BECAUSE IT WAS THERE:

INFLUENCE AND INTERTEXTUALITY IN THE MUSIC OF MICHAEL HEDGES

A Thesis in

Musicology

by

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ABSTRACT

Over the course of his thirteen-year career, Michael Hedges revolutionized the fingerstyle guitar world through his revolutionary techniques. Despite these innovations, however—or perhaps because of them—Hedges’s accomplishments as a composer have been overlooked. Hedges’s underlying methods link him to a much broader, more celebrated tradition of composers. This thesis considers the music of Hedges from this standpoint, with particular attention to questions of compositional influence. Chapter One establishes Hedges as an “idiosyncratic minimalist” who simultaneously inherits the style from its founders while exercising his direct links to its roots. To do so, this chapter considers minimalism theoretically and culturally to show the complex nature of Hedges’s relationship with minimalism. Chapter Two investigates Hedges’s compositional uses of the Fibonacci Series and Golden Ratio. Tracking his fascination with the subject back to a book investigating the manifestations of the Fibonacci series in Bartok’s music, this chapter adopts this book’s methodology to search for such manifestations in the music of Hedges. In addition to adopting these methods, Hedges created his own ways to incorporate the Fibonacci series into his music. Through formal analysis and a study of Hedges-lead master classes, this chapter will explore his personal means of incorporating the Fibonacci series. By investigating Hedges’s interaction with minimalism and the Fibonacci series, this thesis positions Hedges as a composer with an extended arsenal of compositional techniques. On a broader level, this thesis further informs exploratory conversations regarding the interaction between classical and popular music.
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Introduction

On a winter evening in 1980, William Ackerman, founder of the record label Windham Hill, climbed the stairs to the second level of The New Varsity, a Palo Alto-based movie theater. Having arrived early for the film, Ackerman had time to spend and, at the behest of the theater’s owner, opted to listen to a guitarist playing to an audience of movie-goers. Entertaining the small crowd that evening was Michael Hedges, an Oklahoma native and unknown talent studying computer music at Stanford. Twenty minutes later, Ackerman descended the stairs with a cocktail napkin in hand. On the napkin he had scribbled a makeshift contract stating that Hedges would record an album under his label. On hearing Hedges for the first time that night, Ackerman recalled, “Michael tore my head off. It was like watching the guitar be reinvented.”

Ackerman’s comments typify the reactions of Hedges’s audiences throughout his career. After the release of Breakfast in the Field (1981) and Aerial Boundaries (1984), Hedges amassed a cult-like following. Devotees tried desperately to recreate what they heard on albums and saw in concerts. While his standard fingerpicking approach to the acoustic guitar linked Hedges to the likes of Leo Kottke and even William Ackerman himself, his pervasive use of techniques such as percussive slaps on the body of the guitar, two-handed tapping, and artificial harmonics separated Hedges from his peers. Eager to relay his catalogue of techniques, editors of magazines including the high-circulating Guitar Player and Fingerstyle Guitar transcribed these pieces for general audiences, fueling Hedges’s notoriety. Through these transcriptions, guitarists such as Kaki King and Andy McKee inherited not only Hedges’s extensive repertoire of technique, but a

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spirit of freedom in the approach to the instrument which has invariably touched players of fingerstyle today.

While Hedges’s playing reimagined the possibilities of the guitar, his style of music also pushed the boundaries of Windham Hill’s reputation. As a vehicle for New Age music, Windham Hill marketed escapist pieces designed to divert and soothe. In a counter-cultural move, New Age music eschewed the tension-and-release paradigm that dominates Western music, replacing it with stress-free music or what pianist George Winston calls “sound incense.”

Hedges’s complex relationship with Windham Hill’s velvet revolution had several dimensions. On one hand, his pointillistic “Breakfast in the Field” (1981) and hypnotic “Rickover’s Dream” (1984) suited the label well. Hedges’s intense pieces such as the blisteringly fast “Peg Leg Speed King” (1981) and the dramatic “Aerial Boundaries” (1984) however, challenged the label’s mission for calming music. These two pieces represent Hedges’s broader corpus of music where he experimented with the avant-garde that brought him to California in the first place. On some issues, Windham Hill would cater to Hedges’s ventures beyond their aimed brand as was the case when, in 1985, he approached the label with a collection of singer-songwriter pieces. After deciding the pieces did not fit the label’s style, Windham Hill elected to start a subsidiary label in order to sell these pieces as an album titled Watching My Life Go By (1985). As his first commercial venture of this type, Watching My Life Go By featured Hedges as a singer-songwriter accompanying himself on plectrum-driven guitar. A far cry from the flashy

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instrumentals that afforded him distinction, the album boasts of an intimacy concerned primarily with lyrics.

Watching My Life Go By marked a turning point in Hedges’s career. While its success warranted further experimentation outside of the confines of fingerstyle guitar, it also marked a decline in his cerebral approach to composing. Within this freedom, Hedges experimented in new styles, supplementing the lack of avant-garde classical influence in his music with an introspective pathos. In his next studio album, Taproot (1990), Hedges melded the fingerstyle orientation of previous albums with the use of a pick introduced in Watching My Life Go By. More significantly, Taproot features a collection of other instruments such as the electric guitar, flute, and saxophone. With all of these instrumental forces at his disposal, Hedges created his most pensive album to date—an “autobiographical myth told through music” where individual pieces symbolize key figures in Hedges’s life including his wife, sons, and father.4 Later albums continued on this trend of mixing fingerstyle pieces with other performing forces; The Road to Return (1994) relies on vocals supported by a multiple instruments at once while Oracle (1996) signaled Hedges’s modified return to fingerstyle guitar.

Fans received these ventures with mixed feelings, but Hedges stood by his decisions, claiming he was a “composer who plays guitar, not a guitarist who plays compositions.”5 By the time of his tragic passing in 1997, Hedges had released seven albums, contributed to a number of sampler records for Windham Hill, and scored a few soundtracks for short films. In 1999, Hedges’s estate released Oracle, an album of pieces Hedges failed to complete before his death, which earned him a posthumous Grammy that year.

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4 Matt Guthrie, “Nomad Land,” Nomad Land, the Michael Hedges Website.

Despite his success beyond the confines of fingerstyle guitar, Hedges ultimately is remembered only for those contributions. Obituaries focused on his revolutionary techniques and still today Hedges’s legacy continues most strongly in fingerstyle circles. Perhaps this is appropriate, given his equivocal role in propelling the style. But what, one may ask, is lost when Hedges is approached solely as a guitarist by those fascinated by videos of his performances? How might Hedges’s legacy change if his repertoire is engaged in the same way one approaches a classical composer’s music? This thesis will make a first attempt at considering the music of Hedges from such a standpoint, with particular attention to questions of compositional influence. Because of his tutelage under the highly-progressive composers including Morris Cotel and Jean Eichelberger Ivey of the Peabody Conservatory as well as Eugene Ulrich of Philips University, these influences root themselves largely in twentieth-century music that concerns itself with elements other than harmony. Thus, I will largely avoid harmonic content and instead focus on two main technical issues: Hedges’s minimalist tendencies and his formal implementations of the Fibonacci Series.

In Chapter 1, I will explore Hedges’s relationship with minimalism, first by surveying his own explicit acknowledgements of that influence on his music. These remarks, however candid, fail to pinpoint how these influences manifested themselves compositionally. I will account for the latter by considering particular minimalist features in Hedges’s works “Aerial Boundaries” and “Spare Change,” which I will compare with models in works by Steve Reich, LaMonte Young, Philip Glass, and Terry Riley. This chapter will focus primarily on similarities in motivic development and form. To illuminate the philosophical side of their compositional practice, the prominent role of non-Western music in the lives of the minimalists and Hedges will also receive
attention. Lastly, this chapter will conclude with a consideration of shared inspirations between Hedges and the founding minimalists.

In Chapter 2, I will investigate Hedges’s formal applications of the Fibonacci Series and the Golden Ratio. Beginning in his student years, Hedges became interested in the Fibonacci Series and its occurrences in Bartók’s music, directing his attention particularly to the analytical work of Ernő Lendvai. Adopting the techniques of Lendvai, I will inspect evidence of the Golden Ratio in Hedges’s music and attribute its debt to Bartók’s Golden Ratio usage. Also, early in his career, Hedges wrote a piece titled *Modulors*, an overt reference to Le Corbusier who developed the architectural tool for which the piece is named. In order to understand that tool’s relevance, the philosophies behind the advent of the Modulor will be analyzed within both *Modulors* and Hedges’s general philosophy on music-making.

The compositional tactics studied in this thesis come from pieces of varying fame. Whereas “Aerial Boundaries” and “Rickover’s Dream” are among Hedges’s best known pieces, his student compositions, such as *Modulors*, remain less popular due to a lack of circulation. Nonetheless, all of these pieces are the fruit of Hedges’s aspiration to mobilize that which he learned from studying classical music. In the case of the minimalist-inspired pieces, Hedges’s interaction with minimalism informed multiple aspects of the piece. Not all of Hedges’s maneuvers are as transparent however, as evidenced in his Bartókian employment of the Fibonacci Series. Despite its prevalence in his repertoire, these instances of avant-garde influence evade audible perceptivity. Because of this reality, this thesis does not account for the totality of Hedges’s catalog or its wide-spread ramifications. Instead, these case studies delve

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into the finer points of select pieces in an effort to understand deeply Hedges’s dedication to preserving the experimental ideas. Despite Hedge’s deviation from his cerebral approach later in his career to pursue more commercially-friendly music, these pieces remain a testimony to Hedges’s ability to compose intellectually.

An understanding of Hedges in all of these facets reveals the distinctive nature of his compositional style and sheds light on his music’s expressive power. Thanks to his innovations in playing technique, Hedges enjoys a legacy as one of the greatest fingerstyle guitarists in the history of the style. But he was more than an interesting player. This thesis will reveal Hedges as a major figure in the popular/classical interplay common in the mid-twentieth century. As such, this study can serve as a model for future research and a useful contribution to scholarly work on the interaction between popular and classical music.
Chapter 1: Michael Hedges as Minimalist

Of all of his classical influences, none had as direct and tangible an impact on Michael Hedges as minimalism. As a musician raised in the 1960s and ‘70s, minimalism’s prime, Hedges naturally responded to this influence. By the time he left Peabody in 1981, minimalism had established itself as, if nothing else, a viable source of income for composers. Reich had already published *Music for Eighteen Musicians* (1978), and Glass’s *Einstein on the Beach* (1976) was five years old. Popular musicians, such as Brian Eno, had since adopted drone and repetition techniques pioneered by Riley and Young. Minimalism had seeped into other musical traditions—making happenstance encounters with it inevitable, and Hedges, like many of his contemporaries, incorporated its tenets into his own compositional style.

To survey Hedges’s relationship with minimalism, I will investigate similarities between the interaction of Hedges and the founding minimalists with non-Western music and shared inspirations. Also, I will explore technical components of Hedges’s minimalist music, considering the roles minimalist founders played in their conception and use. Alongside this focus on technical construction, the fruit of minimalist influences in Hedges’s music that evade empirical analysis, such as timbre, will receive attention.

By exploring his involvement with non-Western music, Eastern spirituality, and common use of landscape or terrain as inspiration, I propose that Hedges developed concurrently with the minimalist movement as a contributing individual under similar cultural conditions. Though not recognized as a minimalist, Hedges appropriated stylistic tendencies of founding minimalists, particularly Steve Reich, through the embracing and adaptation of compositional techniques such as a steady eighth-note pulse and additive motivic development. By outlining the inspiration Hedges shared with minimalists and that which he borrowed from them, this chapter establishes
general trends in Hedges’s interaction with minimalism that position him as a minimalist himself, albeit an unorthodox one.

Michael Hedges as Idiosyncratic Minimalist

Although not a committed devotee to the style, Hedges frequently called upon minimalist techniques. The influence is especially prominent in his best-known pieces, such as “Aerial Boundaries,” “Spare Change,” and “Rickover’s Dream,” all of which appear on his most commercially successful album, *Aerial Boundaries* (1984). Minimalism’s influence stretches beyond his signature album however, to such pieces “The Double Planet” (1986), “Because It’s There” (1987), and “Larry’s Instrumental” (1986). Among the minimalist features of these works, the most prominent are the reliance on an eighth-note pulse and motivic development through additive processes. I will examine the use of these two features within Hedges’s repertoire and ascribe their particularities to well-known minimalists from whom Hedges borrowed.

**Eighth-Note Pulse and Propulsion**

Often seen as a cornerstone of minimalism, the eighth-note pulse represents the strongest link between Hedges’s music and that style. Certainly other aspects such as phase shifting and looping unite Hedges and minimalists, but no compositional technique does so more than this idiomatic pulse. Initially a practical tool for synchronizing players in Riley’s *In C* (1968),⁷ the single repeated note infiltrated other pieces as well. Except for Young’s experimentation with drones or the ever-patient Reich piece, *Four Organs* (1970), the pulse became the salient feature for the minimalist movement. Although pieces preceding it imply a pulse, *In C* generally boasts

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the title of the “typical pulse piece” whose explicit pulse established the standard for future minimalist pieces.8

For Hedges’s minimalist pieces, no other feature appears more systematically than this pulse. Reaching beyond the infamously minimalist “Aerial Boundaries,” a steady pulse undergirds pieces such as “Rickover’s Dream,” “Spare Change,” “The Double Planet,” and “Because It’s There.” To some degree, the reliance on this technique is practical – in polyphonic pieces, a constant pulse is easier to create on the guitar than a melodic line. Recognizing this practicality, Hedges employed hammer-ons and pull-offs with his left hand, resulting primarily in a steady teetering between two notes produced by the fretted string and the open-string in alternation. Underneath this line Hedges typically inserts melodic bass lines, as is the case in “Aerial Boundaries,” “Because It’s There,” and “The Double Planet.” Measures 13 and 14 of “Aerial Boundaries” display this interplay of pulse and melodic bass. Following the upper staff, the left hand continues an ostinato built primarily on an eighth-note pulse. The lower staff which dictates the right hand contains the accompanying bass melody (see Example 1).9

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Often considered a sister-piece to “Aerial Boundaries,” “Because It’s There” follows a similar template. In mm. 16–20, Hedges once again pits a melodic bass line against a steady eighth-note ostinato (see Example 2). Whereas these two pieces rely on the interplay between clearly demarcated bass and treble parts, “The Double Planet” blurs the division of these roles. Initially the melody resides in the treble voice, intertwined with the pulse, before dropping to the bass strings of the harp guitar. After this attempt at creating registral separation, the melody remains doubled on the octave and retains the interweaving between melody and accompaniment with which the piece began (see Example 3).

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Hedges also creates eighth-note propulsion via arpeggiation in pieces such as “Larry’s Instrumental,” “Rickover’s Dream,” and “Spare Change.” When this arpeggiation appears in his solo guitar repertoire, Hedges often employs timbral diversity to establish independent voices. This timbrally-oriented approach characterizes the majority of “Rickover’s Dream,” for example. After laying a foundation with muffled harmonics, Hedges eventually allows unmuted harmonics to sound through the texture creating at once soaring lines and staccato arpeggiation all with the use of harmonics (see Example 4). In his tape pieces and compositions for ensemble, on the other hand, Hedges merges melodic lines with these arpeggations, but generally arpeggiations remain intact. The preference for keeping the arpeggiation intact, when the technical possibilities of the instrumentation allow for it, suggests Philip Glass’s influence on Hedges. In his mature compositions, Glass puts arpeggiations in the foreground where they are easily recognized. Rather than diverting from this pattern, Glass tends simply to arpeggiate a new chord and

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alternate between these two chords rather than break the pattern of arpeggiation. Examples abound, but this easily recognized technique occurs in his well-known music for *Einstein on the Beach* and *Koyaanisqatsi* (1983).

Hedges’s fondess for arpeggiation suggests minimalist roots, but he applied it with considerable differences in the treatment of harmony. Instead of employing harmonic changes, Hedges’s arpeggations typically remain stagnant, hovering around a steadfast ostinato. This trait is particularly evident in “Rickover’s Dream” where the harmony remains on a G major chord with an added scale degree four for its opening sixteen measures. Gruelingly patient harmonic rhythms mark many of Hedges’s pieces. Discussing “Bensusan,” Hedges remarked, “I’m not able to think quickly from chord to chord a lot of the time, so I’m not really harmonically active in a fast way.”

In another composition masterclass, he went as far as to say that his harmonic approach in the minimalist “Because It’s There” blurs tonality, only to reveal it periodically before shifting it. The strength of this piece, according to Hedges, exists not in the relationship between chords, but in the degree to which it ambiguates tonality. During the portions of the piece with an established key, Hedges again relies on the slow harmonic rhythm mentioned above. Such a stance marks an important divergence from Glass, despite the shared use of arpeggiation.

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Melodic Development through Additive Processes

Whereas the shared use of continuous pulse links Hedges with all four of the self-proclaimed minimalist founding fathers, Hedges’s motivic development, particularly his use of additive processes within his minimalist work, has more in common with the music of Glass and Reich than that of Young or Riley. Although he never explicitly claimed that he had adopted their melodic technique, Hedges cited Glass and Reich as influences on several occasions. In an interview discussing the conception of “Aerial Boundaries,” Hedges aligned his music with that of the two composers:

When someone has an idea that hasn’t been done before, the music really doesn’t have to be groundbreaking. It’s the idea that I did it on guitar. There’s plenty of minimalist pieces that Steve Reich has written, also Phillip Glass, but I don’t think too many people had written a piece for solo guitar that was minimalistic. Aerial Boundaries is a minimalistic piece.¹⁵

In several contexts Hedges openly acknowledged Reich’s influence. He included Steve Reich in the acknowledgements alongside his friends and family in the liner notes for Aerial Boundaries.¹⁶ On An Evening With Windham Hill Live (1982), Hedges dedicated a live version of the piece to Reich.¹⁷ In spite of this willingness to admit his debt to Reich and (to a lesser extent) the other minimalists, he never mentioned his use of their melodic compositional techniques. Nonetheless, Hedges’s additive processes in his minimalistic music seem to be derived from a combination of Reich and Glass.


Looking at Glass’s early work, one can see the central role of additive processes. Indeed, some of Glass’s pieces consist solely of this technique, such as Music in Contrary Motion (1969), Two Pages (1967), and Music in Fifths (1969). Working with melodic chunks, Glass repeats them and, with each repetition, adds notes to the motive, as is the case in Two Pages (see Example 5). After thirty-four repetitions of the germinal five-note motive G–C–D–E-flat–F (Example 5, m.1), Glass adds a second iteration of the first four notes of this motive to the seed which, now as a nine-note motive, repeats eighteen times (Example 5, mm.1-2). By the time Glass reaches rehearsal 4, the motive has grown to a length of fourteen notes (Example 5, all measures). Although the rest of the piece oscillates between adding to and subtracting from this original seed to become a study of blurred meter, it establishes the precedent of an additive texture as a separable technique that other composers might adopt.

While Glass eventually gravitated away from additive melodies, Reich’s use of additive melodies remained an important feature of his style. After outgrowing his phasing stage, Reich relied more deeply on additive melodies. Unlike the practice of Glass, these melodies begin as extremely short motives, often as short as one note. After several repetitions, another note is added to the measure, which is repeated again. To fully unwind a melody takes considerable time, so these melodies grow while other textural changes occur. This technique exists amongst the rich textures of Music for 18 Musicians. In the second movement, Reich presents a major third in the clarinet which is to be repeated three to five times. The next measure adds a minor

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third that precedes the original major third and this too is repeated three to five times. This pattern of adding a harmonic interval on each repetition continues in the clarinet until it develops into the full motive (see Example 6).  

![Example 6](image1)


Precisely this technique forms the basis of Hedges’s minimalist music. After the aforementioned ostinato appears in his “Aerial Boundaries,” Hedges introduces the whole step (C-D) that acts as the piece’s motivic seed. Following its repetition, the seed adds a third note, A, sounded twice. A fourth repetition adds two more notes, G and A, before launching into the fully-realized theme which dwarfs the earlier repetitions by comparison (C–D–A–A–G–A–G–A–A–B–G–A–A–C–D–A–A–G–A) (see Example 7).  

![Example 7](image2)

Example 7. Rhythmic reduction of “Aerial Boundaries,” mm. 7-14.

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While less structurally important, the introduction to “Layover” (1981), a piece predating “Aerial Boundaries,” also illustrates this additive motive technique (see Example 8).\textsuperscript{21} Out of complete silence, Hedges conjures two artificial harmonics (D and E) and, after a brief pause, repeats the motive adding a third note (D–E–G). On the third and final iteration, the motive lengthens before concluding the introductory portion of the piece (D–E–G–A–C–D–E–G–B). In this brief section, Hedges adheres to this additive tenet strictly as each repetition contains an unaltered previous segment.

Taking up the practice of Reich, Hedges uses the additive compositional technique to develop shorter motives that combine to form larger textures. In this respect, Hedges’s music more closely resembles that of Reich than Glass, despite the fact that both composers developed the technique. Whereas Glass uses this additive technique to create a piece consisting of a single line, Reich employs this technique to serve the greater purpose of textural shifts where recognizable motives gradually emerge from the textural milieu of the piece. Generally imperceptible at first due to their brevity, these motives seem to surface over time because they are actually being gradually formed. While the seeds of the full-fledged motives are easily

\begin{example}

Example 8. “Layover,” m.1.

\end{example}

tracked, listeners might not consciously perceive the motive’s origins until the piece is well into its development because of the diverting texture by which it is surrounded.

The opening section of “Rickover’s Dream” again shows Hedges adapting Reich’s technique of textural composition. Into a mixture of natural harmonics and muted taps, Hedges inserts a two-note motive (C–B) that dwells within the texture as much as it stands as a motive on its own. In an upper voice, the C, once confined to a quarter note, is augmented to a duration of seven beats as the pattern of alternation in the lower voice breaks into a descending line. After eight beats, the upper voice descends a half step, completing the melodic motive, while the lower voice continues in an undulating pattern. The piece’s motive existed all along, but was obscured by the alteration between note and rhythmic hit. With Reichian sleight of hand, Hedges gradually allows the motive to appear (see Example 9). Although the piece’s subsequent sections deviate from this model, this additive section occupies thirty seconds of the four-minute piece, a significant portion. This accelerated use of Reich’s technique is common in Hedges’s music. Whereas a motive’s development may take several minutes in compositions by Reich, Hedges expedites the process, resulting in considerably shorter pieces than the early minimalist experiments of Reich. Hedges did not simply appropriate Reich’s additive processes and textural method, then, but applied listener-friendly modifications.


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Use of Aural Effects

While much of Hedges’s music resembles that of Reich on paper, the aural effect of Hedges’s recorded music points to a Glass influence, primarily in the realm of timbre. Unlike Reich, who prefers classical or acoustic instruments, Glass favors electronic ones, especially the electronic organ. Hedges’s affinity for Glass’s timbral palette does not come as surprise considering that the curriculum of Hedges’s B.M. in composition at Peabody focused heavily on electronic music. One important example from these student years is an electronic piece titled “Spare Change” consisting solely of tape manipulations of recorded acoustic guitar. Incorporating reverse guitar tracks with gradual attacks resembling electronic organs and heavily panned melodic lines, the result was particularly Glassian. Before “Spare Change” would become commercially available, a live version entered the market as part of An Evening with Windham Hill Live. Joined by Michael Manring on bass guitar and Liz Story on piano, Hedges made this arrangement free of the overdubbing and reverse tracks of the original. As expected, this version resembles more closely the work of Reich, further affirming the harmonic, melodic, and textural debt Hedges owes to Reich, and the timbral influence of Glass. Steven Miller, the producer of Aerial Boundaries, supports this perceived divide claiming that “musically” the piece resembled Reich, but the timbral aspects pointed toward Glass:

We were very aware of Phil Glass’s stuff, even though [Aerial Boundaries] is more Reichian than Glass. When he came up with the idea of the backwards acoustic guitar, it seems to me that it turned tonality [or timbre] more Glassian because those organ pieces that Glass did didn’t have strong attack.23

Having just completed the production of the Reich-inspired Vapor Drawings (1983) by Mark Isham before working on Hedges’s album, Miller noted the similarities among Vapor Drawings, the piece resembled Reich, but the timbral aspects pointed toward Glass:

23 Steven Miller, (Producer on Aerial Boundaries), in discussion with the author, June 4, 2018.
Reich’s music, and “Spare Change”: “We [Mark Isham and Steven Miller] were doing very Reichian things on that record and when I came back from London and played [for Hedges] what we were doing, he was like, ‘Oh!’ That definitely added to how he had ‘Spare Changes’ in his head.”

On the surface, influences on Hedges’s minimalist style seem easily divided—attributing his use of a constant pulse to the movement as a whole, his additive processes to Reich and Glass, his textural composition to Reich, and his aural effects to Glass. Certainly, these trends apply on a general level, but, as the Miller quote above suggests, their nuance must not be overlooked. When overstated, as in the common assertion that Hedges looked solely to Glass for guidance in his use of aural effects, these trends become the antithesis of Hedges’s stance as a composer. As a self-described “hunter-gatherer,” Hedges took pride in his ability to find inspiration anywhere and apply it without regard to genre. Simply put, the trends observed above are no more than that—legitimate avenues through which Hedges approached his minimalist music, not exclusive, absolute models.

Hedges as Authentic Minimalist

In his usage of the eighth-note pulse, general textural techniques, and additive processes, Hedges owed a great debt to the minimalists before him, and one he readily acknowledged. Whereas the technical aspects of his minimalist pieces are idiosyncratically manipulated, Hedges shared inspirations and influences with other minimalists, such as interests in non-Western music and Eastern spirituality as well as a mutual inspiration of terrain. By investigating these areas in

24 Steven Miller, (Producer on Aerial Boundaries), in discussion with the author, June 4, 2018.

this chapter, I will argue that Hedges’s direct connection to the influences behind minimalism as a movement makes him a legitimate contributor to that movement.

**Hedges and Non-Western Music**

While the early appeal of minimalism could be attributed a variety of factors, from its association with psychedelic drug use to its rejection of Schoenberg’s “intellectual” music, Hedges admired the movement in part because of the interest in non-Western music he shared with minimalism’s best-known practitioners. Just as every founding member of minimalism had a deep relationship with non-Western music, so too did Hedges draw from these traditions. For La Monte Young and Terry Riley, non-Western music influenced their early works before they began studying in earnest the music from which they borrowed. Before devoting his life to this music, Young felt drawn to Indian music because of its use of drone which he eventually adopted as one of his creative specializations. The expressive capabilities of non-Western music impacted Young, especially after he heard them in the singing of Pandit Pran Nath. Young eventually became his disciple, focusing largely on vocal music in pursuit of these expressive capabilities and an understanding of the unfolding motives that foster them. In particular, Young found it significant that Indian music, a “classical form,” involved improvisation – a matter dear to his heart given his training in jazz.

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26 Keith Potter, *Four Musical Minimalists*, 27.

27 Potter, 28.


Terry Riley, a jazz musician like Young, also admired the improvisatory nature of Indian music.\textsuperscript{31} This interest in improvisation and the use of minute amounts of material and cyclic techniques, simultaneously drew Riley to Moroccan and North African music, which manifested itself among other places in his reliance on these features in his epoch-making \textit{In C}.\textsuperscript{32} In the footsteps of Young, Riley became a disciple of Pandit Pran Nath, immersing himself in classical Indian music.\textsuperscript{33}

The other two founding minimalists, Steve Reich and Philip Glass, also turned to non-Western music for inspiration. After becoming enamored with West African music, Reich received a grant to travel to Ghana to study African music for a year.\textsuperscript{34} Although illness shortened the trip, Reich cites this experience as crucial. During his stay, Reich took private drumming lessons which he would record for later analysis since his teacher taught solely by rote.\textsuperscript{35} Although Reich would never write for the traditional instruments on which he learned this music, he found that these lessons suggested approaches to form and texture that would become cornerstones of his style.\textsuperscript{36}

Like Reich, Philip Glass’s interaction with non-Western music came largely through hands-on experience. Working alongside Ravi Shankar to compose film music for \textit{Chappaqua

\begin{itemize}
  \item \textsuperscript{31} Keith Potter, \textit{Four Musical Minimalists}, 103.
  \item \textsuperscript{32} Potter, 103.
  \item \textsuperscript{33} K. Robert Schwartz, \textit{Minimalists}, 42.
  \item \textsuperscript{34} Keith Potter, \textit{Four Musical Minimalists}, 205.
  \item \textsuperscript{35} K. Robert Schwartz, \textit{Minimalists}, 71-72.
\end{itemize}
(1967), Glass inherited the task of transcribing the Indian music to standard notation for studio musicians unfamiliar with these traditions to read. This arduous task, Glass explained, taught him the expressive intricacies of the music. Glass’s duties for the film did not cease at transcription; he also composed alongside Shankar, which required that he understand salient features of Indian music in order to complement them with his own music. Outside of the work on this film, Glass travelled extensively through North Africa, Central Asia, and India, absorbing the music he encountered.

Though Hedges lacked his minimalist forerunners’ training in non-Western music, he cited Indian music’s strong impact on own compositions. Moreover, of all his influences outside pop-music spheres, Indian music would be the one Hedges discussed most. In comments to the audience during performances, he often mentioned his love of this tradition. Hedges particularly valued the rhythmic acceleration of ragas, despite its failure to appear explicitly in his repertoire. In front of a Baltimore audience in 1983, Hedges explained this fascination: “Have you ever tried to start playing slow and accelerate very evenly for ten minutes? To me it was just… Mike [Michael Manring] and I were lying around imagining what that would be like.”

While the gradual rhythmic acceleration of ragas did not directly affect Hedges’s music, ragas’ accent on rhythm proved a central inspiration. According to Manring, a long-time friend and touring partner, the rhythms of Indian music along with African and Afro-Cuban music led

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38 Potter, 285.


41 Michael Hedges, concert recording, Baltimore, Maryland, October 31, 1983, MP3.
Hedges to adopt altered tunings that allowed for heavily accented guitar playing.\textsuperscript{42} Because of the important role alternate tunings played in Hedges’s legacy, their source is of considerable interest; here Manring’s statement challenges the prevailing notion that Hedges adopted altered tunings from Joni Mitchell.

While the DADGAD tuning Hedges used for his Indian-inspired “Ragamuffin” was commonplace before his use of it, the tuning of “Aerial Boundaries” (CCDGAD) represents a more radical experiment related to Indian music. In an interview on the piece, Hedges claimed that the ostinato undergirding it copies exactly some doumbek-playing he encountered in San Francisco.\textsuperscript{43} Given the primacy of rhythm to the piece’s identity, it seems that this Indian rhythm, more than any other individual aspect, dictated the tuning of “Aerial Boundaries.” Hedges’s commentary on another rhythmic-centric piece, “Rootwitch,” reaffirms the connection between the percussive style he desired and its consequent tuning. In a composition masterclass, Hedges admitted that the piece consists of “just drumming” made possible by its specific tuning.\textsuperscript{44} Thus, it stands to reason that a desire to replicate an Indian rhythm strongly influenced Hedges’s tuning for “Aerial Boundaries,” perhaps his most successful work with the public.

Hedges directly asserted that the ostinato in “Aerial Boundaries” took advantage of its specific tuning by replicating the doumbek rhythm: “[It] is a direct copy rhythm of the doumbek

\begin{example}[h]
\centering
\includegraphics[width=0.5\textwidth]{example10.png}
\caption{Example 10. “Aerial Boundaries,” mm. 1-2.}
\end{example}

\textsuperscript{42} Michael Manring, (Friend and musical collaborator with Hedges), in discussion with Will Houston, November 24, 2014.

\textsuperscript{43} Andrés Rojas, “Michael Hedges Interview – Aerial Boundaries.”

\textsuperscript{44} Michael Hedges, masterclass recording, Oberlin, Ohio, September 22, 1989, MP3.
beat. When I applied that to guitar, it just started to fit.”

The doumbek rhythm undergirds Hedges’s rhythmic ostinato as shown in Example 10. Hedges heard this music in Casbah, a club that regularly held belly-dancing—hardly the international fieldwork of Reich or Glass, but a source of non-Western influence nonetheless. Much to the chagrin of the dancers, Hedges focused on their band, captivated by the doumbek in particular. Only after establishing this rhythm would Hedges develop the piece, making this rhythm fundamental to the music’s compositional development. To realize this rhythm on guitar, Hedges turns to one handed tapping where the left hand frets those two strings tuned to a perfect fifth (G–D) on the second fret, resulting in the notated fifth (A–E). This accessibility is necessary since, later in the piece, Hedges inserts a bass motive made possible by plucking open strings with his right hand. Within this piece’s arch form, this ostinato acts as bookends and surfaces intermittently, creating coherence between the various sections. Because a majority of the melodic material remains in the bass register, this ostinato hovers over the music almost constantly, getting lost occasionally behind contrasting bass lines and chordal explosions. As a result of the constant presence of two separate registers, the piece’s feasibility and consequent reliance on an Indian rhythm rely on the specific tuning, CCDGAD. Whereas this well-known piece by Hedges turned skyward for

45 Andrés Rojas, “Michael Hedges Interview – Aerial Boundaries.”


47 Andrés Rojas, “Michael Hedges Interview – Aerial Boundaries.”

48 Andrés Rojas, “Michael Hedges Interview – Aerial Boundaries.”

49 Andrés Rojas, “Michael Hedges Interview – Aerial Boundaries.”
inspiration, its rhythmic core endures in its Indian roots as a testament to Hedges’s engagement with non-Western music.

Further exemplifying his engagement with Indian music is the fourth piece on *Aerial Boundaries*, “Ragamuffin.” What began as a “medieval English piece,” according to Hedges, quickly became a conglomeration of world influences as the ragas that Hedges had been avidly studying invaded the piece. The result is unmistakably cosmopolitan; while the A section of the piece is true to its “English” roots, the B section takes a drastic turn. Following an aggressive slap to the body of the guitar, the piece erupts into a raga-esque texture complete with an Indian-inspired mode. The issue of the degree to which Hedges sought authenticity in his adaptation of Indian music pales in comparison to the significance of his willingness to actively pursue an Indian sound. So palpable from his perspective was the aura of the Indian influence, Hedges changed the pronunciation of the title from the traditional “Ragamuffin” to “Rah-gah-muffin.”

Clearly, Hedges sought not only to adopt techniques from Indian music as is the case in “Aerial Boundaries,” but also to engage with this tradition from his point of view as both a muse and compositional end goal. In his direct contact with Indian music, Hedges joins the company of the founding minimalists, all of whom had extensive exposure to non-Western music.

**Michael Hedges and Eastern Spirituality**

For some of the founding minimalists, non-Western sources influenced their spirituality just as much as their compositional practices. Though Reich avoids this philosophical dimension, Riley and Young each interact significantly with Eastern spirituality and their experiences impact

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50 Michael Hedges, concert recording, Baltimore, Maryland, October 31, 1983, MP3.

51 Michael Hedges, concert recording, Baltimore, Maryland, October 31, 1983, MP3.
their music.\textsuperscript{52} For Riley, much of the exposure to Eastern spirituality came through contact with Pran Nath, a Muslim and Buddhist musician under whom both Riley and Young studied.\textsuperscript{53} Although this tutelage shaped Riley’s worldview more than his music, links between spirituality and music exist.\textsuperscript{54} Riley describes himself as a “transcendentalist,”\textsuperscript{55} citing the constant eighth-note pulse so prominent in his music as a “somewhat Eastern method of getting far out.”\textsuperscript{56} Echoing Buddhist principles, Riley presents his music as a method of escape or a doorway to another reality. Likewise, Riley asserts that there is a spiritual aspect to intonation or playing perfectly in-tune with others.\textsuperscript{57} Inasmuch as music plays a role in one’s escape from this reality, according to Riley, it also plays a critical role within it, since intonation manifests itself in the physical world.

Young’s sentiments on the interaction between music and spirituality resemble those of Riley. As with Riley’s experiential goals, Young aims for his music to foster a kind of transcendence. Perhaps more than Riley however, he expresses the weight of this goal, explaining that, “if people don’t get carried away by my music, it is a failure.”\textsuperscript{58} Once again,

\textsuperscript{52} Wim Mertens, \textit{American Minimal Music}, 91.


\textsuperscript{54} Wim Mertens, \textit{American Minimal Music}, 44.


\textsuperscript{56} Wim Mertens, \textit{American Minimal Music}, 91.


\textsuperscript{58} Wim Mertens, \textit{American Minimal Music}, 91.
intonation plays a role in this escape as Young explains that “when the voice becomes perfectly in tune with the drone, with the tambura, it’s like leaving the body and meeting God.” While acknowledging the escapism of his music, this statement reveals the degree to which intonation interacts with spirituality, thus strengthening his connection with Riley. On the subject of spirituality, Young prefers to think of himself as “spiritual” but not “religious,” echoing his teacher’s sentiment that religion causes many of the world’s problems. Like Riley, the Eastern influence within Young’s music surfaces primarily through Eastern spirituality instead of a direct adaptation of musical techniques. Such a stance differs completely from that of Glass who primarily adopts directly from non-Western sources in a purely technical way.

Much like Riley and Young, Hedges incorporated Eastern spirituality in his music-making. Aligning himself with Young either knowingly or unknowingly, Hedges refused to define his spirituality explicitly, claiming that it’s “not Christian or Buddhism.” Nonetheless, Hedges’s spiritual journey was not without a doctrine of sorts, as he subscribed to the instruction of Yin Yogaist Paulie Zink. Based on Taoist principles, Yin Yoga focuses on chi, or energy, and the flow thereof in a practitioner’s body. In a PBS Artist Profile on Hedges aired


posthumously, he described at great length his practices and their effect on his performance. According to Hedges, a blockage of chi can occur in one’s body, which for Hedges occurred after hours of playing in his aggressive, plectrum-centric style causing neck cramps and early signs of Carpal Tunnel Syndrome. Hedges also explained that the Chinese believe blood follows chi, consequently making any chi blockages potential blockages for nutrient-carrying blood. In an effort release these blockages, Hedges studied Yin Yoga, the fruit of which included not only free flowing chi, but also the full-body flexibility he proudly displayed in photoshoots later in his career.

Separating himself from the company of Young and Riley, Hedges never ascribed the spiritual significance to intonation that the former two did. On the contrary, he claimed that music is merely a “language, just a conduit” through which one can “talk trash” as much one can talk “spirit.” Hedges talked plenty of “spirit” however, so Eastern teachings naturally served as more than preventive care. As a frequent guest at the Harbin Hot Springs, Hedges wrote his piece “Dirge” as a farewell to the old self which he felt die away as he alternated between the hot and cold pool. Reflecting on his middle age, Hedges turned to the Tibetan Book of Living and Dying as an inspiration for the piece “Ignition.” Evidence of Eastern spirituality’s effect on Hedges’s music appears in the acknowledgments for Oracle (1999), where he mentioned Paulie

65 whouston33wh, “Michael Hedges on The Artist Profile (Full).”
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Zink.\textsuperscript{71} In an interview regarding the album, Hedges says that the \textit{chi kung}, the flow of energy, inspired his piece “Elements” which Hedges later renamed “Oracle” to match the album’s title.\textsuperscript{72} While it is possible that this acknowledgement simply recognizes Zink’s role in helping Hedges stave off injury, the fact that Hedges included other inspirations such as Steve Reich and Admiral Hyman G. Rickover in the acknowledgements of other albums suggests that Zink’s influence ran deeper than that of a physician.

Paulie Zink was not Hedges’s only exposure to Eastern spirituality, however, as Manring claims that Cage’s use of the \textit{I Ching} interested Hedges.\textsuperscript{73} Evidence of the \textit{I Ching} manifesting itself in Hedges’s music remains to be found, but the timing of his interest undermines prevailing notions that Hedges was uninterested in spiritual matters earlier in his career. The degree to which Hedges understood the \textit{I Ching} spiritually as compared to a compositional technique is unknown, making Cage’s specific role in Hedges’s spiritual identity uncertain.

\textbf{Landscape as Muse}

Along with an interest in non-Western music and Eastern spirituality, Hedges and the minimalists shared a reliance on landscape or terrain as a muse for composition. Perhaps most famous is La Monte Young’s relationship with terrain. Raised in a log cabin in Idaho, Young’s earliest memories consist of his fascination with the sounds of his birthplace.\textsuperscript{74} Whether man-

\textsuperscript{71} Michael Hedges, liner notes for \textit{Oracle}, Windham Hill 2VWH-21008, 1996, compact disc.

\textsuperscript{72} Michael Hedges, interviewed by Matt Guthrie, October 10, 1995, transcript, nomadland.com.

\textsuperscript{73} Michael Manring, (Friend and musical collaborator with Hedges), in discussion with the author, July 17, 2018.

\textsuperscript{74} Keith Potter, \textit{Four Musical Minimalists}, 23.
made or naturally occurring, continuous sounds, such as the hum of a local powerplant or the impact of the wind against his home, captivated him.\textsuperscript{75} From these memories, Young fashioned several compositional techniques including drones and his famous “Dream chord.”\textsuperscript{76} Young affirms the direct connection between space and his music in his fondness for Gertrude Stein’s statement: “The music comes of land.”\textsuperscript{77} Through drones and “dream chords,” the openness of Young’s hometown echoes in his music.

In contrast to Young’s rural upbringing, Steve Reich spent most of his childhood in suburban and urban areas. Nonetheless, landscape acts as a muse for some of Reich’s most famous pieces. \textit{The Desert Music} (1983), for example, relies on the symbolism of the desert in ancient Judaism, early Christianity, and modern history to support the ominous text of the piece.\textsuperscript{78} During their Exodus from Egypt, the Israelites wandered in the desert, wholly reliant on divine intervention for sustenance. To Reich, the presence of God in the desert, an unclaimed region, contributes to the piece’s portrayal of destituteness.\textsuperscript{79} In the New Testament, Jesus goes to the desert to be tempted and “fight madness,” associating the desert with insanity – another aspect of \textit{The Desert Music}.\textsuperscript{80} Lastly, according to Reich, the White Sands Desert and Alamogordo Desert in New Mexico, where weapon testing occurs, contribute an apocalyptic

\textsuperscript{75} Potter, 23.

\textsuperscript{76} Potter, 23.


\textsuperscript{78} Steve Reich, \textit{Writings on Music: 1965 – 2000}, 127.

\textsuperscript{79} Reich, 127.

\textsuperscript{80} Reich, 127.
aspect to the piece. Beyond symbolic levels of meaning, Reich believes that the piece depicts the flatness of the desert. In the orchestral opening of the last movement, Reich claims that the piece conjures up images of someone “out on the plain, running like hell.” Landscape also contributed to Reich’s famous piece *Different Trains* (1988) in which he juxtaposes his trans-American childhood train rides with those of Jewish children in route to concentration camps in Nazi Germany. The piece mostly relies on the personal aspect of these journeys, but the piece has an unavoidable link to geography made clear in the piece’s text which lists numerous destinations for the travelers.

Compared to the other minimalists, Hedges turned to landscape as a muse more frequently and explicitly. Once Hedges laid the rhythmic framework for “Aerial Boundaries,” for example, he looked skyward for inspiration, claiming in an interview that “it became more of a geography; a representation of the Northern Californian sky in the middle of summer.”

Another of Hedges’s minimalist pieces, “Rickover’s Dream,” engages oceanic terrains for development. Originally conceived as “submarine Muzak,” “Rickover’s Dream” represents the Hedges-imagined fantasies of Admiral Hyman G. Rickover, the inventor of the nuclear-powered submarine. Instead of using his invention for war, Hedges believed that Rickover’s “dream” involved the submarine’s use for peaceful, exploratory missions in true homage to the adventurous spirit of the innovator. In front of an audience in 1984, Hedges informed his

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81 Reich, 127.

82 Reich, 128.

83 whouston33wh, “Michael Hedges on The Artist Profile (Full).”


85 Michael Hedges, concert recording, St. Paul, Minnesota, February 1, 1986, MP3.
audiences that they have “descended down to about eighteen thousand leagues” before saying that they “will try to go to about twenty-five thousand leagues” during the piece—an invitation for audiences to experience the aquatic space that inspired the piece.\footnote{86}

Emerging from the depths of the ocean, Hedges looked to outer space for inspiration on another minimalist piece, “The Double Planet.” Initially the piece was composed for a concept album based on the planets of our solar system.\footnote{87} Early in the album’s conception, Hedges received an offer to write the score for a children’s television special, \textit{Santabear’s First Christmas} (1986), which led him to scrap the concept album and use “The Double Planet” on the special.\footnote{88} The degree to which physical features or landscapes inform the piece’s features remains speculative, but given the context of its origin and that Pluto is considered a “double planet,”\footnote{89} it stands to reason that Pluto inspired the composition in some regard.

The year following the release of \textit{Santabear’s First Christmas}, Hedges and other Windham Hill artists collaborated to produce the soundtrack for a documentary on the famed Japanese mountain climber Naomi Uemura.\footnote{90} Fittingly, Hedges employed minimalism to represent the life of a man who conquered landscapes for a living. In a concert a year prior to the movie’s release, Hedges talked about the piece’s development, implying that he knew the scene his piece accompanied by saying, “this is the music for him to go across the arctic tundra with

\footnote{86} Michael Hedges, concert recording, Ashland, Oregon January 17, 1984, MP3.
\footnote{88} Randy Lutge, “‘The Double Planet’ Michael Hedges Varsity Finale.”
\footnote{90} Michael Hedges, concert recording, Wolftrap, Virginia, 1986, MP3.
his huskies.”91 “Because It’s There” underscores precisely such a scene within the film’s opening ten minutes – a fitting manifestation of the muse shared by Hedges, Young, and Reich.

Toward the end of his career, Hedges abandoned his minimalist style, but not before creating a repertoire that cements his status as a contributor to the tradition. As a second-wave minimalist, Hedges necessarily adopted certain features idiomatic to the style. Most notable and pervasive in his minimalist catalogue are the borrowed ideas of a steady, continuous pulse and the additive processes of Reich and Glass. Hedges’s use of texture and timbre also point to Reich and Glass respectively, confirming the degree to which he drew from these minimalists as opposed to Riley or Young. In these cases, Hedges’s creativity engaged not idealized compositional contents, but their feasibility on solo guitar. Although Hedges primarily borrowed such tactics, he employed them to channel sources and inspiration he shared with the minimalists, thus establishing him as genuine contributor to the style. Like the forerunning minimalists, Hedges consumed non-Western sources directly, allowing them to permeate his music. Besides non-Western music, Hedges dealt in Eastern spirituality, a matter dear to the heart of Riley and Young. Lastly, in his use of landscape for inspiration, Hedges aligned himself with Reich and Young. Positioned between originality and adaptation sits Hedges’s minimalist music – a testimony to both his genius and his resourcefulness.

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Chapter 2: Hedges and the Fibonacci Series

To open a masterclass at Oberlin Conservatory, Hedges posed the question Leonardo de Pisa, or Fibonacci, raised in his Liber Abaci (1202):

A certain man put a pair of rabbits in a place surrounded on all sides by a wall. How many pairs of rabbits can be produced from that pair in a year if it is supposed that every month each pair begets a new pair which from the second month on becomes productive?92

Mirroring the confused silence of his audience, Hedges added a second question: “So what does that mean?” Drawing the sequence of consecutive rabbit pairs, Hedges explained its dictating principle: the next number in the pattern is the sum of the previous two numbers. This principle transcends rabbit productivity, according to Hedges, as it also occurs in shells, flowers, and leaves. Over time, this series took on the name the man who discovered it, Fibonacci. After answering the question raised by Fibonacci, Hedges explained that he linked the mathematical legend to music by incorporating it into his compositions. In a way, Hedges answered his second question—this series “means” an infinite number of compositional possibilities.93

Without further elaboration, Hedges’s claim that he “put the Fibonacci series to music” greatly undersells the breadth of his interaction with it.94 As a student, Hedges read extensively on the subject, eventually adopting a Fibonacci-related approach toward composition. This chapter will explore Hedges’s various applications of the series in his published works as well as his student compositions. Using the models developed by Erno Lendvai—a music theorist whom


94 Michael Hedges, “Composition Masterclass.”
Hedges studied and emulated in his compositions, and who uncovered evidence of the Fibonacci series in Béla Bartók’s music—I will show manifestations of the Fibonacci series regarding form and referential pitch collections within Hedges’s repertoire.95 I will also explore cases in which Hedges’s use of the Fibonacci series extends beyond Lendvai’s models, such as the use of Fibonacci numbers as timestamps, and Fibonacci-dictated tunings. Lastly, I will consider Hedges’s aesthetic engagement with the Fibonacci series by investigating Le Corbusier’s “Modulor”—an architectural tool that inspired Hedges’s piece Modulors. With these analyses, I mean to demonstrate that Hedges’s affective persona is complemented by an intellectual side of equal importance. Hedges’s association with the New Age style has often left him unfairly characterized as a composer of “yoga music,” i.e., sentimental, easy-listening ear-pleasers. This chapter’s investigation into his academic slant is crucial if one is to understand Hedges as a composer.

Before continuing, a few terms surrounding the Fibonacci series must be defined. As suggested earlier, the Fibonacci series is a naturally occurring system that produces a value (F_n) by adding together the two values before it in the series (F_n = F_{n-1}+F_{n-2}). As these values grow higher, the ratio between a value (F_n) and the value preceding it (F_{n-1}) approaches 1.618:1.96 Over time, this ratio has been called the Golden Ratio.97 Since Fibonacci raised and solved this question by making its first entry (F_1) one pair of rabbits, the resultant numbers (1, 1, 2, 3, 5, 8, 13, etc.) have been traditionally labeled “Fibonacci numbers.” While the phrase “Fibonacci series” includes these numbers, this term refers also to the function producing it, F_n = F_{n-1}+F_{n-2}.

95 Michael Hedges, “Composition Masterclass.”


97 “Golden Ratio,” Encyclopedia Britannica.
Therefore, a set of numbers where $F_1 \neq 1$ may operate as a Fibonacci series given that it follows the function. Conversely, because the term “Fibonacci series” denotes the function, “Fibonacci numbers” can be removed from their context and used symbolically, just as a composer might use the digits of pi to compose a piece while never incorporating its practical mathematical properties. In his music, Hedges relied on both the Fibonacci series as a function and Fibonacci numbers as acontextual symbols.

While Hedges encountered the Fibonacci series throughout his academic career, his primary contact came through the music of Bartók. According to Michael Manring, a friend and musical collaborator of Hedges, Bartók was an enigma to their generation, someone whose mystique Hedges venerated and whose compositional techniques he copied. Discussing his Bartókian “Breakfast in the Field” in a concert, Hedges disclosed the degree to which he imitated Bartók. Impressed by the perceptual “flatness” of the quintal chord that opens the second movement of Bartók’s Piano Concerto No.2, Hedges sought to write a piece featuring this sonority. To do so Hedges tuned his guitar to the opening chord of the Bartók piece.

Figure 11 The opening chord of Bartók’s Second Piano Concerto (Left) and Tuning for “Breakfast in the Field” (Right).

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98 Michael Manring, (Friend and musical collaborator with Hedges), in discussion with the author.

from this sonority, Hedges created the piece by moving the chord’s upper and lower halves in contrary, parallel, and oblique motion, in a treatment similar to that of Bartók. Thus “Breakfast in the Field” is Bartókian at its core.

Hedges’s admiration of Bartók ran deeper than the use of imitative tunings. Particularly influential on his compositional method was a collection of Fibonacci-centric analyses by Erno Lendvai titled *Béla Bartók: An Analysis of his Music*. Through Lendvai’s work, Hedges discovered ways of incorporating the series into his own music, and Lendvai’s methods, in turn, can be applied to Hedges’s music. In the following section, I will use Lendvai’s approaches to form and referential collections to show the manifestations of the Fibonacci series in the music of Hedges.

**Acoustic-Scale Chord and Custom Tuning**

According to Lendvai, the intervallic content of Bartók’s music comes from one of two systems: chromatic or diatonic. Bartók’s chromatic system consists of the major second, minor third, perfect fourth, minor sixth, and an “augmented octave.” Conventionally measured, this group of intervals seems unimportant, but when considered as half steps the collection turns into the following set of Fibonacci numbers: 2, 3, 5, 8, 13. Conversely, the diatonic system is “simply an exact and systematic inversion of the laws of [Bartók’s] chromatic technique, i.e. the

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100 type3secretion, “Michael Hedges – Breakfast in the Field.”


102 Lendvai, 67.

103 Lendvai, 35.

104 Lendvai, 35.
Most prevalent within this system is the collection C–D–E–F-sharp–G–A–Bb, which Lendvai called the “acoustic scale” because of its relationship to the natural overtone series. To compose “Breakfast in the Field,” Hedges relied heavily on this scale.

Building upon its Bartókian quintal tuning, “Breakfast in the Field” features Lendvai’s acoustic scale. Instead of using this scale to construct melodies, Hedges fashioned chords out of subsets of the acoustic scale. Even the tuning that Hedges devised for the piece, CGDDAE, contains a subset of the acoustic scale. This occurrence is a curious one when considered with the chord’s origins. As discussed above, Hedges claimed to have encountered this six-note chord in Bartók’s Second Piano Concerto. However, neither this iteration nor exact transpositions of it appear in this concerto. Nonetheless, the chord that likely inspired Hedges’s tuning is that which opens the concerto’s second movement. This chord subsumes Hedges’s tuning, and includes an F below Hedges’s. Although a seemingly minor alteration, this change likely results from Hedges’s desire to incorporate the acoustic scale in his piece.

The guitar’s limited range does not explain these differences between the Piano Concerto and “Breakfast in the Field.” If a fear of high string tension caused by tuning the A string up a minor third to a C had motivated Hedges’s tuning, he would not have used the same maneuver for “Aerial Boundaries” (CCDGAD). Simply put, Hedges’s decision to alter Bartók’s chord to make his tuning was not caused by the guitar’s idiomatic capabilities.

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105 Lendvai, 67.

106 Lendvai, 67.
In fact, Hedges’s decision to truncate the Bartók chord allowed him to fashion a tuning out of the acoustic scale (omitting the F in the bass, as described above). By tuning to the acoustic-scale chord, Hedges made it accessible through a simple one-handed strum—a convenience on which he relied multiple times. “Breakfast in the Field” contains nineteen occurrences of the acoustic-scale chord, fifteen of which derive from the prime collection (C–D–E–F–sharp–G–A–Bb–C). The only two transpositions, T_2 and T_{10}, each appear twice in the piece. Given the sparseness of the pointillistic texture, a total of nineteen occurrences is a significant number.

The Acoustic-Scale Chord and Arch Form

On closer inspection, the placement of these acoustic-scale chords undergirds the form of “Breakfast in the Field.” Reading the piece as an AA’ form—as Hedges did—the positioning of acoustic-scale chords in each section produces an arch form where prime (P) subsets bookend neighboring transpositions. Following an introductory chord, Hedges introduces the first acoustic-scale chord and returns to it multiple times over the next ten measures. During these measures, Hedges deviates from P, but treats it as a harmonic destination analogous to a key area within which a piece may operate. At measure 14, Hedges inserts T_2 and two measures later he adds T_{10}. The following measure, Hedges returns to P in a manner similar to the piece’s opening to conclude the section. True to Hedges’s proposed layout, A’ follows a nearly identical path except the introductory chord before A now acts as the piece’s conclusion (See Figure 3). In this

Figure 13 Layout of Arch Form in "Breakfast in the Field"
Hedges’s use of arch form proliferates in his subsequent repertoire, thus reinforcing the formal significance of the acoustic-scale chord within this piece. In a masterclass regarding “The Rootwitch” (1987), Hedges declared that his idea of arch form is intrinsically “trance-like,” since it allows for plenty of repetitions of particular themes in its layout (ABCDC’B’A).\(^{107}\) Explaining his compositional process to the class, Hedges described his approach to arch form: “This [a melodic theme] is my main idea, but I repeat it lots. And so, repeat it lots, and have a good time with it. Just before you lose that ‘spark’ [due to overuse], go on to something else and repeat it at the end.\(^{108}\)” Clearly, Hedges uses a freer type of arch form, but uses it nonetheless as a basis from which to diverge.

Despite his willingness to distort arch form, several of Hedges’s pieces fit the conventional definition, including “Aerial Boundaries” and “Larry’s Instrumental.” The first portion of “Aerial Boundaries,” for example, uses a standard arch form in contrast to the loose arch form that organizes the entire piece. Within the first forty-four seconds, Hedges introduces the A theme followed immediately by the B theme. At 1:06, Hedges adds the C theme before returning to B and A’, thus completing the arch. The entirety of “Larry’s Instrumental” adheres to an arch-form, resulting in an ABCBA form. Also, as stated above, “The Rootwitch” boasts a lengthy arch form, ABCDC’B’A. In many settings then, Hedges made unproblematic use of conventional arch form, despite his use of freer arch forms in other pieces. Within this context, the intentional arch form built around the positioning of prime acoustic-scale chords and their

\(^{107}\) Michael Hedges, “Composition Masterclass.”

\(^{108}\) Michael Hedges, “Composition Masterclass.”
transcriptions points to a conscious deployment of the chords as formal signposts; in other words, they represent a formally significant manifestation of the Fibonacci series in “Breakfast in the Field.”

The Acoustic-Scale Chord as Harmonic Destination

Beyond their structural role in “Breakfast in the Field,” these chords also act as a harmonic destination or anchoring point. Using only quintal chords, “Breakfast in the Field” does not adhere to tertian harmony and employs different cadencing techniques to punctuate its arrival at a harmonic destination. Detached from functional harmony, cadences combine ritardani and heavy accents that intensify as they progress to signify their conclusion. In these new laws of composition, Hedges established the acoustic-scale chord, a Fibonacci-derived pitch collection, as the harmonic destination or arrival point within the piece. In the following section, I will reinforce this idea by cross-analyzing a transcription and original recording of “Breakfast in the Field” while also considering changes in cadencing techniques that appear in later Hedges concerts. This analysis shows that Hedges not only used a Fibonacci-based pitch collection, but that he granted it significant status as an arrival point within “Breakfast in the Field.”

After the artificial harmonic that opens the piece, Hedges introduces in m.3 a prime iteration of the acoustic-scale chord as the harmonic destination of the piece. Almost immediately afterward, Hedges leaves the acoustic-scale chord through an upward motion of fourths while prominently slowing the tempo. Concluding this brief ascent, Hedges rests on a single F-sharp before resolving it downward to an E, the highest note in this iteration of the prime acoustic-scale chord (see Example 11). ¹⁰⁹ While the motion of a descending whole step may not indicate a dominant-tonic type relationship, the manner in which Hedges presents it

¹⁰⁹ Michael Hedges, ”Breakfast in the Field,” PDF, in private possession of Mark Grover.
calls to mind the elongation of a traditional dominant chord for dramatic effect before resolving
to a tonic. Simply put, Hedges relies on the recognized notion of dramatizing a penultimate
chord in order to define cadential gesture within the gestural lexicon of “Breakfast in the Field.”

Later in the piece, Hedges returns to this technique to establish a destination, albeit this
time as a transposed version of the acoustic-scale chord, T\textsubscript{10}. In similar fashion to the previous
case, Hedges introduces a brief arpeggiated figure, this time F–C–G, which he drastically slows
and quiets before erupting on the acoustic-scale chord to begin the following measure. A cadence
of lesser prominence concludes the A section, rounding off the miniature arch form with the
acoustic-scale chord.

True to his proposed AA’ form, A’ shares with A cadential figures that feature the
acoustic scale. In fact, the primary difference between A and A’ takes place after the strong
cadence on T\textsubscript{10}, thus maintaining the form dictated by the acoustic-scale chord. In A, Hedges
closes out the section with an understated cadence, but in A’ he replaces it with an even more
accented return to P. Imitating a dramatic oscillation between V and I in conventional harmony,
Hedges alternates between a non-acoustic-scale chord and P twice before concluding the piece. While clear on paper, the purpose of this repeated alternation becomes more obvious in the recording since the heightened accentuation and dynamic level stray from the calm atmosphere of the majority of the piece. Hedges, in no uncertain terms, makes this portion the climax of the piece. By doing so, he clearly situates the acoustic-scale chord—a sonic expression of the Fibonacci series—as the harmonic destination of the piece.

Throughout his career, Hedges played “Breakfast in the Field” in a majority of his concerts. As he grew as a musician, his interpretation and performances of the piece evolved as well. Over time, Hedges increased his accentuation of the acoustic-scale chord. As early as 1985, Hedges began adding a third repetition of the alternation that forms the piece’s climax.\textsuperscript{110} Likely for dramatic effect, this choice enhances the importance of the acoustic-scale chord in comparison with the original recording. Concert recordings from 1986, 1988, 1989, 1990, and 1993 contain the same added measure, establishing this maneuver by Hedges as a revision of the piece more than an anomaly.\textsuperscript{111} With this added emphasis on the acoustic-scale chord, Hedges drew the listener’s attention more assertively to its aesthetic basis, the Fibonacci series.

\textsuperscript{110} Michael Hedges, concert recording, Kentucky, February 16, 1985, MP3.

Fibonacci Series and Form

For inspiration in other pieces, Hedges returned to Lendvai’s analyses of Bartók. Along with the referential pitch collections explained above, Lendvai also proposed that Bartók’s music adheres to Fibonacci principles in its form. More specifically, Lendvai suggested that Bartók’s use of the Fibonacci series in his music came primarily in the form of the Golden Ratio. This idea too had a significant effect on Hedges’s music.

According to Lendvai, portions of Bartók’s pieces, when divided by significant musical events, conform to the Golden Ratio. To represent this phenomenon, Lendvai uses a timeline to indicate a piece’s entire duration. To find the first Golden Ratio division in a piece that is Y measures long, Lendvai multiplies Y by .618, the product of which acts as the first potential division point. 112 Also, Lendvai subtracts the aforementioned product (Y·.618) from Y to extract a second potential division point.113 If the most significant musical event happens at Y·.618, then Lendvai labels the piece as having a “positive” form. Alternatively, if it occurs at Y-( Y·.618), the piece has a “negative” form. Circumventing equations however, Lendvai simplifies the relationship via his use of a timeline. If the first portion of the timeline is larger than the second


portion following the first Golden Section division, it is positive.\textsuperscript{114} If the opposite is true, it is negative.\textsuperscript{115} With each of these divided portions, Lendvai repeats the process, observing the Golden Ratio in smaller sections. Essentially, Lendvai continues to split sections by the Golden Ratio as long as significant musical events occur at these divisions, as is the case in his analysis of Bartók’s \textit{Sonata for Two Pianos and Percussion} (See Figure 5).\textsuperscript{116}

![golden_ratio_chart]

*Figure 5 Golden Ratio Chart of Bartók’s Sonata for Two Pianos and Percussion, Movement I*

Whereas Lendvai used measures or number of notes as the divisible quantity through which the Golden Ratio could be applied, Hedges treated duration via seconds as the divisible quantity. Hedges’s decision to do so likely revolved around the fact that he rarely notated his recorded pieces in full.\textsuperscript{117} Also, seconds was a sensible choice for Hedges because his electronic pieces were made via magnetic tape. In this medium, the length of a tape correlates directly and consistently with a piece’s duration; the composer literally handles the piece’s duration in their

\textsuperscript{114} Lendvai, 28.

\textsuperscript{115} Lendvai, 28.

\textsuperscript{116} Lendvai, 24.

hand. Without the subjective tempo of a performer, a composer adheres to this ratio with absolute precision by measuring the tape to the desired length.

Because of the accuracy with which the use of magnetic tape maintains the Golden Ratio, Hedges’s unpublished tape piece *City Scenes* offers a useful example of Hedges applying this approach to form. Realized at Peabody, *City Scenes* shows an unwavering adherence to Lendvai’s tenets of Golden Ratio. The first division of *City Scenes* comes at 1:46, where a siren sounds, ending the opening bell-tone portion of the piece. Because this division makes the opening portion smaller than the following portion, *City Scenes* has a negative form. Hedges further divides the larger of the two portions with the introduction of unintelligible human speech into the piece, this time resulting in a positive section. Again, Hedges opts to divide the larger portion of this section, delineating the two sections by adding what sounds like high pitched train sounds. At 2:25, Hedges adds a motor-like sound that splits the positive segment into a smaller positive segment. Finally, the resultant positive section is separated into a smaller positive segment with the reintroduction of a distorted bell tone (see Figure 6).

This tactic also appears in some of Hedges’s commercial music. One of the more convincing manifestations occurs in “Aerial Boundaries.” Adhering to a positive form, “Aerial
“Boundaries” follows the same pattern as *City Scenes* by dividing the larger portion of positive sections into smaller positive sections. After the second iteration of a recently introduced motive dictates that the piece be positive, the beginning of a different section at 1:47 further splits this positive section. Lastly, the entrance of a different motive at 1:06 turns this smaller positive portion into one more positive section. Put simply, “Aerial Boundaries” adheres to the same principle that dictates the form of *City Scenes*: convert the larger portions of the form into positive sections.

Another prominent use of this approach to form exists in the interesting case of “The Rootwitch.” In this piece, new musical sections begin on the following Golden Ratio-related times: 0:56, 1:32, 2:07, and 2:20. The placement of entrances on Golden Ratio-related timestamps occurs often enough in Hedges’s music, but the unique nature of “The Rootwitch” appears only when one attempts to label its segments positive or negative. Given the piece’s duration of 2:29, both the significant musical events at 0:56 and 1:32 divide the piece according the Lendvai’s principles: the former results in a negative form and the latter, positive. The labeling then comes down to a matter of interpretation: which point is more significant? Regardless of one’s answer, all of the other Golden Ratio-related points fit perfectly into either form.
In his efforts to include the Golden Ratio and Fibonacci Series into his music, Hedges explored models other than those of Lendvai. One of these ventures concerned the form of some of Hedges’s other pieces. While City Scenes relies on proportions established by the Golden Ratio, Modulors, another electronic composition from Hedges’s Peabody years, bases its form on Fibonacci numbers as independent values. When laying out this piece’s form, Hedges placed its critical points at certain Fibonacci values from the original collection where $F_1 = 1$. In a composition masterclass, Hedges admitted to this formal layout. Passing around his hand-drawn plan for the piece, Hedges remarked, “The whole piece is drawn out in seconds on the graph that is coming around. All the divisions and major events are happening at Fibonacci number of seconds.”118 In other words, Hedges saw Fibonacci numbers as timestamps for his piece on which he could place significant musical events.

118 Michael Hedges, “Composition Masterclass.”
Although a simple enough idea in abstract, Hedges found a strict realization of it tedious and chose to apply it more freely. To attend to this idea precisely, Hedges would have to place events on 0:01, 0:02, 0:03, 0:05, 0:08 and so on, resulting in a succession of five musical events in the course of the piece’s opening ten minutes. Rather than adopt this break-neck pace, Hedges freely chose the Fibonacci numbers he highlighted. At 55 seconds (0:55), Hedges inserts the first of many reverse guitar strums that make up the piece. Around 89 seconds (1:29), Hedges repeats this guitar strum. Next, Hedges places a transition to a new section featuring the audio of a man selling magazines at 144 seconds (2:24). Most significantly, Hedges positions the piece’s climax at 233 seconds (3:53). Regarding this placement, Hedges read from his timeline of the piece to a collection of students, “At 233 seconds, I have marked ‘Climax. Nirvana. High Entropy. All chords superimposed. Perfect blend. Oneness. Similar to dreams but extended—more peaceful but more complex.’”

Hedges’s selective use of Fibonacci numbers in *Modulors* suggests an approach to other instances of this technique. Because of the fact that Hedges’s pieces rarely last over five minutes combined with his adherence to the plan treating seconds indivisibly as Fibonacci timestamps, his pieces have a limited number of Fibonacci numbers they can contain. Moreover, a large number of the available Fibonacci numbers occur within the first ten seconds of any piece, rendering these points essentially useless. Lastly, Hedges approached all his pieces with both intellect and intuition. Often he began compositions with an empirical plan in mind, as was the case with *Modulors*, before realizing that a staunch adherence to such plan resulted in unsatisfactory aesthetic results. To remedy such situations, Hedges allowed himself

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119 Michael Hedges, “Composition Masterclass.”

120 Michael Hedges, “Composition Masterclass.”
considerable freedom, valuing effectiveness over adherence to self-imposed rules. This
flexibility on Hedges’s part hinders analysis since these edits may obscure a piece originally built
around Fibonacci timestamps.

Nonetheless, “Spare Change,” a tape piece by Hedges, seems to be built around
Fibonacci timestamps. Besides marking the beginning of a new section at 89 seconds (1:29), the
Fibonacci numbers delineating form rely on the first few values of the Fibonacci series. In the
opening sections of the piece, overlapping guitar tracks enter one at a time, each entrance
coinciding with a Fibonacci number. These entrances occur at 0:02, 0:05, and 0:08. Obviously,
dealing with a form so dependent on precision is problematic when dealing with live
performance, but “Spare Change,” like *Modulors* and *City Scenes*, is realized on the accurate
medium of magnetic tape. Given the accuracy with which one can edit, the entrances of guitar
layers at specific times in “Spare Change” seem intentional. “Spare Change” thus operates within
the same formal paradigm as *Modulors*, showing Hedges’s willingness to approach his
commercial music and “academic” music in related ways.

The Fibonacci Series and Tuning

While writing *Modulors*, Hedges decided to incorporate the Fibonacci series in ways
extending beyond the formal. In the Oberlin masterclass, Hedges polled the students as to how
they could incorporate the Fibonacci series into their compositions. Answers included dynamics,
scale degrees, and frequency modulation, but Hedges redirected an answer of “time signatures”
toward the desired answer of his pointed question: rhythm. Elaborating the idea, Hedges said,
“You could use rhythms, two against and three, three against five. In computer music, you could
do anything. I mean, it would be kind of hard for me to imagine eight against thirteen and being
able to play it, but hey, why not try it?” Hedges finally guided the answer to its “correct” destination: “Let’s take this rhythm idea a little bit further. What about thirteen against twenty-one, could anybody play that? If you were doing thirteen beats in a second, that’s kind of fast. After we get up to twenty-one beats per second, you can almost hear that. Do you see what I’m getting at? Tone.”

To create the pitches that make up *Modulors*, Hedges used the Fibonacci Series to determine their precise frequencies. In contrast to the symbolic application of Fibonacci numbers themselves to the form of *Modulors*, Hedges’s pitch selection incorporated the Fibonacci series as a function. Since the range of human hearing limited the simple translation of Fibonacci numbers into frequencies to about fourteen individual pitches, Hedges realized that he must find a different way to feature the series in the element of pitch. To do so, Hedges abandoned the significance of the numbers as symbols themselves, and instead maintained the relationship that dictates the series’s growth. Selecting 55 Hz, a Fibonacci number, as \( F_1 \) and maintaining that \( F_0=0 \), Hedges built his own list of values by adding two preceding values in the series to get the next value, thus maintaining the pattern that establishes the Fibonacci series. As a result, Hedges’s series \( (X) \) contains the following values: 55, 110, 165, 275, 440, 715, 1155, 1870, 3025, 4895, and removes \( F_2, 55 \), because it duplicates \( F_1 \).

Within this “harmonic” language, Hedges needed to expand his vocabulary. In an effort to add more employable frequency values, Hedges divided the values in half \((X/2)\) resulting in

\[121\] Michael Hedges, “Composition Masterclass.”

\[122\] Michael Hedges, “Composition Masterclass.”

\[123\] Michael Hedges, “Composition Masterclass.”
the following collection that he deemed “X₂”: 27.5, 55, 82.5, 137.5, 220, 357.5, 577.5, etc.¹²⁴

From this point, Hedges continued on this sequence to establish different collections via division of X. As values of these collections dropped below the human threshold of hearing, Hedges simply omitted them.¹²⁵ Unfortunately, because the records of the masterclass at which Hedges described this piece consist only of audio, portions where Hedges wrote values on the chalkboard and spoke vaguely about them complicate further investigation on the development of pitch collections.

As a reader familiar with frequencies in Western music will notice, the frequencies of X and its derivatives do not fit neatly into equal temperament. Hedges recognized this difference but sacrificed conventionality and maintained the frequencies as Fibonacci numbers. To do so, he tuned a synthesizer to each of the audible frequencies of his collections.¹²⁶ Then, Hedges tuned his guitar to those synthesizer keys assigned to the six lowest values of each collection and recorded them.¹²⁷ Hedges relegated pitches outside of the guitar’s capabilities to synthesizer.¹²⁸ Before adding these recordings to the final piece, Hedges reversed many of the guitar tracks, a process that, from initial tuning to finished piece took Hedges a “whole darn year” to complete.¹²⁹

¹²⁴ Michael Hedges, “Composition Masterclass.”
¹²⁵ Michael Hedges, “Composition Masterclass.”
¹²⁶ Michael Hedges, “Composition Masterclass.”
¹²⁷ Michael Hedges, “Composition Masterclass.”
¹²⁸ Michael Hedges, “Composition Masterclass.”
¹²⁹ Michael Hedges, “Composition Masterclass.”
Hedges and the “Modulor”

Just as the form and “harmonies” of *Modulors* testify to Hedges’s dedication to Fibonacci-centric composition, the title of the piece itself refers to Hedges’s engagement with the series culturally. Whereas Hedges incorporated the Fibonacci series into *Modulors* through privately created means, the end to which he aspired comes from an extramusical source: the “Modulor.” Designed by the Swiss-French architect known as Le Corbusier, “the Modulor” is a measure based on human proportions and the Golden Ratio (see Figure 11). In his book on the topic, Le Corbusier defined the “Modulor” as:

*a measuring tool based on the human body and on mathematics. A man-with-arm-upraised provides at the determining points of his occupation of space – foot, solar plexus, head, tips of fingers of the upraised arm – three intervals which give rise to a series of golden sections, called the Fibonacci Series.*

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131 Le Corbusier, 55.
To a group of students gathered for a masterclass on the piece, Hedges simply offered the book’s subtitle as a definition: “A Harmonious Measure to the Human Scale Universally applicable to Architecture and Mechanics.”

Through the course of the book, Le Corbusier stresses the similarity of the Modulor to the chromatic scale in Western music; both are a collection of relations from which an artist selects to create. With the label of “measure” comes the danger to relegate the “Modulor” to abstraction, a fate Le Corbusier goes to great lengths to decry. On the relationship between abstraction and measures, Le Corbusier writes, “the tragedy of our times is that measures have everywhere become abstract or arbitrary: they should be made flesh, the living expression of our universe, ours, the universe of men, the only one conceivable to our intelligence.” This “scale” for architecture’s universality as the human form was of considerable importance to Le Corbusier. Essentially, the “Modulor” perfects the union of Nature’s adherence to a mathematical reality and the intuitive human form creating at an intimate yet universal measure.

In Modulors, Hedges sought to recreate this balance of logos and pathos. Through the tedious calculations described above, Hedges created his tuning and form for the piece, but to fill out this skeleton, he relied on intuition:

I thought there’s so much I’m leaving up to the numbers, I’d better get intuitional here. It’s so much fun to get stuff to look good on paper [but] then you listen to it and you go oh… you know? And so I thought, let’s let the harmony [defined in this chapter as tuning] be enough. Let the architecture of it be built on Fibonacci, but let’s not go too “whole hog” on this.

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132 Le Corbusier, 3.
133 Le Corbusier, 73.
134 Le Corbusier, 160.
135 Michael Hedges, “Composition Masterclass.”
To supplement his cerebral approach to form, Hedges introduces voices into the piece. While some of these vocals belong to the composer himself, the most prominent one that continually yells “Afro-fro-fro” throughout the piece belongs to a man Hedges watched sell magazines in Baltimore. Enamored with the vocal endurance and dexterity, Hedges decided to incorporate audio of him selling his wares into Modulors in a manner similar to Reich’s It’s Gonna Rain (1965). Besides his own voice and that of the magazine salesman, the last group of vocals appears in conjunction with drumming that undergirds nearly the entire piece. These clips are, according to Hedges, the ultimate foil to the numeric form: African music. More specifically, these clips come from the album BURUNDI Music from the Heart of Africa (1974). By sampling several pieces from the album, Hedges introduces a more human aspect to the piece. On his decision, Hedges said:

If you do anything like this that’s very numberish and very academic sounding and you have to use all these machines to get, it’s very nice to superposition it with something that’s very simple. I thought that African music would be very good because there’s just a beat and just a melody.

The structural economy of African music, in Hedges’s mind, complements the intellectual architecture of Modulors, recreating the equilibrium between the mathematic and the mortal so apparent in the “Modulor” itself.

Reaching beyond the confines of the student piece, the paradigm encapsulated by the “Modulor” serves not only as a model for Modulors, but a symbol for Hedges’s legacy as a whole. During his career, the affective side of Hedges’s music drew significantly more attention than the intellectual aspects. Coupled with the air of experientiality associated with his record

136 Michael Hedges, “Composition Masterclass.”

137 Michael Hedges, “Composition Masterclass.”
label, Hedges’s pyrotechnic guitar playing attracted pathos-centric audiences. Hedges did not lament the disposition of his followers; more often than not he catered to their general taste while holding steadfast to his musical convictions. These convictions resulted in several albums that eschewed his standard fingerstyle approach for other affective mediums including ventures in the singer-songwriter genre and the use of electric guitar. His most devoted fans welcomed this experimentation; Hedges, after all, was a “composer who plays guitar, not a guitarist who plays compositions.”

But understanding Hedges as a composer runs deeper than accepting the occasional foray outside of his compositional wheelhouse. Hedges thought deeply about music at a fundamental level, the fruit of which manifested itself in the modes discussed here. While some of this thought presents itself most clearly in his unpublished student pieces, its presence endures in his commercial repertoire. These pieces testify to Hedges’s chimeric stance as a composer, juxtaposing the classical and popular, the emotional and intellectual. Like the “Modulor,” Hedges’s legacy rests in the mutuality of these two, navigating the dichotomy through unifying accord rather than warring friction. At the heart of it all lies Hedges’s adventurous spirit and its need to explore simply “because it’s there.”

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