answers (and challenges) that question with an hour of music that blurs the lines between foreground and background, conventionality and abstraction, and musical intention through genre overlapping.

SELECT WORKS

This section includes select works from my catalog, some released through the Semibegun label and some not, that align with this project.

THE HOUSE OF THE MOTHER OF THE

For video, viola da gamba ensemble, and electronics. Performed by Science Ficta.

Premiered as a two-channel video installation with a CRT in small living room scene and a wall projector playing different generations of home movies (familial and media generation, one VHS and the other 8mm film). This version has been condensed to a single video channel. The title references a pair of architectural sculptures memorializing a student's self-immolation in protest of the Soviet invasion: "the house of the suicide" and "the house of the mother of the suicide." For more information on this piece, history, and composition, please see Chapter 002: Later Music for Period Instruments.

Premiered winter 2020. Fixed media single channel video version completed in spring 2022. Audio only released as "Kill Slay Mother" on *No One Nothing Never* in late 2023.

BYLAND ABBEY GHOST STORIES

Composed with Alex Christie and Kittie Cooper. Narrated by James C. Joyce.

Tacked onto the end of an otherwise ordinary manuscript by a monk around the turn of the 15th century, the Byland Abbey Ghost Stories depict spectral encounters between medieval residents of Yorkshire both from this life and the next. In most of the tales, the ghosts appear to the living as shapeshifters seeking absolution to escape from purgatory, ending with the ghosts resting in peace after an exchange with the one doing the conjuring. In this rendition of stories I, III, V, and IX, James Joyce provides superb narration accompanied by the electronic sounds of Kittie Cooper, Alex Christie, and Heather Mease.

Premiered October 29, 2022 on Repeater Radio.

STOCKHAUSEN SERVES THE WORMS

Compilation with tracks by Onokio, emme, Kittie Cooper, Matias Vilaplana, Amber Bouchard, Bridget Ferrill, Becky Brown, orchid dealer, Carlos Johns-Dávila, Heather Mease.

Prior to the prevalence of electronic sound in the mainstream, electronic music-making was primarily a practice of researchers, specialists, and avant-garde composers within state-sponsored facilities like the BBC Radiophonic Workshop and Westdeutscher Rundfunk (WDR) in Cologne and within private universities in the States like the Rockefeller Foundation-funded Columbia-Princeton Electronic Music Center. This compilation presents an assemblage of remixes, recompositions, and deconstructions of music made in these facilities prior to the late sixties. For more background about the compilation and program notes for individual tracks, please see Chatper 018: Stockhausen Serves the Worms.

Released on tape via Semibegun Tapes on May 5, 2023.

NO ONE NOTHING NEVER

In April 2020 I dumped a collection of records into the garden of my shared home in Virginia—some buried in planters, left on the roof, hung out on the wash line, tucked away in shrubbery, covered in fallen leaves—for anywhere from a couple months to over a year. I began to take them from the garden, warped and dirty, to prune with knives, tape, and glue. Back on the record player I played them as they play themselves, the passage of time, the change of seasons. The rich noise of a shitty needle hitting Piedmont soil blanketed recordings of friends and fathers in a flowerpot out back. On a spectrum of intervention, tracks formed through digital and analog collage alongside a loosening attachment to purity of idea.Music about its media, its materiality. Songs about instability, insecurity, and yearning for something that only postures as definite.

Composed between spring 2020 and spring 2023 in Charlottesville, Philadelphia, Berlin, Düsseldorf, Dortmund. Features by Jordan Perry and Kyle Hutchins. Mastered by Matias Vilaplana in Charlottesville, VA. 40 minutes. Released on tape via Semibegun Tapes on December 8, 2023.

SHITTY MUSIC ON TAPE AND I LOVED YOU A LOT

This album samples the media-specific texture of tape in multiple ways through recording and mediation, splicing and looping, and sampling existing sound on tape. By foregrounding noise, artifacts, and the media's raw edges, *SMOTAILYAL* explores the muddiness and self-discontinuity of processing guilt, shame, and slow motion failure in relationships. The project plays with canonic and imitative forms, both by sampling early music and through tape loops, as illustrative of cycles that tend to trap people in toxic and abusive relationships. Part songwriting, part sound art, part electroacoustic composition.

Released on tape with accompanying zine by Semibegun Tapes April 12, 2024.

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