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Dissolving Barriers:
The Influence of Popular Music in
Selected Twenty-First Century Wind Ensemble Repertoire

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ABSTRACT

Dissolving Barriers: The Influence of Popular Music
in Selected Twenty-First Century Wind Ensemble Repertoire

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Within the world of art music, composers have employed a variety of techniques to infuse popular music elements into their writing. This document is an examination of specific instances of this trend in twenty-first century wind ensemble repertoire. The study is limited to twenty-first century wind ensemble works by living composers (as of the writing of this document) that exhibit influences of Top 40s pop or electronic dance music (EDM). Each piece represents a specific compositional technique that demonstrates influences of popular music.

Single by Jonathan Newman, *Seeds of Glass* by Benjamin Taylor, and *Tight Squeeze* by Alex Shapiro serve as examples for the techniques of transference, syncretism, and synthesis, respectfully. A definition of each compositional approach is followed by an illustration of each technique's application. A brief conclusion follows, summarizing the similarities and differences between the techniques used to incorporate popular music influences within wind ensemble composition.

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Purpose of Study

Within the world of art music, composers have employed a variety of techniques to infuse popular music elements into their writing. This document is an exploration of specific instances of this trend within twenty-first century wind ensemble repertoire. The discussion is limited to works by living composers written since the year 2000 that display influences of Top 40s pop and electronic dance music within the wind ensemble repertoire. Each piece represents a specific compositional technique that demonstrates influence of one or more popular music genres. Based on the nomenclature presented in a 2004 article by Yayoi Uno Everett, the techniques explored are transference, syncretism, and synthesis.[1] A discussion defining each compositional approach is followed by a demonstration of each technique's application. The works selected are meant to be exemplars of the specific technique. A brief conclusion follows, summarizing the similarities and differences between the techniques used to traverse the dissolving barriers between twenty-first century popular music and art music.

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[1] Everett, Yayoi Uno. "Intercultural Synthesis in Postwar Western Art Music: Historical Contexts, Perspectives, and Taxonomy," in *Locating East Asia in Western Art Music*, edited by Yayoi Uno Everett and Frederick Lau. (Middletown, CN: Wesleyan University Press, 2004), 16.

Historical Background

Throughout the history of Western music, art music and popular music have interacted in a complex and ever-changing manner. While connections between these two types of music exist as early the Medieval period, noticeable divisions have occurred between them throughout the majority of history. During the twelfth and thirteenth centuries, art music was segregated from secular music, deemed more appropriate for function within the church liturgy than the music of the general population. This trend of musical division continued throughout the Renaissance, highlighted by theorist Johannes Tinctoris in his *Liber de arte contrapuncti* (Book on the Art of Counterpoint). He categorized music as *magnus* (noble), *mediocris* (middle), and *parvus* (low), equating the polyphonic mass to the highest order of value and placing secular music in the lowest tier.[2] Between the seventeenth to early nineteenth centuries, art music resided predominantly in aristocratic courts as a result of the patronage system. However, the tradition of popular music was primarily maintained by the working class. The mid-nineteenth and twentieth centuries saw an increasing divide between music of the academy and the ever-growing, increasingly dominant music of popular culture.[3]

In the twenty-first century, art music is generally recognized as music performed in orchestral and operatic concert halls, academic institutions, and summer festivals. Additionally, this type of music is enjoyed and supported by a small segment of the population, with sales of classical music comprising less than one percent of total U.S. music consumption in 2018, including both record

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[2] Richard Taruskin and Christopher Gibbs, *The Oxford History of Western Music: College Edition* (New York: Oxford University Press, Inc., 2013), 157.

[3] Richard Middleton and Peter Manuel, "Popular Music," in *Grove Music Online*, Oxford University Press, 2001, accessed May 29, 2020, https://www-oxfordmusiconline-com.turing.library.northwestern.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000043179.

sales and audio streaming.[4] Inversely, popular music is an integral part of modern society. From background music in shopping malls and restaurants, to trending songs of the radio and club scene, to its centrality in an increasing number of cultural events, this type of music is interwoven into many aspects of modern life.

However, despite the numerous barriers between art music and popular music, examples of interaction between these genres can be found across the centuries. Throughout the late Medieval period, secular songs were frequently used as *cantus firmi* in masses, with the popular French tune *L'homme armé* being set by numerous composers of the fifteenth century.[5] The stratification of music described by Tinctoris in the 1470s, separating "noble" sacred (art) music and "low" secular (popular) music in its outer tiers, highlighted a form of art music that incorporated elements of popular tunes in its middle tier. The model composition for this *mediocris* category was the motet, a sacred polyphonic vocal work that borrowed the characteristics of secular songs.[6]

During the Baroque era, composers, such as J.S. Bach, incorporated numerous techniques from their sacred compositions into secular dance forms, blending elements of art music and popular music.[7] Many Classical era composers crafted arrangements of folksongs, including over 150 settings of popular tunes by Ludwig van Beethoven.[8] The trend of incorporating folk song into art music continued in the Romantic era as exemplified by Gustav Mahler's use of "Bruder Martin"

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[4] Amy Watson, "Share of Music Song Consumption in the United States in 2018, by Genre," Statista, Jan. 10, 2019, accessed December 5, 2019, https://www.statista.com/statistics/694862/music-song-consumption-genre/.

[5] Taruskin and Gibbs, *The Oxford History of Western Music*, 166.

[6] Ibid., 157

[7] Ibid., 339–340

[8] Joseph Kerman et al., "Beethoven, Ludwig van," in *Grove Music Online,* Oxford University Press, 2018, accessed June 1, 2018, http:////www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000040026.

(also known as "Frère Jacques") in his First Symphony.[9] During the twentieth century, the use of folksongs increased as the rise of nationalism prompted various composers to incorporate the folk music of their native lands into their works. Additionally, jazz, the popular music of early twentieth-century America, was incorporated into the works of composers both domestic and foreign, such as Leonard Bernstein and Darius Milhaud, respectively.

In modern society, technological advancements (livestreamed performances, YouTube, Spotify, etc.) have led to an increasing connectedness between musical cultures across the globe. Interactions between various types of music have caused the once noticeable distinctions between the genres of art music and popular music to become blurred. Within the world of art music, these cross-genre influences can be observed in both large-scale and small-scale instances. The Chicago Symphony Orchestra's commissioning of Mason Bates showcased a genuine interest in mainstream music culture by one of America's leading classical music organizations.[10] As both a symphonic composer-in-residence and dance club disc jockey, the California-based composer's works synthesize elements of traditional Western art music with the driving rhythms and sounds of electronic dance music. Nico Muhly, a rising compositional voice from the east coast, also blurs the lines between popular and art music. While strongly influenced by the Lutheran choral tradition and the musical mentorship of Philip Glass, he recently collaborated with popular music artist Sufjan Stevens on a

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[9] Peter Franklin, "Mahler, Gustav," in *Grove Music Online*, Oxford University Press, 2018, accessed June 13, 2018, http://www.oxfordmusiconline.com.turing.library.northwestern.edu/ grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000040696?rskey=Zmfge3&result=1#omo-9781561592630-e-0000040696-div1-0000040696.10.

[10] Chicago Symphony Orchestra, "CSO to Present World Premiere of Mason Bates' 'World's Greatest Synth,'" csosoundsandstories.org, accessed June 5, 2020, https://csosoundsandstories.org/the-cso-to-present-world-premiere-of-mason-bates-worlds-greatest-synth/.

full-length album called *Planetarium*.[11] William Bolcom, one of America's most celebrated living composers, embodies this concept of dissolving barriers in his oratorio *Songs of Innocence and of Experience*, which juxtaposes classical, folk, and rock genres against traditional art music conventions.[12]

One of the most notable examples of the dissolving distinctions between art music and popular music occurred in 2018 when the Pulitzer Prize for Music was awarded to rap artist Kendrick Lamar. This marked the first time the award, traditionally considered the highest honor in the world of American art music, was given to an artist whose works fall outside of the classical or jazz idiom. These are some examples of the numerous ways art music and popular music are becoming intertwined.

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[11] Bob Boilen, "Sufjan Stevens, Nico Muhly and Bryce Dessner on Creating 'Planetarium,'" npr.org, accessed June 5, 2020, https://www.npr.org/sections/allsongs/2017/06/08/531946097/sufjan-stevens-nico-muhly-and-bryce-dessner-on-creating-planetarium.

[12] William Bolcom, *Songs of Innocence and of Experience* (New York: Edward & Marks Music Company, 1983).

PART II

Presentation of Techniques Expressing Popular Music Influence

Several contemporary composers employ a variety of techniques to incorporate elements of popular music into their compositions. While many techniques exist for doing so, this document explores three specific techniques. The definition for each technique is adapted from Yayoi Uno Everett's 2004 article, "Intercultural Synthesis in Postwar Western Art Music." As the title of her article suggests, Everett presents a taxonomy showcasing the postwar interplay of Western and Eastern art music traditions. **Figure 1** shows the "compositional strategies for integrating Asian and Western musical resources" Everett identifies. The seven strategies are grouped into three broad categories of transference, syncretism, and synthesis. These labels serve as the basis for the techniques presented in this document, with definitions that are slightly modified from Everett's original conception.

The first of these techniques is transference. Similar to Everett's taxonomy, this refers to the use of compositional features of popular music that are "borrowed or appropriated within a predominantly Western [art] music context." This is achieved through a variety of means, most notably the evocation of stylistic principals and/or quotation of existing musical material.[13] Jonathan Newman utilizes the former of these two strategies in his piece *Single* to evoke "a song that might live on Top 40 lists."[14]

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[13] Everett, "Intercultural Synthesis," 15.
[14] Jonathan Newman, *Single*, OK Feel Good Music (ASCAP), 2013.

Strategies	Sample Compositions
Transference	
1. Draw on aesthetic principles or formal systems without iconic references to Asian sounds	Messiaen, *Turangalila* Symphony (1949) John Cage, *Music of Changes* (1951) Messiaen, *Sept Haikai* (1962)
2. Evoke Asian sensibilities without explicit musical borrowing	K. Stockhausen, *Inori* (1973–74) Isang Yun, Concerto for Flute & Orchestra (1977) Isang Yun, *Gong Hu* for harp & strings (1984) Joji Yuasa, *Scenes from Basho* (1980) Kaija Saariaho, *Six Japanese Gardens* (1998)
3. Quote culture through literary or extramusical means	Benjamin Britten, *Curlew River* (1964) Joseph Schwantner, *Sparrows* (1979) John Zorn, *Forbidden Fruit* (1987)
4. Quote preexistent musical materials in the form of a collage	Tan Dun, *Symphony 1997: Heaven, Earth, Man* (1997)
Syncretism	
5. Transplant East Asian attributes of timbre, articulation, or scale system onto Western instruments	Chou Wen-chung, *Willows Are New* (1957) Toshiro Mayuzumi, *Bunraku* for cello (1961) Yoritsune Matsudaira, *Portrait* (1968) Isang Yun, *Piri* for oboe (1971) Chinary Ung, *Mohri* (1975) Toru Takemitsu, *Itinerant* for flute (1989) Qigang Chen, *Poème Lyrique* (1990)
6. Combine musical instruments and/or tuning systems of East Asian and Western musical ensembles	Alan Hovhaness, Symphony No. 6 (1963) Toru Takemitsu, *November Steps* (1967) Lou Harrison, *Pacifika Rondo* (1963) Lou Harrison, P'ip'a Concerto (1991) Zhou Long, *Shi Jing* Cantata (1989) Makoto Shinohara, *Cooperation* (1988) Makoto Shinohara, *Yumeji* (1992)
Synthesis	
7. Transform traditional musical systems, form, and timbres into a distinctive synthesis of Western and Asian musical idioms	Toshiro Mayuzumi, *Nirvana* Symphony (1958) Chou Wen-chung, *Metaphors* (1960) Chou Wen-chung, *Pien* (1966) Yoritsune Matsudaira, *Bugaku* (1961) Yoritsune Matsudaira, *Roei* (1966) Isang Yun, *Loyang* (1962) Isang Yun, *Reak* (1966) John Cage, *Ryoanji* (1983–84) Toru Takemitsu, *Fantasma/Cantos* (1991)

Figure 1: Yayoi Uno Everett's "Compositional strategies for integrating Asian and Western musical resources" from his article "Intercultural Synthesis in Postwar Western Art Music"[15]

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[15] Everett, "Intercultural Synthesis," 16.

While not used in *Single*, quotation of pre-existing music from popular music is another method of leveraging the transference technique. This is one of the most identifiable instances of popular music influence in an art music context. Notable examples of quotation in twenty-first century wind repertoire include Steven Bryant's use of Radiohead's "Pyramid Song" as a ground bass in his Concerto for Wind Ensemble (shown in **Figure 2**)[16] and Scott McAllister's use of fragments from the song "Black Dog" by Led Zeppelin in his rhapsody for clarinet and wind ensemble bearing the same title (shown in **Figure 3**).[17]

Figure 2: Bryant "Pyramid Song" quotation, Mvt. 1, mm. 54–61, Vibraphone part
Concerto for Wind Ensemble by Steven Bryant
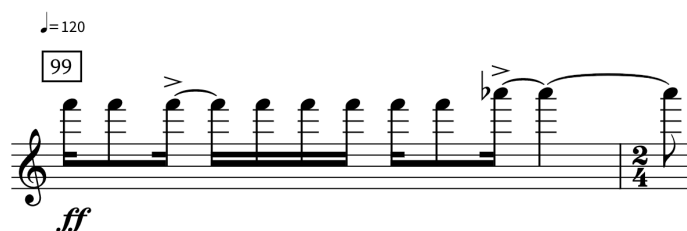
Figure 3: "Black Dog" quotation, mm. 99–100, Solo Clarinet
Black Dog: Rhapsody for Clarinet by Scott McAllister

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[16] Steven Bryant, Concerto for Wind Ensemble, version 1.0.2 (Durham, NC: Gorilla Salad Productions/Steven Bryant (ASCAP), 2011), 9–10.

[17] Scott McAllister, *Black Dog: Rhapsody for Clarinet* (Waco, TX: LYD Music, 2005).

Syncretism is the second compositional technique incorporating popular music elements into a piece of art music. The Merriam-Webster dictionary defines syncretism as "the fusion of two or more originally different inflectional forms."[18] Considering this definition and Everett's original description, syncretism is defined as, "utilization of aesthetic approaches of popular music in combination with those of Western art music."[19] This technique of using popular and art music elements in tandem is displayed in Benjamin Taylor's *Seeds of Glass,* which will be explored later in the document.

Synthesis is the third category of popular music incorporation to be examined. This technique is defined as "those works that effectively transform the cultural idioms and resources into a hybrid entity so that they are no longer discernible as separable elements."[20] Synthesis contains elements of the techniques previously addressed and can be seen as a further development of transference and syncretism.

The techniques of transference, syncretism, and synthesis are a few of the many techniques used by some twenty-first century composers to incorporate elements of popular music into their compositions. **Figure 4** summarizes these three techniques, listed in increasing order of connectedness between the two genres. For example, in an instance of transference, the popular music components can be easily differentiated from art music components. In comparison, the use of synthesis merges art music and popular music components seamlessly; identification of their source material is difficult to ascertain.

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[18] *Merriam-Webster.com Dictionary*, s.v. "Syncretism," accessed April 22, 2020, https://www.merriam-webster.com/dictionary/syncretism.

[19] Everett, 17.

[20] Ibid., 19.

Technique	Description	Musical Example
Transference	Borrowing or appropriation of popular music techniques within a predominantly art music context	Newman – *Single* (2013)
Syncretism	Utilization of aesthetic approaches of popular music in combination with those of Western art music	Shapiro – *Tight Squeeze* (2013)
Synthesis	Transformation of popular and art music resources into a hybrid entity so that they are scarcely discernible as separable elements	Taylor – *Seeds of Glass* (2016)

Figure 4: Summary of compositional techniques used to incorporate popular music elements

The following sections elaborate on each of these techniques, highlighting their use within a specific work for winds. These examinations will provide a richer understanding of each technique's application as well as the contrasts between them.

PART III

Transference – *Single* by Jonathan Newman

From its opening moments, Jonathan Newman's *Single* reveals an influence of popular music. This 2013 work contains examples of transference, the borrowing or appropriation of popular music techniques within a predominantly art music context. Newman's intent to use popular music elements in this piece is made clear in his program note from the score:

> First, I wrote a 3-minute wordless song. More specifically, I made a Bubble Gum Pop song that might live on Top 40 lists and *American Idol* auditions. With as many hook-y tunes as I could muster. Then I extend it out into a 7-mntue orchestrated classical-style movement, where those ear-worming tunes are put into counterpoint with each other and blown up into concert proportions. And so the work has all the structural elements of Pop, in the proper order: verses, choruses…a bridge. In short, it's MY *Single*, ready for worldwide release.[21]

Single mimics tunes heard on Top 40s radio, especially the aesthetic of "Bubble Gum Pop." While a specific definition of this music may be difficult to render, Kim Cooper and David Smay describe this sub-genre of popular music as "pop music contrived and marketed to appeal to pre-teens produced in an assembly line process driven by producers." They elaborate further by describing the music as "sickly sweet confectionery masquerading as rock 'n' roll," and containing the following characteristics:

> Tone down the lovey-dovey stuff and the blatant aggression, and substitute lyrics that were just half a step away from kindergarten. Nursey rhymes are good, so are repetitions of baby-talk phrases. Kids love to dance, so give 'em a backbeat that even the klutziest infant can't miss.[22]

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[21] Newman, *Single.*

[22] Kim Cooper and David Smay, "Bubble Entendres," in *Bubblegum Music is the Naked Truth: The Dark History of Prepubescent Pop from the Banana Splits to Britney Spears*, ed. Kim Cooper and David Smay, ebook (Los Angeles: Feral House, 2001). Accessed April 23, 2020, https://archive.org/details/bubblegummusicis0000unse/page/10, 11.

Newman's transference of these characteristics in *Single* is manifested in the work's melodic construction, instrumentation, and formal design.

The most obviously borrowed popular music component in *Single* is its melodic construction. The "wordless song" mentioned in the program note is a simple, catchy, upbeat melody, a key hallmark of Bubble Gum Pop. Its simplicity is due largely to its entirely diatonic pitch content and use of balanced phrase structures. As shown in **Figure 5**, the song's "verse" melody is organized as a musical sentence, while the "chorus" melody uses a periodic structure. Both themes are highly repetitive, emulating the catchy "earworm" aspect of Top 40s tunes. Additionally, each theme contains syncopated rhythms and a major (almost exclusively pentatonic) tonality which aid in evoking the "sickly sweet" character of Bubble Gum Pop.[23] These traits are present throughout the entirety of *Single* as each of the piece's "hook-y, ear-worming" tunes are built upon the same stylistic principles.[24]

Incorporating Top 40s elements further, the initial statement of the "wordless song" is presented by an amplified voice part. The novelty of this vocal part in traditional wind band instrumentation draws a further connection to the Top 40s genre it emulates. The genre is also evoked by the use of tutti wordless singing in the second (mm. 83–101) and final choruses (m. 211–242) of the piece, and the three measures of sung "yeah's" in mm. 204–206. Newman also utilizes clapping in numerous portions of the piece (most notably the introduction and bridge sections) to draw further connections to effects used in Bubble Gum Pop.

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[23] Ibid.

[24] Newman, *Single*.

Figure 5: Phrase structure of the "Wordless Song," mm. 43–82, Amplified Singer
Single by Jonathan Newman

In addition to his use of melodic elements of Top 40s tunes, Newman transfers concepts of formal organization from this genre into *Single*. His use of popular music form is outlined in the work's program note. Newman uses popular music terms as section labels within the score, as summarized in **Figure 6.**

Measures	Formal Section	
	*Single*****	**Standard Popular Song Form**[25]
1–42	*Intro*	Intro
43–50	Verse 1	Verse 1
51–58	Verse 2	
59–66	Chorus	Chorus
67–74	Verse 3	Verse 2
75–82	Verse 4	
83–101	Chorus	Chorus
102–139	Bridge	Bridge
140–147	Verse 5	
148–155	Verse 6	
156–171	Pre-Chorus	Chorus
172–195	Chorus	
196–210	Transition	
211–242	Final Chorus	Final Chorus
243–258	*Outro*	Outro

* These titles match those listed in the score. Italicized titles are added for sake of comparison.

Figure 6: Form comparison between Newman's *Single* and a standard form for Top 40s tunes

Single's form, melodic construction, use of amplified vocalist, and clapping are elements used to acquire the Bubble Gum aesthetic. Previously defined as transference, this appropriation of popular music techniques reveals a clear influence of this genre within a piece of wind band repertoire.

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[25] Middleton and Manuel, "Popular Music."

PART IV

Syncretism – *Seeds of Glass* by Benjamin Taylor

Benjamin Taylor's *Seeds of Glass*, for video and band, represents the technique of syncretism. While similar to the technique of transference, an examination of the work's texture and thematic elements reveals this approach as a more subtle expression of popular music influence. As previously defined, syncretism is the utilization of aesthetic approaches of popular music in combination with those of Western art music. This blending of styles is evident in the work's program note:

> *Seeds of Glass* explores the intersection of nature and technology. The video portrays the evolution of a huge machine made of glass. The machine starts as a seed, and slowly grows and expands, continuously progressing, similar to a living organism. The music from the band reflects this duality of nature and technology by blending lush, open sonorities with a dub-step influenced, electronic-dance-music groove.[26]

Throughout the work, the "nature" sections utilize an art music aesthetic, while the "technology" sections favor the style of electronic dance music (EDM). According to Taylor, the choice to incorporate EDM elements was heavily influenced by the work's accompanying video track.[27]

Taylor's choice to weave the video and music together was made at the onset of the compositional process.[28] Devoid of any audio components, the primarily monochromatic video portrays a large glass machine growing out of a small seed-shaped module. Taylor says, "The way that the video is organic in its growth, it's almost like it's a plant. It's a machine growing, and with the lighting…Something about it made me think, 'Ah, this should have an EDM vibe.'"[29] In an effort to

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[26] Benjamin Taylor, *Seeds of Glass*, Benjamin Dean Taylor, 2016.

[27] Benjamin Taylor, interviewed by author, personal phone communication, November 1 & 11, 2019.

[28] Benjamin Taylor, "Seeds of Glass," Benjamintaylormusic.com, accessed October 12, 2019, http://www.benjamintaylormusic.com/seeds-of-glass-bandvideo-grade-4.html.

[29] Taylor, interviewed by author.

imitate this genre, Taylor emulates EDM percussion sounds, stereo panning effects, and rhythmic grooves. These popular music components are combined with the art music elements of cryptographic motives, quintal chord structures, and modal harmonies.

Taylor's novel percussion effects are one of his most overt uses of EDM elements in *Seeds of Glass*. Throughout the piece, a synthesized snare drum sound is emulated via the instruction to "place a small splash or crash cymbal on drumhead; strike the cymbal; it will sound like an electronic drum."[30] Taylor elaborates on this timbral choice saying, "I wanted a way to have the snare drum 'crack' be...an electronic sound. I wanted it to be different than we're used to hearing it, [which is] the backbeat on a snare drum. I didn't want it to sound jazz oriented, I wanted it to sound EDM."[31] He further elaborates on the percussion's role stating that, "I'm going for some colors and things that I can do in the percussion section...In EDM music, a lot of times you get these white noise-y wash things and this is a cool way for me to do it on the timpani."[32] This comment refers to the timpani performance instructions shown in **Figure 7a**. Additional white noise effects are produced in the bass drum and tam-tam, as shown in **Figures 7b** and **7c**, respectively. Taylor also uses a vocalized "sh" effect in the wind parts to provide additional white noise textures throughout the piece (**Figure 7d**).

Figure 7a: "White noise" timpani effect, Timpani, mm. 52–55
Seeds of Glass by Benjamin Taylor

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[30] Taylor, *Seeds of Glass*.
[31] Taylor, interviewed by author.
[32] Ibid.

Figure 7b: "White noise" bass drum effect, Percussion 2, mm. 3–6
Seeds of Glass by Benjamin Taylor

Figure 7c: "White noise" tam-tam effect, Percussion 3, mm. 2–4
Seeds of Glass by Benjamin Taylor

Figure 7d: "White noise" vocal effect, Oboe 1, mm. 1–3
Seeds of Glass by Benjamin Taylor

In addition to mimicking white noise sounds, the dynamic contours accompanying these moments are meant to emulate stereo panning effects used in EDM. "This little white noise is being passed around the band in a way…When I wrote it, I thought, 'I'm going to treat the band as the stereo panning field.'"[33] Along with the use of white noise and stereo panning effects, EDM influences are present within the orchestration of the piece. The work's central section, mm. 52–147, contains the most concentrated instances of these traits. In his 2003 dissertation, "Unlocking

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[33] Taylor, interviewed by author.

the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music," musicologist Mark Butler states, "EDM consists of a number of QUITE distinct layers, relatively equal in prominence, that are constantly in flux. These textural characteristics do not exist in isolation, however, but rather are intimately intertwined with rhythmic and metrical processes."[34]

The concept of layering is a central component to the middle section of *Seeds of Glass* (mm. 52–147). Beginning with a simple eighth note ostinato at m. 52, fragments of a bassline are gradually introduced before the bassline is presented in its entirety at m. 60. During the remainder of this section, various layers are added and removed, each interlocking with the present layers to create an ever-evolving rhythmic groove. Many of these patterns are indicative of dubstep, a sub-genre of EDM that Taylor listened to frequently during the time he began composing *Seeds of Glass*.[35] As outlined by music journalist and author Geeta Dayal:

> The key to the dubstep sound is a strong bassline, characterized by sub-bass frequencies (below 90 Hz). The sparse, syncopated rhythm of dubstep operates on two levels: while the tempo is in the range of 130 to 140 beats per minute, the placement of various melodic and rhythmic elements generates the feel of half that speed, about 70 beats per minutes.[36]

These traits are embodied in the bassline that begins the work's central "technology" section (**Figure 8**): it contains sub-bass frequencies (below 90Hz)[37] as its registration places the majority of its pitches below or very close to Gb_2 (92.5Hz in an $A_4 = 440$ tuning system)[38]; it is set

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[34] Mark Butler, "Unlocking the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music," PhD diss., Indiana University, 2003, 111.

[35] Taylor, interviewed by author.

[36] Geeta Dayal, "Dubstep," in *Grove Music Online*, Oxford University Press, Feb. 11, 2013, accessed April 26, 2020, https://www-oxfordmusiconline-com.turing.library.northwestern.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-1002235037.

[37] Ibid.

[38] Bryan Suits, "Tuning: Frequencies for Equal-Tempered Scale, $A_4 = 440$ Hz," Physics of Music – Notes, accessed April 26, 2020, https://pages.mtu.edu/~suits/notefreqs.html.

at a tempo of 138 beats per minute; and it creates a half-time feel through strong melodic emphasis on beats one and three. Additionally, Taylor utilizes minor tonalities, beginning in F minor and modulating to G minor in m. 125, to create what Dayal calls the "often dark, spacey sound" present in dubstep tracks.[39]

Figure 8: Central section bassline, mm. 60–67
Seeds of Glass by Benjamin Taylor

Using these popular music elements to create the texture and rhythmic content in *Seeds of Glass*, Taylor turns to an art music concept to produce the work's thematic content. The piece's two primary motives are generated by musical cryptography: "the assignment of letters to individual notes of music."[40] The work's opening motive is based on the word "glass," a reference to the ever-growing glass machine shown in the piece's video component. "DNA" is the basis for the second motive, first presented by a solo oboe in mm. 29–31. This motive aligns with a swirling pattern in the video resembling a strand of DNA. In both instances, each letter of the motive's word equates to an interval. The letters' order in the alphabet determined the size of the interval in half steps (modulated by 12 when necessary). Beginning on the pitch matching the first letter of the motive's name, Taylor

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[39] Dayal, "Dubstep."

[40] Eric Sams, "Cryptography, Musical," in *Grove Music Online*, Oxford University Press, 2001, accessed April 26, 2020, https://www-oxfordmusiconline-com.turing.library.northwestern.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000006915.

applied the intervals in ascending order. **Figures 9a** and **9b** provide a visual explanation of this compositional process. In the case of the DNA Motive, Db was used as the starting pitch to create a motive based in D-flat Lydian as opposed to D Lydian, the latter being far less idiomatic for wind instruments. Additionally, the order of pitches in the DNA Motive was shuffled to create a contour that was more aesthetically pleasing to the composer.[41]

Letter	Order in Alphabet	Mod. 12	Interval
G	7	7	P5
L	12	0	none
A	1	1	m2
S	19	7	P5
S	19	7	P5
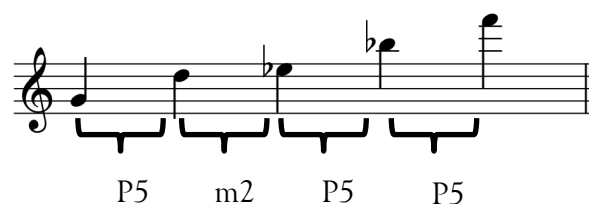
Figure 9a: Genesis of the Glass Motive
Seeds of Glass by Benjamin Taylor

Letter	Order in Alphabet	Mod. 12	Interval
D	4	4	M3
N	14	2	M2
A	1	1	m2
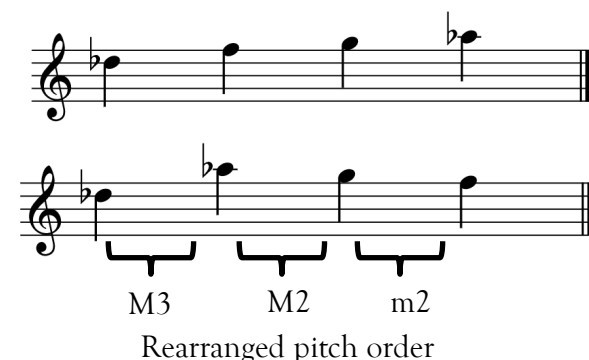
Figure 9b: Genesis of the DNA Motive
Seeds of Glass by Benjamin Taylor

As highlighted by Taylor's modification to the starting note of the DNA Motive, this cryptographic process creates a harmonic impact on the piece. The pitch collection generated by the Glass Motive simultaneously creates a G minor tonality and a quintal chord structure. Comparatively, the DNA Motive suggests a Lydian tonality with its root of D-flat and the resulting

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[41] Taylor, interviewed by the author.

half step between A-flat and G. Taylor clarifies that the colorful tonalities resulting from the construction of these motives is one of the primary reasons he employs this cryptographic approach for constructing themes. "I can be outside of that diatonic realm...It gets me into ideas that I wouldn't have otherwise considered."[42] The resulting modal and quintal harmonies are another example of the merging of art music elements and popular music elements in *Seeds of Glass*.

An examination of Taylor's merging of dubstep textures with cryptographic themes and their resulting harmonies demonstrates how syncretism blends popular and art music elements more seamlessly than transference. The characteristics of the bassline within the work's central section are designed to evoke dubstep, but its minor tonality is influenced by the Glass Motive presented at the onset of the piece. Within the work's central section, the cryptographic motives are developed into melodic fragments layered in a manner that emulates the texture of an EDM track. In *Single*, Neman's use of transference placed the popular music elements front and center. In *Seeds of Glass*, Taylor achieves more balance between the two. He allows the popular music components to influence the development of the art music components, and vice versa. This causes the popular music and art music components to become more interdependent and less recognizable.

However, these components can be separated from one another. This is showcased in the dichotomy of the "nature" and "technology" sections outlined in the work's program note. The former incorporates slower tempos, modal tonalites, and lush harmonies using both quintal and extended triadic structures. The Glass and DNA Motives are first presented in these "nature" sections earlier in the work. By contrast, the "technology" sections are dominated by dubstep textures which are sparsely employed in the "nature" sections. In addition to their faster tempos, these

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[42] Ibid.

"technology" sections utilize harmonies that are almost exclusively triadic and rhythmic textures that are more active and complex.

Despite the identifiable differences between the "nature" and "technology" sections, the influences of both art music and popular music can be heard throughout the piece. While far less obvious than in an instance of transference, the technique of syncretism still allows for the identification between popular and art music influences. The barriers between the two continue to dissolve in the next technique to be explored.

PART V

Synthesis – *Tight Squeeze* by Alex Shapiro

In her program note to *Tight Squeeze*, Alex Shapiro states that the work "might best be described by the following suggestion: imagine Arnold Schoenberg, Henry Mancini, and Charlie Parker walking into a techno rave club in Havana. And, staying for at least three minutes."[43] This amalgamation of genres, referred to as the technique of synthesis, is achieved through the use of a dodecaphonic melody, bebop chromaticism, and an electroacoustic accompaniment track. Unlike the techniques of transference and syncretism, synthesis combines components of art music and popular music so that they are no longer discernible as separable elements.

The melodic content of *Tight Squeeze* is derived via serial means based on the tone row shown in **Figure 10a** (accompanying matrix shown in **Figure 10b**). The first full presentation of the row occurs in mm. 7–10 and renders the P0 form of the row in short, rhythmic fragments. As seen in **Figure 10c**, the theme's rhythmic arrangement is reminiscent of the bebop language that serves as the basis for the work's vertical harmonies. In addition to a reappearance of the original row in mm. 55–62, this melody is also utilized in mm. 13–20 and mm. 37–44 with the P2 row form. Shapiro also uses the P10 form of the row in m. 45, although varying its rhythm and articulation to create a new melody as shown in **Figure 10d**.

Figure 10a: 12-tone row used as the melodic basis for Alex Shapiro's *Tight Squeeze*

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[43] Alex Shapiro, *Tight Squeeze*, Activist Music (ASCAP), 2013.

	I0	I2	I3	I4	I6	I9	I10	I7	I8	I11	I1	I4	
P0	0	2	3	4	6	9	10	7	8	11	1	4	R0
P10	10	0	1	3	4	7	8	5	6	9	11	2	R10
P9	9	11	0	2	3	6	7	4	5	8	10	1	R9
P7	7	9	10	0	1	4	5	2	3	6	8	11	R7
P6	6	8	9	11	0	3	4	1	2	5	7	10	R6
P3	3	5	6	8	9	0	1	10	11	2	4	7	R3
P2	2	4	5	7	8	11	0	9	10	1	3	6	R2
P5	5	7	8	10	11	2	3	0	1	4	6	9	R5
P4	4	6	7	9	10	1	2	11	0	3	5	8	R4
P1	1	3	4	6	7	10	11	8	9	0	2	5	R1
P11	11	1	2	4	5	8	9	6	7	10	0	3	R11
P8	8	10	11	1	2	5	6	3	4	7	9	0	R8
	RI0	RI2	RI3	RI4	RI6	RI9	RI10	RI7	RI8	RI11	RI1	RI4	

P0 is the initial row utilized. Highlighted rows are the permutations used throughout the piece.

Figure 10b: Tone row matrix of primary melody
Tight Squeeze by Alex Shapiro

Figure 10c: First complete presentation of tone row, mm. 7–11
Tight Squeeze by Alex Shapiro

Figure 10d: Melody utilizing row form P10, mm. 45–46
Tight Squeeze by Alex Shapiro

Shapiro uses fragments from permutations of the prime row to generate other melodic elements throughout the piece. These include the countermelody in m. 13 (**Figure 10e**), melody in mm. 21–24 (**Figure 10f**), and a recurring motive first heard in m. 47 (**Figure 10g**).

Figure 10e: Countermelody based on P2 fragment, m. 13
Tight Squeeze by Alex Shapiro

Figure 10f: Melody based on P2 fragment, mm. 21–24
Tight Squeeze by Alex Shapiro

Figure 10g: Motive based on P8 fragment, m. 47
Tight Squeeze by Alex Shapiro

While the melodic content in *Tight Squeeze* is primarily derived from the art music technique of serialism, the work's harmony is drawn from the jazz idiom. These elements work well together due to the highly chromatic nature of bebop and Shapiro's tone row. Several key aspects of bebop style are outlined by founding director of the Center for Black Music Research, Samuel Floyd, Jr. as follows:[44]

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[44] Guthrie Ramsey, "Samuel A. Floyd, Jr. (1937–2016)," ucpress.edu, accessed June 15, 2020, https://www.ucpress.edu/blog/22093/samuel-a-floyd-jr-1937-2016/.

> The blues was its bedrock and propelling force…[improvisers] expanded on the prevailing extension of improvisation from paraphrase to melodic invention by adding to it harmonic elaborations they described as "running changes," the perfection and proper use of which produced prodigious improvisers…sixteenth-note and triplet figures carried the rhythmic momentum [and] substitute chords of the seventh, ninth, eleventh, and thirteenth enriched the harmonic structure.[45]

These traits are embodied in *Tight Squeeze* through the use of the blues scale in its melodic construction, the frequency of sixteenth notes to create rhythmic momentum, and its numerous instances of extended tertian structures (as shown in **Figure 11**). Many of the work's themes incorporate these elements while employing scale fragments that are occasionally interwoven with arpeggio figures (**Figure 10c–g** and **Figure 11**). This pattern was a common technique used by bebop improvisers to navigate the "running changes" described by Floyd and can be readily observed in any of Charlie Parker's numerous transcribed solos (as seen in **Figure 12**).

Figure 11: Melody based on E-flat minor blues scale, mm. 63–64
Tight Squeeze by Alex Shapiro

Figure 12: Excerpt an improvised solo of Charlie Parker on "Blues for Alice"[46]

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[45] Samuel Floyd, Jr., *The Power of Black Music: Interpreting Its History From Africa to the United States*, ebook (New York: Oxford University Press, 1995), accessed June 5, 2020, https://hdl-handle-net.turing.library.northwestern.edu/2027/heb.06332. EPUB, 138.

[46] Jamey Aebersold, ed., *Charlie Parker Omnibook*. (Chicago: Criterion Music Corp., 1978), 18.

The tandem use of dodecaphonic melodies and jazz harmonies showcase art music concepts that are merged with the work's popular music element: its electroacoustic track. Shapiro draws a connection to the popular music genre of EDM through the work's accompaniment track. Also imitated in Benjamin Taylor's *Seeds of Glass*, this broad and continually evolving musical genre began in the late 1970s as an outgrowth of the disco era.[47] Mark Butler states that "The most distinctive characteristic of EDM's production is its utilization of electronic technologies...In EDM, a traditional instrument or a live vocal is the exception rather than the rule." He further clarifies the genre's stylistic hallmarks as the following:

> [containing a] steady, relatively fast tempo—mostly in the range of 120–150 beats per minute (BPM)...repeating bass drum pattern...is almost always present. The majority of contemporary electronic dance music is instrumental. If any vocal sounds do occur, they are usually very brief samples...and they are often subject to considerable timbral manipulation.[48]

The electroacoustic track in *Tight Squeeze* embodies all of these characteristics. Set at a tempo of 122 beats per minute, the track provides an ever-present, constantly evolving rhythmic pattern. This pattern is present throughout the piece, although it is usually presented in the hi-hat as opposed to the bass drum (as is typical in many EDM tracks). Additionally, the track features exclusively instrumental sounds, most of which are subjected to, as Butler writes, "considerable timbral manipulation." The track often emulates parts played by the acoustic instruments, allowing the track to seamlessly merge with the ensemble parts. This integration is described by Shapiro in the following manner:

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[47] Butler, "Unlocking the Groove," 16–17.
[48] Ibid., 6, 9.

> In each of my electroacoustic works, the parts for the track and the live instruments are composed simultaneously. I see the track as being a separate, additional and equal member of the band, and like the other human sections, it creates sounds that no other section can.[49]

The use of serial melodies, bebop harmony, and an EDM-inspired electroacoustic track in *Tight Squeeze* creates a work that effectively transforms theses idiomatic resources into a hybrid entity no longer discernible as separable elements. The various stylistic features are far more interwoven than the recognizable borrowing found in a piece utilizing transference, such as Newman's *Single*. While the specific genre elements can be identified through analysis, they cannot be clearly separated, unlike instances of syncretism, as in Taylor's *Seeds of Glass*. Shapiro merges the elements together seamlessly, modifying them to work in tandem with the other adapted materials. By using this technique of synthesis, Shapiro creates the first piece in a hybrid genre she calls "electroacoustic twelve-tone techno Latin bebop."[50]

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[49] Alex Shapiro, interviewed by author, personal e-mail communication, September 13–14, 2019.
[50] Shapiro, *Tight Squeeze*.

<center>P<small>ART</small> VI</center>

<center># Conclusion</center>

A circular relationship exists between art music and popular music, causing a blurring of boundaries between the two. As a result, many twenty-first century composers employ a variety of techniques, infusing their works with popular music influences. The techniques of transference, syncretism, and synthesis all involve the repurposing of popular music techniques in some fashion. On a spectrum of least to most blended, the techniques would progress in order from transference, to syncretism, and ultimately synthesis (as shown in **Figure 13)**.

Transference	*Syncretism*	*Synthesis*
Newman – *Single*	Taylor – *Seeds of Glass*	Shapiro – *Tight Squeeze*

Least Blended ⟵——————————————⟶ **Most Blended**
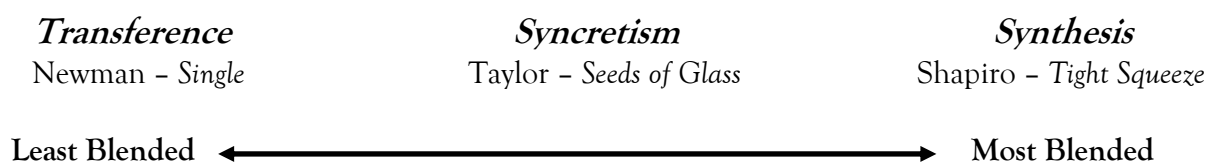
<center>**Figure 13**: Spectrum of techniques</center>

Of the three techniques, transference's appropriation of popular music elements within a predominantly art music context is the most obvious. *Single,* by Jonathan Newman, evokes the aesthetics of Top 40s and Bubble Gum Pop by utilizing the elements native to this music. Additionally, Newman uses an amplified vocal part, ensemble singing, and clapping to draw further connections to the emulated styles. Newman also employs a common formal organization from these genres, albeit significantly expanded. His obvious transference of Top 40s elements into a work for winds creates a straightforward example of popular music influence in an art music context.

Compared to transference, syncretism is a more subtle expression of popular music influence, while still allowing the various elements to be reasonably isolated. In his work *Seeds of Glass*, Benjamin Taylor utilizes novel percussion and vocal effects to emulate the white noise textures

found in EDM music. He borrows from this genre through the use of gradually changing, interlocking rhythmic layers. Additionally, he imitates key components of dubstep through the use of a prominent bassline, incorporation of sub-bass frequencies, and a rhythmic organization that yields a half-time feel. He merges these popular music elements with cryptographic motives and their resulting quintal and modal harmonies. This mixture of popular and art music techniques strikes a balance between the two sources, blurring the lines between the two.

In *Tight Squeeze*, Alex Shapiro employs synthesis to closely merge elements of three distinct styles into a genre-defying creation. She combines a dodecaphonic melody with the chromatic harmonic language of bebop. Supported by jazz harmonies, the serial theme is at home in both atonal and bebop genres. She infuses the piece with aspects of EDM via disco-inspired rhythms and an accompanying electroacoustic track. By "tightly squeezing" hallmarks of three styles into a piece lasting just as many minutes, Shapiro creates a synthesis of elements yielding a hybrid genre somewhere between popular, jazz, and Modernist art music.

This study is intended to be a starting point for further research into compositional practices involving the fusion of popular music and art music. As stated by Alex Shapiro, "I think the fun thing about being a composer in 2019 is that everything is distilled through one's experiences and comes out the other end of the tap as a new thing."[51] Art music and popular music will continue to evolve in new and exciting ways as the barriers between them continue to dissolve.

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[51] Shapiro, interviewed by author.

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APPENDIX

Transcript of Phone Interviews with Composer Benjamin Taylor

This transcript is from phone interviews conducted by the author with composer Benjamin Taylor during the fall of 2019. The questions focus on the genesis of his 2016 work *Seeds of Glass*, revolving around the influences drawn upon in writing the work, and the compositional strategies employed in its construction. These transcripts have been approved by Benjamin Taylor for use in this document.

In an effort to provide clarity, some instances of speech disfluency (such as false starts and non-lexical utterances of words such as "um" and "like") and single word interjections (such as "OK" and "yeah") have been omitted from this transcript.

The following serves as a key for speaker indication throughout the transcript:
CK = Chris Kaatz (the author)
BT = Benjamin Taylor

November 1, 2019

CK: Awesome! Well, if you're okay with it I'd like to pick your brain on just some general compositional practices that you have before we jump into specific questions about *Seeds of Glass*, if that's alright.

BT: Ok, sure. Whatever would be most beneficial to you. I'm happy to chat.

CK: Okay great! The doctoral research that I'm doing is on how contemporary wind band composers are using pop music of the last several decades within their writing for winds. In particular I'm kind of looking at things like Top 40s stuff and EDM, electronic dance music, and the way that they're writing. I know that you specifically, in the program note for *Seeds of Glass*, talk about how this is an EDM-influenced piece. I was wondering if you could talk to me a little bit about where does your background with EDM come from? What's your experience with that music? How did you decide to use that in *Seeds of Glass*? In what ways are you consciously using that type of music in this piece?

BT: Yeah, all great questions. My background with EDM? Well, I'm not a club scene guy. I've never been to a rave or a place where a DJ is spinning tracks. However, Aphex Twin, I think, is the first group that someone turned me on to and I was like, "Oh wow, I really enjoy some of the intricacies there." Oh, and I think I also kind of got into EDM from my interest in really sophisticated metal music. Heavy metal.

CK: Cool, cool.

BT: There's a group called The Algorithm that is like a cross between metal and EDM. You know, crazy time signatures, it's all nuts, and I love it. You know, the four on the floor, four-four time of EDM, of basically all genres of EDM, is slightly less appealing to me than the more intellectual, sophisticated time signatures. But for my work *Techno Blade*, a grade two, obviously I had to go along with four-four. Although, even that piece shifts a little bit between four-four and three-four in one section. And then *Seeds of Glass* particularly, let's see, *Seeds of Glass* was written before *Techno Blade*. And the embracing of EDM is not so one hundred percent as *Techno Blade* is; I would say that one [*Techno Blade*] more hits you over the top with EDM. Because there's no electronic track [in *Seeds of Glass*], you're doing everything with acoustic instruments that I might be doing with EDM instruments. And I was inspired to do that mainly because of the video. The way that the video is organic in its growth, it's almost like it's a plant. It's like a machine growing, and with the lighting, I don't know. Something about it made me think, "Ah, this should have an EDM vibe." And I was listening to a lot of dubstep at the time. *chuckles*

CK: Ok. Gotcha, gotcha, nice.

BT: I hope that helps answer that. My background is not EDM. I'm a jazz trumpet player, that's my background.

CK: Ok, that's your background. Ok gotcha.

BT: But I've done a lot of electronic music that is not techno-focused, not EDM-focused.

BT: Especially while I went through school. In the academic electronic music scene, EDM music is not really a part of that scene. Because they probably figure, "Hey, EDM already has a scene. And it's even a commercial scene. So, if you want to make that kind of music, go do it over there. If you want to make more experimental, non-pulsed music then the academic world embraces that." Normally. It's not like there aren't some people doing some techno, beat-oriented stuff with electronics. But for the most part, I was not and the people around me were not. So, I guess after graduation though, I had been doing a bunch of that stuff on my own in Logic Pro. I have Logic Pro. That's where I do all my MIDI sequence. You know, they have some incredible instruments in there. And also, I like to do a lot of *musique concrète* sounds. Recording sounds from out in the environment and then using them in my music. So, *Techno Blade* is a great example that.

CK: Yeah, I was going to say *Techno Blade* is pretty much that.

BT: Yeah, you know recording my throwing knives and lots of different sounds of metal on metal. And I will admit, there were a lot of drum samples in that piece that were not generated from *musique concrète*. But a lot of them are. And I like to tell a lot of students who are interested, there's a big DJ scratch kind of right near the climax of that piece that's like, *sings "Wu, wu, wu, wu, wu, wu, wu, wu, wu, wu, wu, wah SMACK!"* That big DJ scratch thing came from the sound of the knife whooshing through the air and I had to pitch-shift it up. Speed it up and kick it up so it was like, *sings "wu, wu, wu, wu" at a fast tempo* that sound, but shifted up.

CK: That's cool!

BT: Anyway, yeah, I really enjoy working like that. And, depending on when you get all this research out, it continues to be a line of composition that I'm really interested in. Number one because I feel like it connects very well with the ear bud-wearing youth. They seem to, most of them, really enjoy this type of music. And I do too, I'm not just doing it because they like it. And so, if I can combine that with the wind band and have them playing something that they're like, "Whoa!" you know? "My wind band has never sounded like this before!" And really enjoying it, then all the better. And especially because, in my mind anyway, it gives them the opportunity...at home it's essentially a play-along track. I used to play along with Jamey Aebersold tracks all the time.

CK: Oh yeah, me too! Oh yeah, oh yeah.

BT: But we don't have something that exists like that for EDM. And so, this now, everybody that gets *Techno Blade* for example, the director gets a sheet in the parts that says, "Please distribute the track to all the members of the band so that they can play it home in their earbuds. I hoped that it would encourage them to practice and enjoy playing along with an EDM track. Maybe even start to improvise along the top of it. You know?

CK: It's interesting that you say that. My group, we just did *Tight Squeeze* by Alex Shapiro. I don't know if you know that piece.

BT: Mhm!

CK: But it's similar where it has the accompanimental track and I sent that out to the students too. And Alex was talking about the exact same thing you're talking about. Where she's like, "Yeah I want the students to, you know, have that track and be able to play along with it and interface with it." And I think it's great. I think this type of music, I totally agree with you, resonates really strongly with the students. It's awesome. There's a couple parts in here, in *Seeds of Glass*, where you get kind of like the bass drop like *sings "Bzhew, wah wah wah"* like all that kind of stuff. And it's hilarious when we get into those grooves in the room because all the kids start doing the, you know, the head bob like you see everybody doing when they listen to that kind of music.

BT: *laughs*

CK: And I'm like, "Man, Ben did a really nice job with composing this if that elicits that sort of response from them." It's really cool. And all the percussion effects in here are really neat, and I mean I have some specific questions about those. Yesterday, our timpanist was playing around with that rolling the cymbal and pedaling while it's on top of the timpani and the kids were like, "That's amazing!" Coming from that vantage point, from the EDM-inspired vantage point, it seems like you're getting a lot of colors from the group that you wouldn't ordinarily think to get because you're trying to mimic sort of this electronic stuff. Is that accurate would you say? That some of the, especially the percussion, effects are sort of influenced from this electronic sound that you're trying to mimic with acoustic instruments?

BT: Yeah, I think we can say that accurately. I'm trying to remember whether or not, I don't remember the first piece that I used that sound in. And I can't remember where, I feel like I must have heard somebody else do it, because I don't think I would have just come up with it on my own. Well, yeah, I know that it's been done but I can't think of a certain piece though that where I heard it and was like, "Oh I want to do that too!"

CK: Yeah.

BT: And then same with the...*Seeds of Glass* uses a cymbal on the snare drum head too, right? Yeah, yeah, yeah. Splash cymbal.

CK: Yeah. That kind of drum and bass sound.

BT: And that one, for sure, I wanted a way to have the snare drum crack be not...I wanted it to be electronic in sound. I wanted it to be different than we're used to hearing it, the backbeat on a snare drum. I didn't want it to sound jazz oriented, I wanted it to sound EDM. So that's very much on purpose because of the EDM influence. The timpani, maybe not so much inspired by EDM, but certainly the fact that I wanted to evoke EMD, yeah, I'm going for some colors and things that I can do in the percussion section. Because in EDM music a lot of times you get these white noise-y wash things and this is a cool way for me to do it on the timpani. And give them something exciting to do. Something a little different.

CK: That's something that I really enjoy about the piece is that there's all these sort of novel percussion effects and that's really awesome. It gives them a chance to kind of explore sound in a different way and that's something that really drew me to the piece, that I like a lot about it.

BT: Thank you, cool.

CK: Yeah, yeah absolutely. If you're OK with it while we're talking about the percussion, I have a few questions about some of the percussion sounds if I could pick your brain on those.

BT: Sure.

CK: The very beginning, where you have the tam-tam and it says, "Swirl on center or flutter on edge with brushes ad. lib," is there a specific sound model that you had in mind? Is there like a specific sort of effect that you're thinking of when you wrote that effect? I'm just kind of curious where that sound came from.

BT: Again, that's just another white noise-y sound is all I was thinking. In my mind it ties in with the "shsh"-ing in the wind players. This little white noise is being passed around the band in a way. OK, let me back up. When I wrote it, I thought, "Man it would be cool, I'm going to treat the band as the stereo panning field, but from right to left of the speakers."

CK: Mmm, alright *that* makes sense.

BT: But there's no speakers. There's not an EDM…there's no track. "But I'm going to have things pan around from right to left." And that's one of the remnants from that idea. I didn't end up doing that much. Although there are, like the saxophones when they're kind of passing off that little *sings "dee da duh, boh duh duh, dee da duh, buh duh duh."* That, in my mind, is also like, "Hey I'm going to pan one side and then I'm going to pan the other side," even though they're sitting right next to each other. I get it.

CK: OK that makes sense though. That sort of changes the way that I think about that effect and I think that that will make a lot of sense with the students too. Sorry, keep going, that's awesome.

BT: So yeah in my mind it's like this, "Shhh," is actually panning across the band.

CK: Cool. Awesome.

BT: It's all coming out of the initial *sings "Boh, doh, doh, doh, ding!"* That initial little expansive hit. But then, it's like the wash comes from the timpani, through the "shsh"-ing, and then, of course, the muted trumpets come in with their little thing, and now it's coming back down and passes to the horns. And, yeah, that whole gesture is inspired by the panning in the ensemble, or panning between the stereo field. So, the tam-tam is just part of that gesture. In my mind it's just being passed from timpani, to tam-tam, to bass drum. Yeah.

CK: Cool. OK, that makes a lot of sense. I would have never thought of that. But it totally makes sense when you say it that way. That's really cool. So, the bass drum effect, is sort of the same thing. I think what you say exactly here is, "improvise soft, but active texture using fingernails, fingers on drum head." That's supposed to be more white noise kind of stuff, is that right?

BT: Yeah.

CK: Ok cool.

BT: So when I've gone and worked with groups on this piece, I don't intend for the bass drum, or the tam-tam, [to be featured] there… they're not solo. I would've written "solo" if I wanted it to pop out. It's just part of the texture. So, I prefer that they not *strike* the bass drum with their hands. If they want to tap on it with their fingers and their fingernails that's fine. Or like I said the scratching and the rubbing is even better. Just making a white noise-y, swirly sound.

CK: OK. So, it's supposed to be kind of in the background, not necessarily in the fore- or even the mid-ground? But it's supposed to be a blanket texture around everything else that is happening?

BT: Yes.

CK: OK, cool. That makes a lot of sense. And then these trill figures you have in the saxophones and clarinet in the very beginning, when they get into the trill proper…because I'm guessing what you mean by the notation here is that you want that to slowly wind up and gradually get faster. And when they get to the trill, would you want them to start that on the slower end and then speed up through the trill and then just have it hum, like *sings "Bzzzz"* as they get into it?

BT: *laughs* Um, I'm laughing because, I don't know when it started but that's what everybody's doing and I like it. I hadn't envisioned it that way originally, but I really like that that's the way everybody's interpreting it. And I'm laughing because maybe I should go back and add it in there like, "Oh, yeah, I meant that." *laughs*

CK: Well I think there's a trumpet trill later on where you say exactly that, "Start slow, speed up as you get louder, slow down as you get softer," kind of thing.

BT: Oh, maybe!

CK: But just looking at the written-out notation it looks like it's just a written-out trill starting slow and going fast. But that's why I would assume that it's faster. But that's cool. I haven't talked to anyone else about this piece but that's interesting to know that a lot of other people are interpreting it that way. That's cool.

BT: Yeah. Yes, so, I would like you to do that.

CK: Ok, alright.

BT: And you're absolutely right, it's like I wrote out the trill in time and then just went to a trill. But I mean I could've done, you know, sixteenth notes and then a quintuplet and a sextuplet. But this is probably easier to read anyway. And yeah, everyone is interpreting it that way anyway.

CK: OK, cool. At W, at the very end, this is the trumpet trill we were just talking about. Where the trumpets and horns have the "start slow and gradually increase." Now, do you want that to be a pretty fast flutter when they get loud? And how slow are you thinking that should be at the beginning when it starts?

BT: Mmm, good questions. And thank you for looking at everything so precisely. I think if we were at an eighth note triplet trill speed on beat four and then speeding up from there to as fast as possible by beat three. *sings example* Something like that?

CK: That's the best thing to have right there. I might just play that little sound bite for the students and be like, "This is how he wants it to go because he sang it for me."

BT: *laughs*

CK: That's awesome. They'd probably think, "That's the coolest thing in the world!" It's cool. I'm getting to talk to you about your piece, we Skyped Alex Shapiro in for her piece when we had her, and we had James Syler out here for a piece we were doing in the fall. So, I feel really lucky. Every living composer that we've done this fall, the students have had some sort of feedback from them. This is why I love working with living composers. I feel so spoiled as a band guy that I get to do that.

BT: *laughs* And you're picking some of the best ones. Alex has been like a mentor to me. She does amazing stuff. She has, in so many ways, pioneered the band EA world. She's made that world. It's nice and she's also very open for other people entering that world, like me. So, it's been really cool.

CK: Yeah, she's great, yeah. And she was so easy to work with, the kids loved her, she was just awesome. She's fantastic. I'm a big fan of hers. So, another question for you about the trills: the trumpets have a trill at W and they have a similar sort of effect in the third to last measure of the piece in 184. They have that dynamic hairpin again. Do want them to do the same sort of thing where they start slow, get fast, and then slow down as they get soft?

BT: Good question.

CK: Because they asked that yesterday and I was like, "You know what, I haven't thought of that."

BT: Hold on, let me hear this in my head real quick from the timpani...I think I'd like it to be as it is written. I want just a steady trill the whole time. You know it's kind of, again, it's coming out of that *sings "Buh duh duh duh dee dee"* at X. And we don't have the "shhh"s this time but our timpani roll kind of pans to the trumpet roll, is how I see that. And so I'm afraid that if we started slow, it will disconnect them.

CK: And jumping back to W, this kind of connects to what we were just talking about at X, am I correct in thinking that the trumpet trill figure is supposed to go into that timpani *gliss.*?

BT: Yeah.

CK: Yeah, like, to pan back there. Do you kind of want those things to be one thing?

BT: Mhm.

CK: OK, cool. Awesome, we were working on that yesterday. And that last trill, sorry to keep jumping back and forth here, that last trill at X with the trumpets, do you want them to just keep trilling into *niente* or would you like the chord to resolve on the eighth note there? Where you hear just a moment of the E-flat major chord in the trumpets there.

BT: Oh, because the trill line does not go all the way to the eighth note.

CK: I mean, I could see it either way. We dabbled with it yesterday.

BT: *laughter* Chris, you're awesome. You're awesome! I see, hold on. No, let's decrescendo the trill and I would love to... honestly, I didn't use *niente* anywhere in this piece, but *pianissimo* for me is basically *niente*.

CK: Yeah, yeah that's what I figured.

BT: In other pieces I do. I don't know why I didn't do that in this piece. Maybe just because I knew a lot of high schools would playing it and I don't ever remember seeing *niente* in high school. Or knowing what the heck that would be. Anyway, yeah let's keep that trill though. I think it will sound kind of weird to have it stop and then to hear the chord.

CK: We tried it yesterday and it didn't totally work. And I was like, "I don't know if that just doesn't work with the music or if we just haven't figured out how to do it yet." And that's why I wanted to ask. So, in reference to this motive at X, it's super cool. And I love how the whole opening sort of introduction until B is built off of that thing and how you have most of the piece constructed on that. When I first found the main theme at B is based off that I was like, "Ben, you genius, I love it!"

BT: *laughter*

CK: So, the motive that you get at the very end and the very beginning, how are you conceiving of...I get the intervals. You have a G fifth and then you have a quintal stack on top of it that's a half step above, which is super cool. It's a super cool sound. Were you thinking of that structure...were you trying to create a certain harmony with that structure or did you just kind of like the intervallic relationships of that motive?

BT: I am so glad you asked.

CK: *laughter*

BT: But this is one of the little things I'll do occasionally, and this is a really good example. It comes from the word "glass." I don't even know if I had chosen a title at this point when I was composing it but I knew that it had to do with the glass machine thing. And, so, taking those letters I moved them into intervallic relationships based on where they fall in the alphabet. So, G-L-A-S-S, is...G must be seven, right?

CK: Yeah.

BT: A-B-C-D-E-F-G, yeah. Seven half steps. And then L I'm pretty sure is twelve, so that one must be an octave. And then A is one, and S must be some mod-12 of seven.

CK: *That* is super cool.

BT: So that's how that little thing was generated.

CK: I never would...oh that's awesome! I love it! That's cool!

BT: And then...I generated a lot of different...I'd have to go back and look at my notes...

CK: OK.

BT: Let's say I generated, I don't know, twenty different melodic or harmonic entities from words associated with what I was thinking about while I was writing. And then I just picked some of my favorites. It's a way for me to be able to have each piece be its own sonic world so I'm not just like, "OK, well, am I going to do major or minor. Or a mode." You know? I can be outside of that diatonic realm, or even triadic realm, for a part of the piece, or the whole piece. It gets my creative juices flowing. It gets me into ideas that I wouldn't have otherwise considered. So, I like to do text to pitch translations like that.

CK: Very cool. Very cool.

BT: Sometimes I'll do it by scale degree rather than half steps. But anyway, in this case it was by half steps. And then in terms of...yes, I absolutely like the sound. I like that it was a combination of this G minor-E-flat major world, but with, you know, a major seven in the E-flat. It's a nice ambiguous harmony, it's really beautiful.

CK: It is. And it's a versatile harmony too, which I like about it. Because if you just hear that and you just stack all of that stuff and listen to it, you're like, "OK, it's minor-ish because you have the G in the bass." But when I was looking at the construction, and that's something I love about quartal and quintal harmony, is that you can kind of bend the harmonic structure in a bunch of different directions based on how you focus your ears to hear it. I think it's really clever.

BT: Thanks.

CK: So that is so cool. I love that you did that. And I was just looking at this motive and then looking at the title. And that makes so much more sense for the title too. There's a deeper, almost sort of hidden meaning of the title. Because that whole Glass Motive is like the seed of the entire thing and that mimics the video really, really well.

BT: Yes! *laughter*

CK: Man, Ben! Well, that is awesome. Good for you, man. That's great. Well done!

BT: Well, thanks! Thanks.

CK: Yeah, well done. That is awesome. OK cool, I've got a few more questions in the piece. Before I forget though, I do want to ask you: I know that in the program note you talked about, and I saw your interview with Emily on your website, where you talk about that, from the onset, this was conceived as a piece for video and band. Which, that alone right there, I wish I would've found this piece earlier because I was like, "Man, that would be an awesome research project onto itself." Just cataloguing music for that medium because there's not a lot of music for that.

BT: There's not a lot at all. Especially as originally conceived.

CK: Right, yes. Exactly. There's a lot of pieces I think you can do. Adam Schoenberg's *Picture Studies* is getting a lot of play right now. And when I was up at Northwestern we did that and we projected the images of the art that that's based on. And you can do that with *Pictures at an Exhibition* too. But it's really cool that this piece was conceived of video and band at the same time. It was really cool. So, based on some things that you've said in the time that we've been talking, did you find the video first and then start writing? Or were you part way through the process when you found the video? Where did the video come into play?

BT: The video came in first. This is my second band and video piece. There's another piece called *Cold Lights* that I did a few years previous to this, to *Seeds of Glass*. And the video artist that I worked with for *Cold Lights* was going to work on *Seeds of Glass* with me. But then she got a full-time teaching position and she said, "I'm so sorry, but I don't have the time to be able to do this. Here, I recommend you check out this friend of mine who puts a lot of his stuff on Creative Commons licenses. Anybody can use it and manipulate it; do whatever they want with it." And so that guy's name is Mike Winkelmann and his website is beeple-crap[.com].

CK: Yeah, I remember seeing some of that stuff on your website referencing that.

BT: OK. And so, yeah, I went to his website and checked out a bunch of his stuff. And one of his clips, I can't remember what he called them, "shorts" maybe, it's like this two-minute long video of this transparent, glass machine thing being made. And I really liked it. And I think he even has music with it that he wrote. I think he writes some music too. Actually, yeah, I'm pretty sure all of his music is pretty EDM-focused now that I think of it. I'm thinking of another piece he did anyway. So yeah, I did e-mail him and said, "Hey, you know, we've never met but, through a friend of a friend I found you and I'm going to be using," I think he called it *Transparent Machine* is the name of the video. "I'm going to be using some of that footage in this video that I'm making." And he was like, he's a funny guy, he e-mailed me back and was like, "Expletive, expletive, expletive this is so cool!"

CK: *laughter*

BT: "Thanks so much for connecting. Let me know when it's all done, I'd love to see it," kind of thing. I mean, he works full-time in LA, he's a real big deal in his industry. So, I was really happy to have his approbation even though I didn't need it since he'd already released it on Creative Commons license. So, I was already starting to play around with that and generating well, what is like...I didn't want it to be a video with a plot or a dialogue. But it needed to have some sort of trajectory and journey. So, I was the one that assembled the video because my friend wasn't available. I basically did all the work that a video artist would do. But with raw materials, I mean I wasn't starting from scratch. But I cut it all up, I thought, "Oh man, let's make it about the growth and then tear down of this machine. And how it all came from that original DNA seed. I think I at least had the overall arch shape in mind. I might've even finished the entire video while I was still sketching sonic ideas. In sketching the form of the sonic material. Yeah, but the final orchestration definitely came after the video was done, to sync everything up. Oh, and that's the other thing: I knew that I wanted to do this piece without a click track and I knew that I wanted some moments of synchronization. But otherwise, it could kind of be a wash, it didn't have to be exactly synced. So, I had to carefully plan out those moments and how I was going to achieve that. And you might've seen the original version was just one track, you know the video was just one track. Emily Moss did a great job. She found that it was nice to have a metronome blinking on her music stand at 138, the tempo, the whole second half of the piece is that. Yeah, because from letter E on is 138. So that's how she...because from letter E all the way to right before G you don't have to sync up with anything. But, she would find that if the band had dragged a little bit or if they had pushed it a little bit then sometimes there wasn't enough of a window to hit two before T.

CK: Yeah, because otherwise you're on that sustain, "tongue as fast as possible" chord for a very long time or a very short amount of time. Depending on how you did before that.

BT: Right. And them, when Steve Pratt at IU did it he said, "Would there be a way that you could cut up the video and I can have an assistant triggering it so that my tempos can be a little more flexible?" And I was like, "That is a genius idea!" *laughter*

CK: Yeah *laugher*

BT: And yeah, it's not that hard with this video where there's already a bunch of stuff repeating or vamping. So yeah, that's when I made the flexible version. And just about everyone has done it with the flexible version now. It's just more foolproof.

CK: We're layering the video in next week so we're going to start playing around with that and see how that goes. I had a couple other specific questions and then, as I'm flipping through, there's just a few things I wanted to ask if that's ok. I've got about ten minutes left, so I'll need to be a little quick with some of this.

BT: OK.

CK: So, at letter D, where you have all this rhythmic stuff happening in the flutes, and the oboe solo, and the trills in the clarinet, and all that: how precise are you wanting the competing rhythms in the flutes and the piccolos? Is that supposed to be really precise or is this more kind of a sound screen sort of thing?

BT: It's a cloud, wash thing, it doesn't need to be precise.

CK: Yeah, that's what I thought.
BT: I almost wrote, "Improvise back and forth between these two pitches." But then I was afraid they might not go at a very nice speed. So yeah, if they just aim for those-speed rhythms, but no it does not need to be precise. *chuckling*

CK: OK and that's what I figured. As soon as I thought that I figured that's what it was. And if you were like, "No, I want this to be very intricate, precise rhythmic counterpoint," I was like, "Alright, we'll dive in and rehearse it," but otherwise I'm going to leave them to their own devices and let them approximate that as close as possible.

BT: *laughter* Yep.

CK: OK cool, so that's good. And then a general question I have about the piece, as I'm flipping to the next thing: do you conceive of there being specific tonal centers in this piece or does the perceived tonal center kind, is that just kind of a byproduct of the harmonic information that you're using? Like at the beginning, I don't know if you thought of it as a G Aeolian-ish kind of thing or if that's just a byproduct of the motive.

BT: That's a really good question. Well no, I definitely wasn't considering a G Aeolian. What I don't remember is, like that little theme in the basses *sings "bum bah bah bum."* That thing, I don't remember if that was also generated from a word. I'd have to go back and look at my sketches to see where some of the other pitch material comes from. Or some of it might have just been composed based on intuition or improvisation. But a lot of times my pitch choices are influenced by external systems like that alphabet-to-pitch stuff that we were talking about earlier.

CK: OK, cool.

BT: Yeah, but I can clearly say I was not thinking, "Oh, this is a G Aeolian mode right now."

CK: Well I didn't know if you were pulling, you know, a Holst, "Oh, I'm going to specifically write in a mode." It seemed to me that there was some other process that was generating the music and then modal harmony was kind of the thing that resulted. It does seem like going into Q that, where you have that D-seven with the flat nine-eight suspension the bar before going into kind of G as the tonic, that seems like that's a pretty intentional move upward from kind of an F minor base to a G minor base.

BT: Oh yeah! I mean we're definitely...yes, it is. I even use a key signature and change the key.

CK: Yeah. It seems like there's some of that and then some of it's just kind of the byproduct of other stuff. So, I just wanted to make sure I wasn't off in "la-la land" about that or if I was at least pretty close. At measure forty-three, when the trumpets come in under the chord that's in the upper woodwinds, do you want them to sneak in so that their color just kind of adds or do you want that to be a distinctive color change there?

BT: Oh, yeah, no I don't want to hear them come in. I just want to hear them push the gain knob. *chuckles* I'll reference EDM again.

CK: Cool, I like it.

BT: Yeah, they're just there to help the winds push forward on that volume knob. *sings "Beee-yup!"*

CK: And then in third trumpet, the little tie from the G, is that just a notational thing? Is that an errata?

BT: Ew, that's a notational error.

CK: OK, cool. I just wanted to make sure there wasn't some other thing. I'm not trying to like, "Come on Ben, clean up your score." I was just checking to make sure it wasn't an effect.

BT: No, no, I'm glad you noticed. I think what happened is that originally, I had them enter with the winds on the and of four.

CK: Yeah, that's what I figured.

BT: And then I decided, "No, no let's have the color get pushed and have the volume get pushed." Oops.

CK: Cool. Yeah, no. That was interesting, seeing that in there made me think that you probably wanted them to sneak and probably originally conceived of them as part of the color. I just wanted to make sure that I was on the right track there.

BT: Mhm.

CK: At T, and also at B, this stuff in the woodwinds...so at B it's more, *sings "Bah deh duh doo duh dee duh, bah deh duh doo dee dut."* And then at T, we've been calling this the "Cantina Band" feature because it kind of sounds like that.

BT: *laughter*

CK: It's really cool. It's like an EDM-"Cantina Band" sort of thing. Is that supposed to be sort of an EDM soundtrack thing as well? Just kind of background activity sort of thing or is that taken from a specific place?

BT: You mean did the rhythms that come from a specific place?

CK: Yeah, just sort of that texture.

BT: Yeah, it's definitely...in both cases, the syncopation is from...I want to fill out the groove, the EDM groove.

CK: OK, cool. Then in 186, the last bar of the piece, you have a fermata over the vibe eighth note that their previous fermata-ed whole note is tied to, but there isn't a fermata over the upper winds. Do you want the vibe to keep sustaining there through that or do you want him to just have the pedal down? Do you want him to ring longer than you want the upper winds to ring?

BT: Yeah, good question. *chuckles* Let's go ahead and say the fermata should be moved to the rest on beat three. Yeah, I think originally, I had thought that I would just have the pedal down and let it ring until it was dead. But it's not going to ring much longer than that anyways. It stops bowing after the fermata, the first fermata in 185. Let's just let it die. I think I put that as a, "Hey, you know, if you got to the end too soon, well, at least we're going to have the vibe still ringing until it fades to black."

CK: Yeah, OK.

BT: But nobody has been having trouble with that. Especially now that there's the flexible version. So yeah, let's just move that to beat three. I feel like I should make a note of all these things I'm talking to you about so I can go back and clarify. *chuckles*

CK: *chuckles*

BT: Because I self-publish, it's easy. I can, everyone else getting the score from here on out can get it with the Kaatz changes, you know?

CK: Oh, yeah. Well, I'm just trying to clarify. So, if there's a couple of things you grab from it, awesome.

BT: No, I appreciate your astute questions.

CK: Yeah. And then this is the last specific question I had. At letter P, how did you come up with constructing these impact chords on beat 3 that the high- and mid-voices have? This is a really cool effect, I like this a lot. The *"dug-uh doon doon doon wah, dug-uh doon doon doon wah."* This is super cool. Is it a specific harmony you're trying to get or is it clusters that are ascending?

BT: I don't remember. Hear, let me pull out my sketches. You have several good questions that I'd be able to tell you if I had my sketches in front of me. And I know your time is short though. So, if we need to extend to another time...

CK: Sure!

BT: Because, when you asked the opening harmonies, I wish I could remember. Because I definitely remember the "glass" thing and I've pointed that out to several ensembles and they're like, "Oh, that's so cool!"

CK: Yeah, mind blown. I mean, that's amazing.

BT: *Seeds of Glass*, there it is. Alright. Sorry, I'm like a lawyer. I keep all my paperwork.

CK: *laughter* Hey, that's awesome. That's awesome. I think that's great.

BT: Let me see if I can find it here. I'm going through pages and pages of pencil sketches. I do all of my stuff with pencil before I do the final orchestration into Finale. It's like a short score. Although it's, at least this piece is, in chunks, it's not left to right. So, I can't actually find like, "Where is *that* thing?" *sings "dug-uh, dun, dun, dun, deh"* Um...a bunch of the DNA shimmers...

CK: And if you're having trouble finding and you'd be willing to pick up the interview maybe some time next week or the week after, that's fine by me too.

BT: OK. We might have to so I can get a handle on it and get back with you. I'm happy to dig through and get you an answer. And maybe the answer is going to be, "No, it's not tied to any words," you know? I'll have to go back and look and even see what the harmonies are. Because honestly, I don't remember.

CK: Because when I was analyzing them, everything else in the piece makes sense. I was like, "OK, there's some added-note chords stuff here. OK, that's a flat-nine-eight suspension." All of the other stuff makes pretty concrete sense from a tonal perspective. Those were the only chords that I was like, "What is he doing here?" And that's why I wanted to ask you about them, like what your concept was there, because I don't totally understand it. I was wondering if you had any idea about them. Because if it was constructed from a word, that would make a lot more sense.

BT: Yeah, well, or it might just be a very altered dominant chord. I do enjoy using those.

CK: Cool. Well your jazz background would shed some light on that. So, that makes sense.

BT: Yeah. I'll get back to you.

CK: Well, Ben thank you so much for your time.

BT: You're welcome.

CK: I'll shoot you an e-mail either today or tomorrow. We can figure out another time to sit down and chat just a little bit more about the piece. But this was awesome, super informative, really helpful, and I really enjoyed talking to you. It was awesome.
BT: Well likewise. It's been my pleasure. Thanks so much.

CK: Yeah, absolutely. You have several beers coming your way at Midwest. So, I look forward to next time.

BT: *chuckles* Well, I don't drink but I will gladly join you.

CK: OK, awesome. I'll take you out for lunch or something.

BT: And I'll get a ginger ale or something.

CK: Yeah, absolutely. Alright man, great talking to you. Having a good one.

BT: Yeah, you too. Alright, bye.

CK: Bye.

November 11, 2019

CK: So, I looked over the notes that you sent and I had just a couple of questions regarding key centers and a couple of things with the Glass Motive. You had mentioned, I think last time we talked, that you had originally conceived of having the key centers of the piece follow the Glass Motive. I know you said you abandoned that. But, was there any particular pattern you had for the key centers, consciously in the piece from what you can remember?

BT: Um...no. *chuckles*

CK: Ok. Alright, cool.

BT: If I look back at my sketches the stuff at letter C and letter D, I wanted that to be in a different feel, a different key area. How I arrived at it's like, what, D-flat or something? How I arrived there, I do not remember.

CK: At letter B, it's in sort of D minor because you're doing that chromatic mediant harmony stuff. Two before C it's a B-flat major chord and then that pivots into a B minor chord. Then C to D is B minor. That leads into a question I had: At D, are you conceiving of that as a specific key center or were you just kind of thinking, "OK, I'm going to take this D-flat fifth in the clarinets and have that be a trill. And then I'm going to have this E-flat fifth that's sort of improvisatory, and then do the Oboe 1 figure on top of that."? Were you just kind of having that be a specific sound or were you thinking of that as a specific key center?

BT: I thought I remember thinking of it as in a D-flat Lydian. Hold on, let me look at this closer. So, all of the flutes have E-flat and B-flat. Because then, the clarinets, it's a D-flat open fifth and that's it. In my notes, that little DNA motive came from those letters D-N-A. I don't know exactly how I derived this sharp-four Lydian sound from it...but that's why that D-flat, A-flat, G-natural instead of G-flat, that Lydian sound. And then I guess that other stuff on top, that's, what, the nine and the thirteen?

CK: Yeah.

BT: The E-flat and the B-flat. So, I must have just wanted those colors on the top.

CK: OK. Alright, cool. So that little *sings "Bah duh dee dah"* that's the DNA motive? That's kind of what you refer to that as?

BT: Yeah, yeah, I marked that the DNA Motive. And I believe that comes back at the end. When the little glass seed gets that little bit of DNA again at the very end.

CK: Yeah, the flute has it.

BT: Yeah, yeah, there it is.

CK: Yeah, and then you have that *sings "Dah dee duh duh dee."* You reference the other...I guess that's the Glass Motive. The fanfare version of the Glass Motive.

BT: Yes. Yes, exactly.

CK: OK, cool. So that answers that question. And then, immediately after the first instance of the DNA Motive, where you have the *sings "bum bah,"* the open fifths. Are you sort of hearing that in F minor or would you sort of envision that as D-flat there?

BT: You mean two after letter D, right?

CK: Yeah, the double bar after letter D. Measures 32–34.

BT: Yeah. Yeah, in my mind it's still in D-flat. We haven't hit minor yet. But it's certainly helping the transition. Hold on, what do we go to? You're making me look at this closer than I have in a while.

CK: Well, good, good. Because I know eventually all that open fifth stuff, it's kind of foreshadowing the theme that you get at H. And that's pretty clearly in F minor to my ear.

BT: Right, right.

CK: Once you hit G it's like, "OK, we're in F minor." And the motive, all that other stuff has been foreshadowing that. So, at 35, when get sort of this, I don't know if you would also call this the DNA Motive but it's a similar sort of effect to what you get at D. Is this another thing where you have superimposed fifths or are you thinking of a specific chord or key center here? In 35–37 is what I'm talking about.

BT: Yep, and good questions.

CK: You have the A-flat fifth in the clarinets and then you have the B fifth in the flutes. And then you have that D-sharp, which I guess would be the same as the E-flat from the E-flat fifth in the clarinets. But you have the D-sharp and the A-sharp in the piccolo. I mean, if you lump all that stuff together I guess I got a G-sharp minor chord with a seventh and a ninth on top. I don't know if that's how you're hearing that. I was just kind of curious what your conception was there.

BT: Yeah man. Gosh, I really don't remember.

CK: OK, that's all good. And I know it might be a really specific thing. You might have been like, "Yeah, this sounds cool. I'm going to put these two sounds together."

BT: Yeah, right. *chuckles*

CK: Yeah. I know sometimes that's how composition works and it's not necessarily, "I'm thinking about this specific harmony," or something like that.

BT: Yeah, unfortunately I don't remember.

CK: Oh, that's OK.

BT: I can look back and see if I have anything on that specific spot. And I don't remember seeing anything when I looked back at my notes recently. So, it must have been just been related to that DNA somehow in my mind. Yeah, but the intervals aren't the same. So, I don't know. I don't know how I got that. Maybe that was just improvisation, messing around.

CK: OK, cool. And last sort of key center question. At W, do you hear this as B-flat major at W or is it E-flat Lydian or not really either of those things?

BT: Oh, OK. So that clarinet descending things comes down. Yeah, so it definitely...it's B-flat major on the downbeat, right?

CK: Yeah.

BT: Then we add a whole bunch of color to it. I still feel like it's grounded on B-flat though.

CK: And then, with it concluding with the low B-flat in the tubas the bar before X. Measure 180, that's kind of where I would lean towards. And then you have that plagal, it's sort of plagal, from that E-flat major- seven nine-chord in the low brass down to the tuba. Cool, I just wanted to make sure that I was on the right track with that. And then, I did have one more question about the Glass Motive.

BT: OK.

CK: I just want to make sure I'm understanding how you derived that. I went, numbered the alphabet and then I did that as a mod. twelve thing to figure out the interval. And so, G would be seven, which would be a perfect fifth, I get that. L is the twelfth letter of the alphabet...

BT: So, I did zero, so just don't move.

CK: OK. And then A is one, so that's where the minor second is between the D and the E-flat. And then S's are both nineteen, or seven mod. 12, which would be perfect fifths, and that's where you get the B-flat and the F.

BT: Correct.

CK: So, you started on G. The L is zero. So, you went G, up a fifth, because G is seven so that's a perfect. So, you started on G, went up a fifth, that gave you D. And then you went minor second for A, which gives you E-flat. Perfect fifth for S which gives you B-flat, perfect fifth for the other S and that gives you F. Is that kind of how that came into being?

BT: It's exactly right.

CK: OK, cool. It's just the piece about the L was the thing I was unsure about. Now, do you remember the DNA Motive, was that constructed in similar way?

BT: Well, as I looked at it, it wasn't so straightforward. It was like…Maybe that's why it's in D-flat is because of the D. So even "glass," it starts with the letter G, so ideally that was going to be a G. It doesn't always happen like that, but in this case it did. And then the DNA, I think I almost would have preferred to start with the D. Because I'm pretty sure in my sketches it was very D major Lydian. But then, that wasn't working out very well. Because that puts half the band in E and that's just a horrible key for band.
CK: *chuckles* Yeah, that's not a good key for wind instruments.

BT: Yeah, so I think D-flat at letter D. I'd have to get back with you. But I remember looking at it in my sketches and being like, "How did I get this little Lydian thing?" And, it wasn't super clear but it was somehow derived from that.

CK: OK, cool.

BT: There should be three intervals, D-N-A, and there are three intervals because it's just that four little notes there. If you can reconstruct it, awesome. I can send you a picture of my sketch. *laughter*

CK: Yeah, sure, I'd love that. I'd love the pictures of your sketches if you're willing to share them. That'd be sweet.

BT: I don't remember how I translated those three letters into those pitches.

CK: OK, cool. I'd love to take a peek at it if you're open to it.

BT: Sure, yeah.

CK: OK, well cool. That's all the big questions that I had. I mean, we tackled a lot of that the last time. It was just the Glass Motive, I wanted to make sure that I understood how that was put together. And then the same thing with the DNA thing and the key centers. That helps a lot man. Hey, thanks so much for your time.

BT: You're welcome.

CK: I will transcribe these interviews and send them to you and anything you want redacted, you let me know.

BT: OK.

CK: Because those are probably going to show up in a doctoral research paper. But I'm really excited to share with the group, especially about that Glass Motive. There's a couple composers in the group and a lot of theory nerds and think that's going to blow their mind and they're going to love it.

BT: *chuckles* Sweet man, thanks.

CK: Yeah, awesome. Well hey, I owe you a lunch at Midwest. So, we'll have to meet up.

BT: We'll have to meet up for sure, but you don't' have to buy me lunch. But we'll absolutely get together.

CK: Awesome, cool. Thanks Ben, we'll talk to you soon.
BT: Thanks Chris.

CK: Alright, bye bye.

BT: OK, bye.