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Unheard Complexities in Lou Harrison's *Main Bersama-sama* and *Bubaran Robert*

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Abstract

Central among Lou Harrison's pioneering East-West fusions, the works for gamelan and Western instruments are frequently cited either as exemplars of the composer's Californian, postmodern musical sensibility or as noteworthy instances of cultural hybridity. Close examination of Main Bersama-sama *(1978) and* Bubaran Robert *(1976, rev. 1981), however, shows that these pieces can and should be understood for what they tell us about Harrison's deep engagement with melody. A self-proclaimed "melode," Harrison has mistakenly been regarded as a West Coast musical dabbler, writing tuneful pieces that lack the complexity that characterizes the work of his East Coast contemporaries. Yet analysis of the pitch structure of* Main Bersama-sama *and* Bubaran Robert *reveals intricate compositional "games" similar to the pre-compositional strategies of composers more typically associated with algorithmic compositional methods. Because these intricacies lie beneath the melodic surface of the music they have largely been unheard and unappreciated in Harrison's work. The melodic nature of these games not only challenges the widely accepted depiction of Harrison as a mere "tunesmith," but also shows that Harrison explored the ability of melody (as opposed to large-scale tonal or harmonic schemes) to create form and serve a central generative function in his music.*

In a 1987 radio broadcast Lou Harrison adamantly stated,

> To me, there is only one interest in a work of art, and that *is* its beauty. What other interest is there in a work of art? I am unabashedly writing melodies, for example. I am a melode. And continue to be. I love 'em.[1]

Harrison's proud confession "I am a melode" provides a lens through which to view much of his music, but this bald declaration also invites misperceptions of the extent of his compositional interests. Critics, performers, and musicologists have remarked upon the melodic impulse of Harrison's music—from his percussion pieces of the 1930s and 1940s to the cross-cultural works written in the last decades of his life—but the tendency has been to equate Harrison's melodic skillfulness merely with an attractive surface lyricism. Peter Garland speaks for many when he says, "What is most characteristic of Harrison's style is that the sense of melody, a constant thread in Harrison's output, is constantly in the forefront of ensemble

I wish to express my appreciation to Leta E. Miller, who generously shared her insights on Lou Harrison's compositional interests, and Henry Spiller, who kindly offered his expertise on Sundanese music and the *gamelan degung* tradition. I am grateful to Elissa Guralnick and Steven Bruns for providing invaluable comments on earlier drafts of this article. I also thank Charles Hanson, archivist of the Lou Harrison Collection, University of California at Santa Cruz, and Jody Diamond, director of the American Gamelan Institute, for permission to publish Harrison's sketches and music included here.

[1] Lou Harrison, *Lou Harrison: An American Music Maker*, University of California, Santa Cruz Spec Collections, LCD7857, 2005, compact disc. (Recorded ca. 1987 by WGBH Radio in Boston. Original is audiocassette. Audio archival conversion made by University of California, Santa Cruz Library.) Transcribed by the author.

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texture."[2] But whereas this widely accepted depiction of Harrison as a "tunesmith" may, in fact, be reasonable, it is limited and misleading.

The characterization of Harrison as a writer of memorable tunes seems to have taken hold as a way to highlight Harrison's West Coast heritage and to differentiate him from contemporary composers writing in the twelve-tone or other formalized compositional methods. But Harrison's claim that beauty, embodied significantly in melody, is the object of art tells us only that he chose never to sacrifice the alluring surface charm of a piece—not that he abandoned form in his approach to composition. As Leta E. Miller and Fredric Lieberman have observed, Harrison used a "range of controls" over his material. The challenge, they argue, was to keep those controls from "tak[ing] precedence over the resulting sound."[3]

> The composition process became, at some level, an intriguing game: carefully formulated "controls" were hidden under decorative outer clothing. Listeners are not likely to be aware of the compositional process. Indeed, reviewers often comment on the semi-improvisatory character of Harrison's works without realizing that beneath the perceived freedom is a carefully built armature.[4]

Harrison sought, in short, to create expressive works in which underlying technical constraints guided his compositional choices but never hindered his melodic inventiveness. As I show in my analysis, beneath the melodic surface of Harrison's music lie intricate "games" revealing an intellectual rigor that has remained largely unexamined.

That compositional complexities abound in Harrison's music comports with his admiration for the music of Arnold Schoenberg. In an astute examination of Harrison's early connection with Schoenberg, Severine Neff observes that even though Harrison "ultimate[ly] move[d] away from serialism," he retained a "deep respect for and devotion to Schoenberg."[5] Although Harrison "definitively rejected the compositional aims of the East Coast, total-serialist movement" by the early 1950s, Neff points to the continued presence of analogous serial techniques in Harrison's paintings as evidence of Schoenberg's lasting influence on the younger composer.[6] Schoenberg's influence was to be felt everywhere, in fact,

[2] Peter Garland, *A Lou Harrison Reader* (Santa Fe, NM: Soundings Press, 1987), 10.

[3] Leta E. Miller and Fredric Lieberman, *Lou Harrison* (Urbana: University of Illinois Press, 2006), 108, 112. Through their extensive interviews with Harrison, Miller and Lieberman have been able to shed light on his compositional process. Harrison often began the "process by imposing on himself severe restrictions, which he call[ed] 'controls.' These controls may take the form of a limited selection of intervals, melodic shapes, or rhythmic figures; or a tightly regulated organization of the material by extramusical factors (such as Cage's 'square root' system, which defines a fixed mathematical relationship among the various subdivisions of the composition, from the length of the smallest phrase to that of the overall work). Controls may also be dictated by the technique of a particular instrument or by the restrictions of a specific tuning or mode." Leta E. Miller and Fredric Lieberman, *Composing a World: Lou Harrison, Musical Wayfarer* (Urbana: University of Illinois Press, 2004), 206. See also Leta E. Miller, *Lou Harrison: Selected Keyboard and Chamber Music, 1937–1994* (Madison, WI: A-R Editions, 1998), xv–lv.

[4] Miller and Lieberman, *Lou Harrison*, 4.

[5] Severine Neff, "An Unlikely Synergy: Lou Harrison and Arnold Schoenberg," *Journal of the Society for American Music* 3/2 (May 2009): 156.

[6] Neff, "An Unlikely Synergy," 156. Neff provides the example of Harrison's painting "The Sparrows of Aphrodite" (ca. 1990) reproduced on page 5 of his collection of poems *Joys and Perplexities*,

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throughout Harrison's life.[7] Harrison may have turned toward a deeper engagement with tuning systems and non-Western music traditions, but his interest in tightly knit, "serialized" musical units did not disappear.[8] His aim was not to abandon such pre-compositional strategies but to subordinate them to melodic expression and seeming improvisatory freedom.[9]

In this article, I expand upon Miller and Lieberman's contention that constraints were fundamental to Harrison's compositional process by looking for games in the place where they would seem the least likely to exist and the most difficult to execute: namely, in compositions where he mixed Western and non-Western performance traditions. Central among Harrison's East-West fusions are several pieces that combine gamelan music from Java with Western instruments, works that are frequently cited either as exemplars of Harrison's Californian, postmodern musical sensibility or as noteworthy instances of cultural hybridity.[10] My intent is to show another way of understanding these pieces: namely, as works that incorporate

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saying that, "if viewed upside down, the entire image inverts and forms retrogrades, like a row." Neff, "An Unlikely Synergy," 160.

[7] Harrison and others have tended to stress the influence of Henry Cowell. Acknowledging the formative role Cowell played in his compositional development and honoring the generosity and kindness of his friend and mentor, Harrison himself wrote, "In remembering Henry I miss him, / But then I remember him everywhere." Lou Harrison, *Joys and Perplexities: Selected Poems of Lou Harrison* (Winston-Salem, NC: Jargon Society, 1992), 44.

[8] Neff has expertly connected Schoenberg's twelve-tone technique with Henry Cowell's and Charles Seeger's ideas of motivic transformation. Neff, "An Unlikely Synergy," 164–66. It was under Cowell's tutelage that Harrison developed his notion of "melodicles."

[9] In invoking the dichotomy of East Coast vs. West Coast, I am well aware that each of these terms simplifies and generalizes in ways that could be misconstrued. Although some may argue over whether it is possible to precisely define a West (or East) Coast aesthetic, Harrison clearly felt that artistic expression differed on the two U.S. coasts. Asked in an interview whether West Coast composing is different from East Coast composing, Harrison candidly replied that, in the West, "We're not afraid of sounding pretty, for one thing." Richard Kostelanetz, "A Conversation in Eleven-Minus-One Parts, with Lou Harrison About Music/Theatre," *Musical Quarterly* 76/3 (Fall 1992): 407. Similarly, in a 1973 interview with Winston Leyland, Harrison commented on the cultural disjunction he felt while living in New York: "New York was a very widening experience in many ways. But it also brought me into conflict in some sense because on the West Coast my experience had been that the nearest relation we had as Americans was Asia. You know, San Francisco is close to Asia, whereas in New York, you are just a stone's throw from Europe. It's a completely different civilization. So that took some difficulty, made some difficulty for me." Winston Leyland, "Winston Leyland Interviews Lou Harrison," in *A Lou Harrison Reader*, ed. Peter Garland (Santa Fe, NM: Soundings Press, 1987), 72.

[10] Recent interest in Harrison has centered on analysis of his cross-cultural works and his Indonesian/Western fusions. See Yayoi Uno Everett, "Intercultural Synthesis in Postwar Western Art Music: Historical Contexts, Perspectives, and Taxonomy," in *Locating East Asia in Western Art Music*, ed. Yayoi Uno Everett and Frederick Lau (Middletown, CT: Wesleyan University Press, 2004); Bill Alves, "Kembangan in the Music of Lou Harrison," *Perspectives of New Music* 39/2 (Summer 2001): 29–56; Henry Spiller, "Lou Harrison's Music for Western Instruments and Gamelan: Even More Western than It Sounds," *Asian Music* 40/1 (Winter/Spring 2009): 31–52; and Leta E. Miller and Fredric Lieberman, "Lou Harrison and the American Gamelan," *American Music* 17/2 (Summer 1999): 146–78.

In addition, a growing literature pertaining to developments in cultural theory as applied to cross-cultural musical influence and in analysis of musics of the world includes Michael Tenzer and John Roeder, eds., *Analytical and Cross-Cultural Studies in World Music* (New York: Oxford University Press, 2011); Michael Tenzer, ed., *Analytical Studies in World Music* (New York: Oxford University Press, 2006); Marc Perlman, *Unplayed Melodies: Javanese Gamelan and the Genesis of Music Theory* (Berkeley: University of California Press, 2004); Georgina Born and David Hesmondhalgh, eds., *Western Music and Its Others: Difference, Representation, and Appropriation in Music* (Berkeley: University of

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fascinating compositional games underneath and in tandem with simply stated and expressive melody. In the course of my analysis, I demonstrate that Harrison's very definition of melody extended well beyond writing mere "tunes," as he explored the ability of melody (as opposed to large-scale tonal or harmonic schemes) to create form and serve a central generative function in his music.

Harrison and Gamelan (and Schoenberg?)

Although Harrison first explored gamelan techniques and imitated gamelan timbres in the early 1950s, it was not until the mid-1970s that he studied traditional Central Javanese performance techniques with Kangjeng Pangéran Harya Natapraja (also known as K. R. T. Wasitodiningrat, K. R. T. Wasitodipuro, and familiarly as Pak Cokro),[11] as well as the West Java Sundanese style with Undang Sumarna.[12] Invited by Pak Cokro, Harrison began writing works for Javanese gamelan in 1976, and two years later he tried his hand at combining gamelan with Western instruments, producing in 1978 both *Main Bersama-sama* (for Sundanese gamelan degung and French horn) and *Threnody for Carlos Chávez* (for Sundanese gamelan degung and viola). These two works mark the start of a ten-year involvement in mixing Indonesian and Western sound resources.[13] To Harrison, such fusions "seemed perfectly natural. I don't think of it either as a problem or a distinction. It's all part of making music as far as I'm concerned. There's no *they* and *me*."[14]

Harrison's interest in bringing together musical styles and sound resources that ranged across both geographic space and time owed much to the mentorship of

California Press, 2000); and Yayoi Uno Everett and Frederick Lau, eds., *Locating East Asia in Western Art Music* (Middletown, CT: Wesleyan University Press, 2004).

[11] Benjamin Brinner details the changes in Pak Cokro's names and honorifics in *Music in Central Java: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2008), 144. See also Miller and Lieberman, *Composing a World*, 66.

[12] Miller and Lieberman, *Composing a World*, 160.

[13] Following *Main Bersama-sama* and *Threnody for Carlos Chávez*, Harrison repeatedly returned to this blend of gamelan and solo Western instruments, exploring the compatibility of various Western instruments with the Javanese (or West Javanese) ensemble. Listed in their catalog of Harrison's works under the category "Gamelan and Western solo instrument," Leta Miller and Charles Hanson include the following compositions in addition to the two already mentioned: *Suite for Violin and American Gamelan* (1974); *Bubaran Robert* (originally composed for gamelan in 1976, solo piccolo trumpet part added in 1981); *Double Concerto for Violin, Cello, and Gamelan* (1982); *A Cornish Lancaran* (for soprano saxophone and Javanese gamelan, 1986); *Concerto for Piano with Javanese Gamelan* (1987); and *Philemon and Baukis* (for violin and Javanese gamelan, 1987). Miller and Lieberman, *Composing a World*, 278, 303–11. This list could be expanded, as proposed by Henry Spiller, to encompass a broader spectrum of Harrison's mixing of Indonesian and Western resources, particularly Harrison's incorporation of vocal forces. These works include: *Coyote Stories/The Foreman's Song Tune* (for Javanese gamelan with tenor voice; texts and chant added to *Foreman's Song Tune*, a composition for Javanese gamelan dated 1983, in 1987); *Gending in Honor of Aphrodite* (for Javanese gamelan, harp, and chorus, 1986); and movements from *Homage to Pacifica* (1991). Spiller, "Lou Harrison's Music for Western Instruments and Gamelan," 49n1. The *Suite for Violin and American Gamelan* differs from the other works in one significant way: it was written not for Indonesian instruments but for a Western percussion orchestra built by Harrison and William Colvig.

[14] Quoted in Miller and Lieberman, *Composing a World*, 173. The authors cite an interview with Harrison dated 8 March 1994.

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Henry Cowell. Writing about Cowell's influence, he recalled his teacher's remark that

> we were all part of an ocean of intelligence over which there was . . . a surface tension rather like a thin rubber sheet, and . . . one would rise up over here and another would rise up over there, and they would look across at one another as though separate, but that they were all the time of one nature underneath.[15]

For Harrison, the musical undercurrent was melody. Finding great interest in the compositional forms of Korean classical music, Harrison expressed his belief that, in the West, melody offered an unexplored means for creating cohesive works. He went as far as to claim that, "First in importance to the western mind is the revelation that musical form is melody—that the form of a piece can be one giant melody, evolving as melodies beautifully do, and accumulating lovely decorations as it goes."[16] Westerners have a wide range of conflicting ideas about the nature and function of melody and form. Tonality and harmony tend to be emphasized as the primary determinants of large-scale form, with melody in a subsidiary role. Harrison's view may strike many as surprising, even counterintuitive. Yet clearly he believed melody offered more than spontaneity and whimsy; it provided form as well.[17]

Harrison admired the simplicity of gamelan music's structural underpinning—a central skeletal melody referred to as the *balungan*—and he reveled in working out various elaborations of that guiding melody to create the layered polyphonic texture characteristic of gamelan music. The nature of the *balungan* has been a focal point of study for many ethnomusicologists interested in developing a deeper understanding of how Javanese musicians recall the melodic shape of a specific piece within this still largely oral musical tradition and how they formulate the elaborating parts in relation to the underlying melodic frame. In *Unplayed Melodies*, Marc Perlman reveals the complexity inherent in this seemingly simple concept of a guiding structural melody:

> *Karawitan*, the music of the Central Javanese *gamelan* ensemble, is a highly sophisticated tradition of multipart music. As many as eleven distinct melodic lines create a rich orchestral texture, one that owes nothing to Western principles of harmony or counterpoint. Ethnomusicologists call this texture "heterophonic," meaning that it presents different versions of a single melody simultaneously. This is a very imprecise term, but it does capture an important truth: Javanese musicians usually consider the many melodic lines of a gamelan

[15] Lou Harrison, "Learning from Henry," in *The Whole World of Music: A Henry Cowell Symposium*, ed. David Nicholls (Amsterdam: Harwood Academic Press, 1997), 167. For a discussion of Cowell's mentorship, see Miller and Lieberman, *Composing a World*, 9–13; Rathbun, "Lou Harrison and His Music," 7–9, 117, 141; Heidi von Gunden, *The Music of Lou Harrison* (Metuchen, NJ: Scarecrow Press, 1995), 10–15; and Garland, *A Lou Harrison Reader*, 8.

[16] Lou Harrison, "Creative Ideas in Classical Korean Music," *Korea Journal* 2/11 (1962): 34. As Miller and Lieberman have pointed out, Harrison's "trips to Asia reinforced his appreciation of the manifold possibilities of intricate melody, downplayed by Western music since the late Renaissance in favor of harmonic complexity." Miller and Lieberman, *Composing a World*, 224.

[17] Harrison's interest in complex textures and counterpoint—that is, intersecting melodies—can also be said to have found new ground for exploration in gamelan. His admiration for the works of Carl Ruggles, for example, is well documented; see Lou Harrison, "Carl Ruggles," *The Score and I.M.A. Magazine* 12 (June 1955): 15–26.

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> composition to revolve around one central melody. Paradoxically, however, it is not obvious what that melody is. Javanese musicians themselves disagree over it; some have suggested that there is no *audible* melodic basis but only an *implicit* one, a central melody neither played nor heard.[18]

Comparing the *balungan* to a cantus firmus, Harrison described the process of fleshing out a gamelan piece as "both enticing and very disciplining."[19]

The enticement, for Harrison, of working with melody and layers of melodic elaboration is not surprising. But his description of writing a gamelan work as an act of discipline hints at the important but often overlooked facet of his idiosyncratic musical voice recognized by Miller and Lieberman: the need for a controlling compositional method, whether or not that method may be heard or recognized by others.[20] Harrison's own statements pertaining to his personal assimilation of important musical influences suggest as much. In a 1970 interview with Ives scholar Vivian Perlis, for example, Harrison offered the following sentiment:

> Schoenberg was a very great influence on me, too—in some ways more of an influence [than Ives], because in addition to the expressive powers in Mr. Ives and the sense of freedom, there is *the need for method*. It is to me the friction of the polarity between the free and the controlled that is very stimulating. You have to have both.[21]

Fascinated by the compositional challenges presented by the limited pitch collections of the *slendro* and *pelog* scales of traditional gamelan,[22] Harrison found a personal link between writing for gamelan and his studies with Schoenberg. Recounting an experience from his studies with Schoenberg in Los Angeles in the early 1940s, Harrison voiced a compositional tenet he gleaned from this interaction and subsequently maintained throughout his life:

[18] Perlman, *Unplayed Melodies*, 1.

[19] Cole Gagne, *Soundpieces 2: Interviews with American Composers* (Metuchen, NJ: Scarecrow Press, 1993), 98.

[20] Miller and Lieberman note that Harrison established pre-compositional rules as a means to restrict his choices and guide his creativity: "With a mind constantly open to new sounds, and an easy facility to absorb and understand them, the problem for Harrison be[came] one of sifting through the vast array of possibilities to arrive at a coherent and integral work of art" (Miller and Lieberman, *Composing a World*, 206).

[21] Emphasis mine. Vivian Perlis, *Charles Ives Remembered: An Oral History* (New York: Da Capo Press, 1974), 199. Harrison's own writings reveal a deep admiration for Schoenberg's music, particularly for its "intense self-contained musicality" and "small mobile melodies, so swiftly and adroitly developed, imitated, inverted, retrograded, collapsed into chords, augmented, ornamented, contracted, or otherwise treated, [which] create a closed garden of purely musical interest." Lou Harrison, "Schoenberg in Several Ways," *National Centre for the Performing Arts (Bombay) Quarterly Journal* 4 (1975): 21. I thank Leta Miller for providing me this document.

[22] A "complete" gamelan consists of a double set of instruments, each set tuned to one of two tuning systems (*laras*): *slendro*, comprised of five tones; or *pelog*, comprised of seven tones. Most *pelog* melodies do not use all seven pitches but use one of two five-pitch subsets of the *pelog* tuning system (*pelog bem* and *pelog barang*). The two remaining pitches serve as "exchange tones that substitute temporarily for their neighbors" (Perlman, *Unplayed Melodies*, 40), and provide additional melodic flavor. In effect, then, both *slendro* and *pelog* scales can be said to be pentatonic. The main difference between *slendro* and *pelog* is not the number of tones in the tuning system but the size of intervals between the tones. In *slendro* the five pitches are more or less equally spaced throughout the span of an octave, creating relatively equal intervals between adjacent tones that, in Western terms, are larger than a major second but smaller than a minor third. *Pelog*, on the other hand, consists of unequal intervals of large and small size, making *pelog* melodies readily distinguishable from those in *slendro*.

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> I'd written myself into a corner and took the piece to him—was bold enough to bring it, because his assistant said he wouldn't look at a serial work. But he didn't bat an eye. He went through the work and we came to my block. It was a big movement, and what had happened was I'd really written myself into a corner by too much complexity. And he said, "No, only the essentials. Thin it out, only write the essential, the basic thing." And boy, I've never forgotten that—only what is important, that's all I was to write. And I wonder sometimes if writing gamelan isn't exactly what Schoenberg was saying![23]

Harrison repeated this story many times, but what is so intriguing about this particular retelling is the explicit connection he makes to gamelan. For Harrison, the advice to simplify, to thin out, applied equally to his early use of serialism and to his approach to writing gamelan works decades later. Attracted to the melodic basis and melodic potential that he perceived in gamelan, Harrison, in writing music for this ensemble, found himself drawing upon compositional techniques instilled in him as a young man in his teens and twenties. Only his concern with beauty resulted in concealment of his technical methods by an elegant, and at times playful, aesthetic.

Main Bersama-sama

Written in 1978, *Main Bersama-sama* for gamelan degung (a Sundanese gamelan ensemble unique to West Java) and French horn was Lou Harrison's first attempt at combining Indonesian gamelan with Western instruments. Its title literally means "playing together" in *bahasa Indonesia*. Harrison's approach to blending these two traditions, to having them "play together," was to place melody at the forefront of the musical texture. His emphasis on melodic construction appears in his unusual use of unison writing in the opening gamelan section, in his writing of a solo obbligato line shared by the *suling* (an end-blown bamboo flute) and French horn, in his method for pinning together the parts, East and West, and in his use of "melodicles" in composing the gamelan parts.[24]
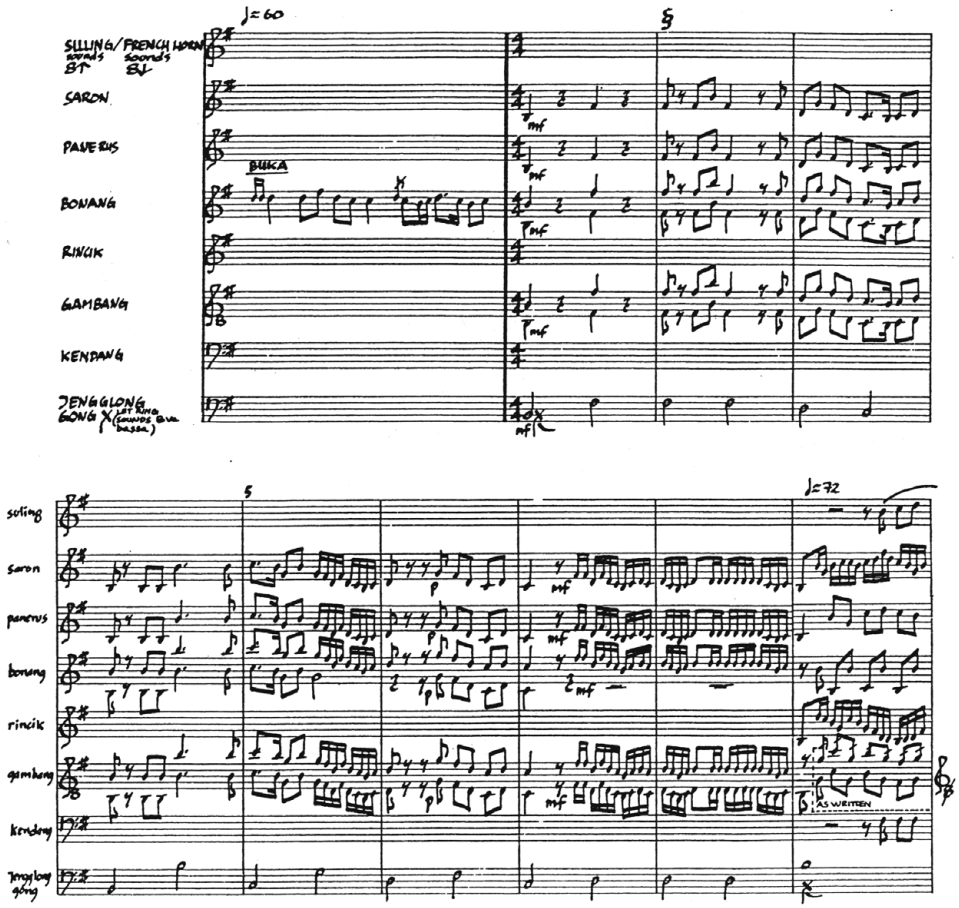
The piece begins with a sixteen-beat *buka* (introductory phrase) played by the *bonang* (a fourteen-pot horizontal gong chime).[25] Then, in direct contrast to the characteristic stratified polyphony of traditional gamelan music, Harrison writes identical material for all of the gamelan parts to play in unison (except for the *jengglong*, a set of six low-pitched gongs, which consistently articulates a half-note pulse), shown in Example 1. This atypical appearance of homophonic writing for the gamelan perhaps signals that Harrison was searching for a straightforward way of introducing the gamelan's distinctive timbre to an audience unfamiliar with

[23] Gagne, *Soundpieces 2*, 99.

[24] My aim is to explain elements of traditional gamelan for readers who may be unfamiliar with the instruments or the music, and at the same time present my own analysis of distinctly Harrisonian structural devices, many of which are more Western than they are traditional gamelan.

[25] Harrison seems to have mixed terminology from Central Javanese and West Javanese gamelan traditions. The term *buka*, handwritten clearly in the published score and in Harrison's sketches of the work, is the term used in central Java for a short melodic introductory phrase. In West Java, whence comes the degung ensemble for which *Main Bersama-sama* was written, the introductory phrase is called *pangkat*; see Henry Spiller, *Focus: Gamelan Music of Indonesia*, 2nd ed. (New York: Routledge, 2008), 132. For the sake of convenience and simplicity, I use Central Javanese terms (e.g., *balungan* and *gatra*) throughout the analysis.

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Example 1. *Buka* and Part A (unison writing), *Main Bersama-sama*.

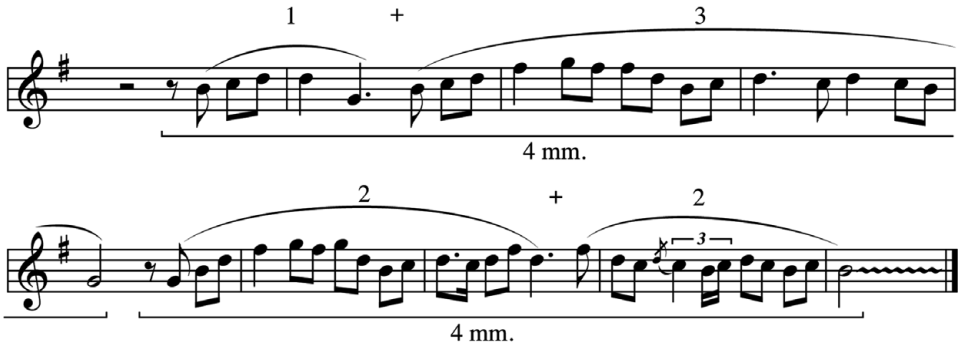
this ensemble. Another possible motivation for this unison texture is that it calls attention to a hallmark feature of Harrison's music: simply stated melody. Given this single melodic line as his main point of reference, one cannot avoid noticing a linear aspect to the music before its texture becomes more complex, with the result that one may be distracted from hearing this linear unfolding of melody. This collective articulation of a single melodic line, labeled A in the individual parts,[26] foreshadows Harrison's continued interest in the horizontal construction of the music.

In the following section (part B), the music not only shifts into the layered polyphony characteristic of gamelan but also introduces an obbligato[27] melody

[26] The individual parts appear to be copied in someone else's hand. The full score, which appears in Harrison's beautiful handwriting, does not include this labeling; however, a sectional division is clear both aurally (through a change in texture) and visually (through the presence of a double bar line and internal repeat sign at m. 10). Lou Harrison, *Main Bersama-sama* (Lebanon, NH: American Gamelan Institute, n.d.).

[27] I am using this word in the sense of its reference to a "necessary" or "indispensable" instrumental part, essential to a work's structure. In this work, Harrison does not treat the *suling*/French horn line as a countermelody but as a prominent melody that lies on the musical surface.

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Example 2a. 4 + 4 measure construction of 1st melodic line played by *suling*/French horn (mm. 9–25), *Main Bersama-sama*.

played by the *suling*, an instrument typically found within a gamelan degung ensemble.[28] After the *suling* has completed its melodic statement, the French horn enters to reiterate the same melodic idea. Although the *suling* and French horn have unique timbres, their commonality as aerophones serves to distinguish their shared melodic line as the featured element in this section.

As aural interest shifts to the solo instrumental melody in part B, the previously unified gamelan melody divides into independently moving parts and the gamelan begins to sound (at least to Western ears) accompanimental in function.[29] Taking center stage beginning with its pick-ups into m. 10, the *suling* plays two related phrases, subsequently restated by the French horn, after which the two instruments continue to alternate melodic material throughout this section of the work. Although Harrison varies the initial pairing of four-measure phrases found in mm. 9–25 with phrase groupings of three-plus-five measures in the second alternation of identical melodic material between *suling* and horn in mm. 25–41, he maintains an underlying structure of eight measures per melodic recitation (see Examples 2a and 2b). But whereas Harrison creates flexible phrasing in the shared *suling*/French horn melody, he designs this solo line to conform to the gamelan's structural framework. It is, in fact, the gamelan that provides phrase structure and organizes the flow of music, specifically through the motion of the gong cycle.

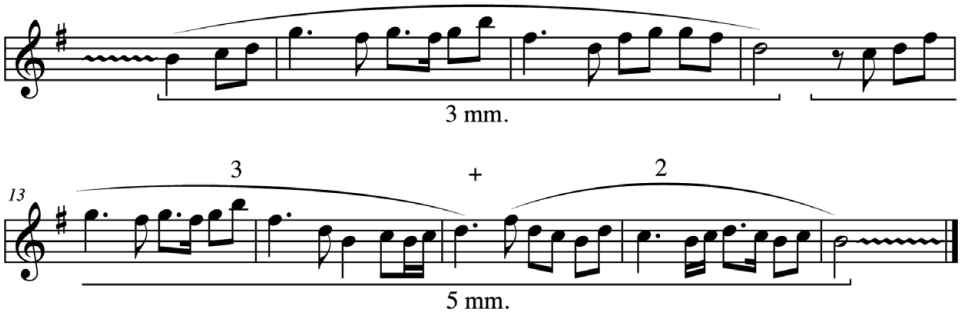
The measured cycling of eight-bar units corresponds with the length of the gong phrase, and each of the above-mentioned melodic statements comes to completion with the striking of the gong. In his Western score of *Main Bersama-sama*,[30]

[28] Henry Spiller provides a list summarizing the instrumentation of various ensembles of Indonesia, Cambodia, and Thailand. Henry Spiller, *Gamelan: The Traditional Sounds of Indonesia* (Santa Barbara, CA: ABC-CLIO, Inc., 2004), 349–54.

[29] A parallel may be found in Harrison's earlier concerti for a solo instrument with percussion orchestra (e.g., the *First Concerto for Flute and Percussion* and the *Concerto for Violin with Percussion Orchestra*, completed in 1939 and 1959, respectively). Leta Miller suggests that, in both cases—percussion ensemble and gamelan ensemble—the camaraderie that stemmed from the feeling of teamwork and the opportunity to make music with friends was an important factor for Harrison (Leta Miller, personal communication, 14 December 2012).

[30] I call this a Western score because Harrison writes out all of the individual parts in staff notation, rather than allowing the elaborating parts to be realized by the performers, as is the practice

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Example 2b. 3 + 5 measure construction of 2nd melodic line played by *suling*/French horn (mm. 25–41), *Main Bersama-sama*.
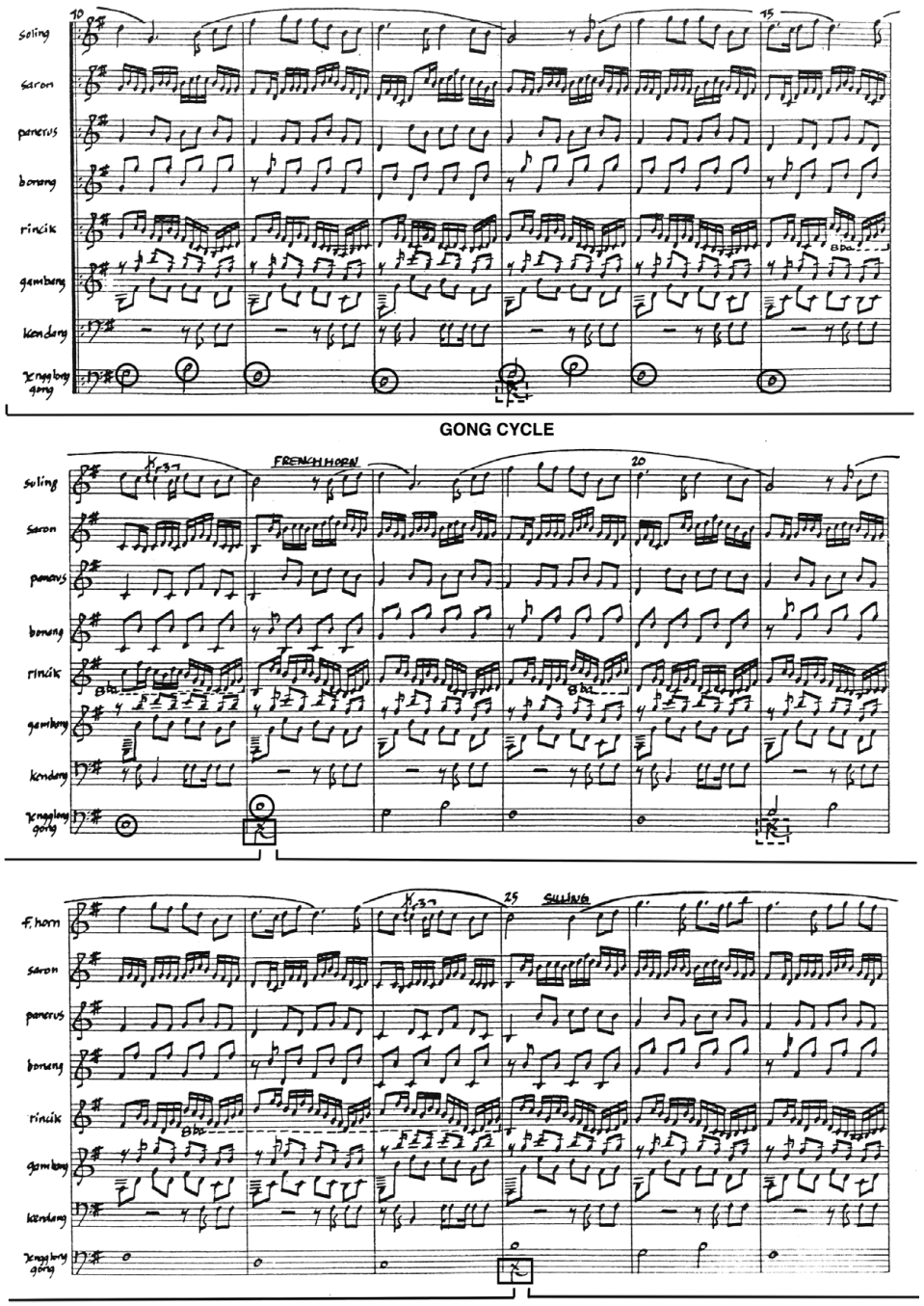
Harrison notates these moments of arrival at the gong tone with an "X." The culmination of each gong cycle thus occurs on the downbeats of mm. 17, 25, 33 and 41, emphasizing the note B (see Example 3). Although only mm. 9–27 are shown here, the same kind of careful patterning occurs throughout the rest of the piece. Harrison also emphasizes the internal subdivision of the gong cycle into two equal halves with the striking of a gong, this time in conjunction with the note G and occurring on the downbeats of mm. 13, 21, 29, and 37. In mm. 9–25 this internal marker coincides with the end of the first four-measure phrase played by the *suling* and French horn, while the obbligato melody's shift to a three-plus-five construction in mm. 25–41 creates an incongruence with this central division of the gong cycle.

Harrison crafts the cyclic organization of the music not only through the regularity of the striking of the gong but also through the recurrence of a structural melody of half notes and whole notes played by the *jengglong*. As shown in Example 3, throughout part B the *jengglong* repeats a ten-note series (the pitches G, B, F#, D, G, B, F#, D, C, and B), thereby establishing the underlying melodic motion of the gong phrase and serving as a point of reference for all of the other instruments. The pitches of this skeletal melody, the *balungan*, become guideposts for the individual melodic and rhythmic elaborations played by the other members of the *degung* ensemble. Furthermore, whereas the fixed length of the gong cycle is reflected in the consistent eight-bar phrasing of the *suling*/French horn melody, the specific pitches played by the *jengglong* are mirrored in the seemingly free and flexible obbligato line. Far from expressing independence from the gamelan, the solo line can be reduced to the skeletal pitches of the *balungan*, revealing the remaining pitches to be a melodic ornamentation of that underlying structural melody (see Example 4). The steady occurrence of pitch coincidence between the *suling*/French horn melody and the *balungan* is thus a reflection of this shared melodic structure.

Available sketch material indicates that Harrison's decisions of melodic patterning match the sequence of underlying pitches established by the *jengglong*. One page from Harrison's personal notebooks shows both the gamelan's "tutti" melody in part A, with the structural pitches of the *jengglong* written with downward stems,

in traditional gamelan performance. He also presents points of structural importance, such as gong strokes, as downbeats in staff notation.
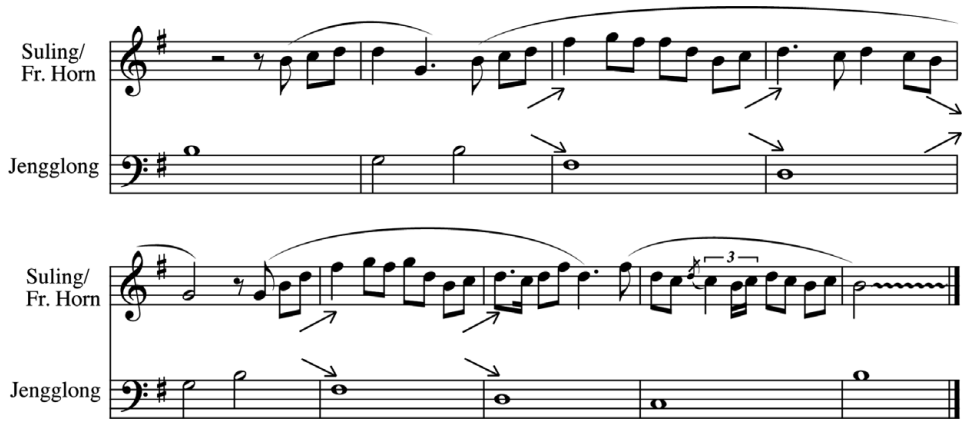
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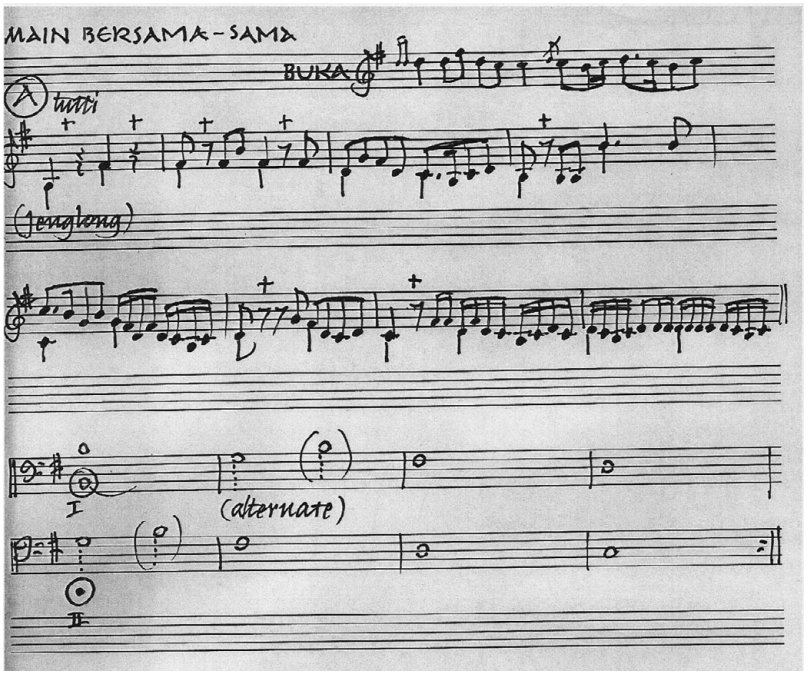


Example 3. Cycling of *jengglong* pitches, *Main Bersama-sama*.

and the *jengglong*'s skeletal framework for part B (see Example 5). This outline of the *jengglong*'s pitches in part B also appears (in a slightly modified form) on another page from the composer's notebooks that maps the *gambang* part in relation to this melodic skeleton (see Example 6). On a separate page exists a sketch of the French

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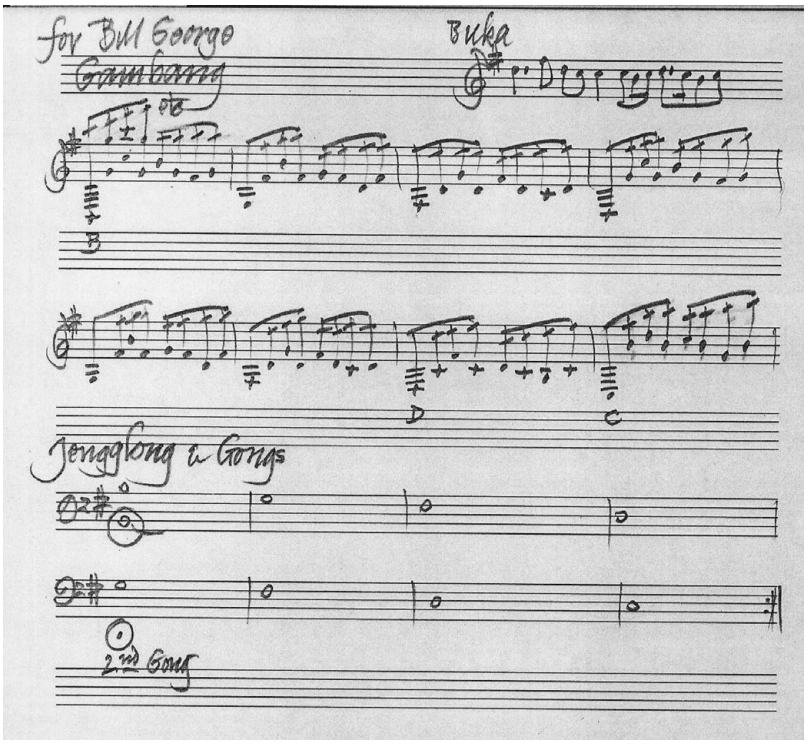


Example 4. *Suling*/French horn melody an embellishment of the underlying structural melody, *Main Bersama-sama*.



Example 5. Sketch of unison melody in Part A (*jengglong* pitches indicated with downward stems) and the gong cycle, with structural melody played by *jengglong*, for Part B, *Main Bersama-sama*. Courtesy Lou Harrison Archive, Special Collections, McHenry Library, UCSC.

horn melody, written a fourth lower than it appears in the published version of the piece to accommodate the French horn's transposition (see Example 7). Crossed out, presumably by Harrison himself, this sketch reveals an earlier, more simplistic conception of the second half of the melodic material and makes no mention of the presence of the *suling* as a melodic partner. Absent in the sketches is a direct pairing of the horn melody and *jengglong* pitch structure similar to that of the *gambang* and *jengglong*. Although it is obvious that Harrison linked all parts through a

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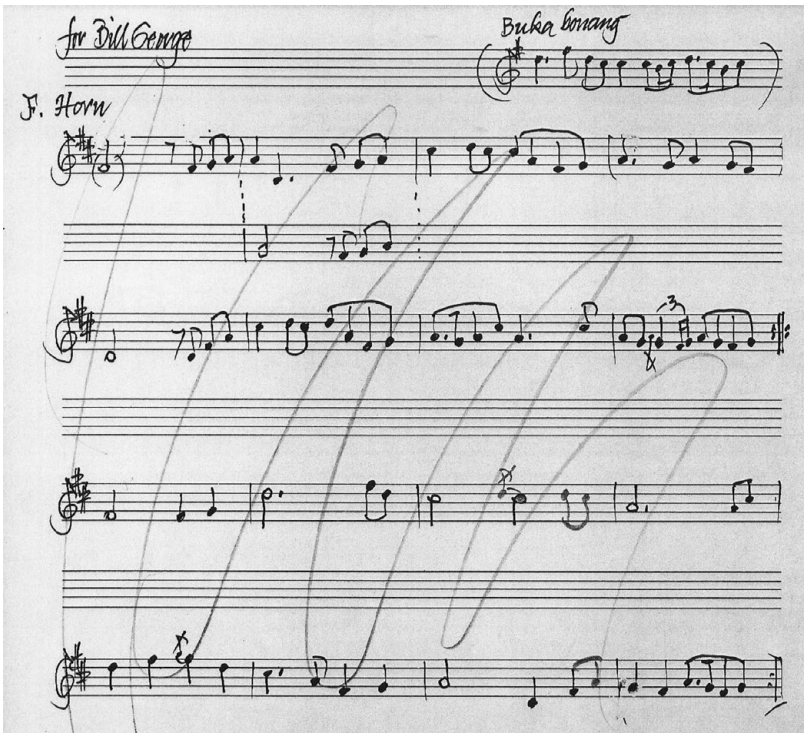


Example 6. Sketch mapping the *gambang* part to the underlying structural melody, *Main Bersama-sama*. Courtesy Lou Harrison Archive, Special Collections, McHenry Library, UCSC.

single melody, it remains unclear whether, in his creation of *Main Bersama-sama*, he moved from West to East, from a Western framework of melody towards the Indonesian concept of *balungan*, or vice versa.[31]

Given the evident correlation between the *suling*/French horn and *jengglong* parts, it is striking that we do not readily hear the obbligato melody as being derived from the gamelan structure. Although the *suling*/French horn line may be viewed as one particular elaboration of the *balungan*, just as the *saron*, *panerus*, *bonang*, *rincik*, and *gambang* are elaborations of the structural melody, why does this line stand out as melody rather than simply as a layer of embellishment? The distinctive timbre of both the *suling* and French horn is the obvious foreground answer. But another answer might lie in Harrison's rhythmic construction of the individual parts. Unlike the almost constant eighth-note or sixteenth-note motion of the accompanimental gamelan parts, the *suling*/French horn line, comprised of quarter notes, dotted-eighths, and sixteenths, has a distinctive rhythmic flexibility. Moreover, the use of pick-up notes, present at the start of each melodic fragment, directs the melodic motion and contributes a sense of elasticity and freedom, while the slur markings—used only in the obbligato melody—convey its easy, flowing character.

[31] Lou Harrison notebooks. MS 132 ser. 2. Special Collections and Archives, McHenry Library, University of California, Santa Cruz.

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Example 7. Sketch of French horn melody with a simplified second half (the material presented after the internal repeat sign), *Main Bersama-sama*. Courtesy Lou Harrison Archive, Special Collections, McHenry Library, UCSC.

But beneath this simple "tune" lies a complex web of mathematical relationships. Rather than imitate traditional techniques or allow for the flexibility of performance that comes with unwritten elaborating parts, Harrison used his own unique, game-like compositional strategies to construct the gamelan's melodic material.[32] Harrison's self-imposed compositional game of patterning and of creating limitations through the use of small melodic cells ("melodicles") can be found throughout *Main Bersama-sama*.[33] Although the gamelan parts display typical four-beat groupings of *gatra* (a metrical unit of four beats), close investigation of Harrison's pitch choices

[32] Henry Spiller offers an insightful analysis of Harrison's unconventional, and Western, approach to the gamelan's rhythmic organization in *Main Bersama-sama*; see Spiller, "Lou Harrison's Music for Western Instruments and Gamelan," 40–43.

[33] Bill Alves draws parallels between structural elements of traditional Javanese music and the structural underpinning of Harrison's compositions, pointing to Harrison's use of techniques such as "melodicles" and quintal counterpoint in his gamelan music; see Alves, "Kembangan in the Music of Lou Harrison," 29–56. My analysis of Harrison's use of "melodicles" is indebted to Alves's examination of melodic patterning at various levels of musical structure. Examining Schoenberg's influence on John Cage's compositional practice, Brenda Ravenscroft offers a similar motivic analysis of Cage's *First Construction*; see Brenda Ravenscroft, "Re-Construction: Cage and Schoenberg," *Tempo: A Quarterly Review of Modern Music* 60/235 (January 2006): 2–14. Ravenscroft uses the label "contour motive" and points to both prime and retrograde statements of the motive in the piece. My analysis goes further in showing us that Harrison's use of melodic contour operates not only at the level of surface detail but also at abstracted levels of structure, thus creating an even more complex design than that of Cage.

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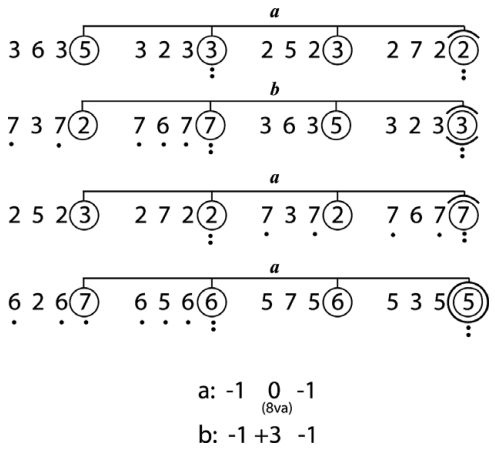


Figure 1. Two contour patterns, labeled melodicle *a* and melodicle *b*, played by the *gambang* in Part B, *Main Bersama-sama*.

reveals deliberate and intricate patterning in line with many of his works for Western instruments. Harrison experimented with the use of "melodicles" as early as the 1930s, a technique he developed from his studies with Henry Cowell. As Harrison himself recounted, "[Cowell] would give me three or four tone motives and suggest that I use them to construct small model pieces . . . transposing them . . . using the retrograde and inversions and inverted retrogrades, the melodicles either connected by a common tone or separated by a determined interval."[34] The importance of this technique as a component of Harrison's compositional style is evidenced by his discussion of such motivic manipulation as the first item in his *Music Primer* (1971).[35] This technique permeates the melodic structure of *Main Bersama-sama*, showing Harrison's personal (and Western) voice in his use of the gamelan.

Harrison's rigorous use of melodicles is best seen in the *gambang* part. A xylophone with wooden bars, the *gambang* is distinct in timbre from the bronze instruments that typically make up a *degung* ensemble. Perhaps this timbral contrast drew Harrison to spend compositional energy on the *gambang*'s embellishment of the structural melody. In creating its melodic line, he generates a sort of endless cycle with great inner coherence by limiting himself to two contour patterns at a deep level of structure in part B. Melodic motion in gamelan music moves towards and places emphasis on the last pitch of each *gatra*—what gamelan scholars refer to as an end-weighted rhythmic sensibility[36]—and Harrison constructs an intricate pattern built on the fourth, and metrically strongest, pitch of each *gatra* (see Figure 1). Each contour pattern can be described in terms of interval ascent or descent between pitches, with ascent marked by a plus sign and descent a minus

[34] Harrison, "Learning from Henry," 163.

[35] Lou Harrison, *Music Primer: Various Items About Music to 1970* (New York: C. F. Peters, 1971).

[36] For a discussion of end-weighted rhythmic sensibility in Javanese gamelan, see Spiller, "Lou Harrison's Music for Western Instruments and Gamelan," 31–39; Benjamin Brinner, *Knowing Music, Making Music: Javanese Gamelan and the Theory of Musical Competence and Interaction* (Chicago: University of Chicago Press, 1995), xxi; Brinner, *Music in Central Java*, 28; and Perlman, *Unplayed Melodies*, xvii–xviii.

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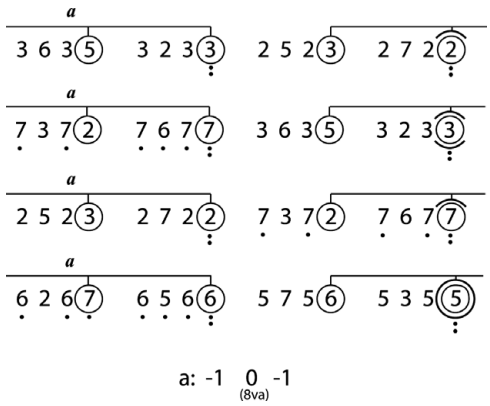


Figure 2. Melodicle *a*, connecting each line to the next, *Main Bersama-sama*.

sign, and a number indicating the interval size. Thus, using Javanese *kepatihan* notation in which pitches are represented by the numerals 1 through 7, the motion from pitch 2 to pitch 3 would be labeled +1. Converting Harrison's Western staff notation into *kepatihan* notation gives the following pitch approximations: F# = 2, G = 3, B = 5, C = 6, and D = 7.[37] For practical purposes, each successive step between numbered pitches is counted as an interval size of 1, regardless of the gapped intervals created by the pentatonic *pelog degung* scale. That is, motion from 7 to 2 and from 3 to 5 reflects successive steps within the melodic framework of the piece, and would be labeled +1.[38]

The first line of Figure 1 reduces to the pitches 5332, with the contour −1, 0, −1, (which I have labeled melodicle *a*). Lines three and four also follow this pattern; the second line, however, deviates from this pattern and has the contour −1, +3, −1 (labeled melodicle *b*). Harrison's reason (or perhaps compositional need) for altering the second line derives from his pervasive use of melodicle *a*. Not only does this melodicle serve as the structure for lines one, three, and four at this architectural level, but it also operates as the bridge that connects each line to the others (see Figure 2). Plainly stated, melodicle *a* joins the last two pitches of one line to the first two pitches of the following line, resulting in a tightly woven melodic fabric.

Harrison's intricate scheme of overlapping occurrences of melodicle *a*, however, could not be negotiated flawlessly, necessitating his one break with the pattern in the second line (the presence of melodicle *b*). If this line were to follow the

[37] Javanese *kepatihan* notation, although not in keeping with gamelan degung practice, seems most convenient for analyzing Harrison's melodic patterns. Because Sundanese cipher notation uses descending numbers to represent an ascending scale, what appears to most Western eyes as a descent in pitch (e.g., motion from pitch 3 to pitch 2) *sounds* as an ascent in pitch. Henry Spiller suggests that Harrison's own discomfort with Sundanese cipher notation's "backwards" orientation led him to use only staff notation for his degung pieces. (Henry Spiller, personal communication, 10 February 2013). *Main Bersama-sama* has been transcribed for Javanese gamelan, but the tuning differs greatly from that of the original degung version. According to Spiller, the transcribed *kepatihan* parts for *Main Bersama-sama*, although not completed in Harrison's hand, were created with his approval (personal communication, 10 February 2013); my analysis employs these *kepatihan* ciphers.

[38] Interval size is also calculated according to shortest distance traveled. For example, the motion from 2 to 7 in the fourth *gatra* of the first line is considered to be a descent of one scale degree (favoring conjunct melodic motion) rather than an ascending leap of four scale degrees.

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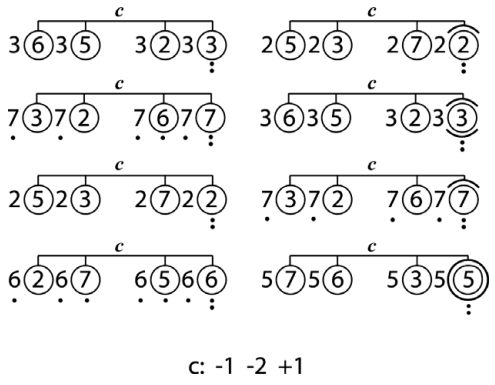


Figure 3. Melodicle *c, Main Bersama-sama.*

overriding contour pattern, its pitches would be transformed to 2776 (contour of −1, 0, −1). In order to maintain the use of melodicle *a* as a connector between lines, the pitches of the third and fourth lines would also face alteration. The original sequence of pitches, 5332 2753 3227 7665, would become 5332 2776 6553 5332. What is immediately noticeable about this transformation is its effect on the cyclicity of the *gongan* (the basic musical unit between two gong strokes). Harrison's "flawed" version with the use of melodicle *b* upholds the length of the recurring gong cycle. The transformed (or "correct") version, on the other hand, results in a cycle of only three-quarters of the established length, which would necessitate a restructuring of the composition's formal framework. Hence, Harrison's insertion of melodicle *b* preserves the underlying structure of the work while using melodicle *a* as thoroughly as possible.

Harrison's use of contour as a structural element extends to other layers of the work. By moving towards the surface level, we discover Harrison's awareness of the possibilities for cohesion at various levels of structure. As noted above, the end-directed structure of melodic motion in gamelan music emphasizes the last pitch of each *gatra*; the second pitch also receives rhythmic/structural prominence, second in strength to the final pitch. Harrison adheres to this metric hierarchy in his writing for the *gambang*, establishing "pedal" tones on the weak beats of each *gatra* (beats one and three) akin to the Javanese/Sundanese musical process called *pancer*.[39] The second and fourth beats are more active and deserve further consideration.

In the melodic progression of the pitches located on strong beats, Harrison's layered organization becomes evident. These pitches all fall into a single melodic contour, labeled melodicle *c* (see Figure 3). Harrison carefully connects each occurrence of melodicle *c* with an additional contour pattern. Melodicle *d*, contour +1, +1, −1, bridges the four-note groupings and is found consistently throughout this section, varied through use of its retrograde in one statement (see Figure 4).

At the melodic surface two contour patterns appear as a result of Harrison's melodic elaboration of the *gambang*'s underlying structure. Melodicles *e* and *f*

[39] A *pancer* is a tone inserted between each of the melody's existing notes; see Perlman, *Unplayed Melodies*, 98–100; and Spiller, *Focus: Gamelan Music of Indonesia*, 89–90, 132–35.

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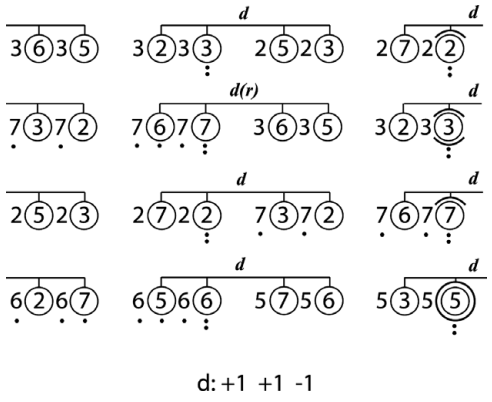


Figure 4. Melodicle *d*, *Main Bersama-sama*.

alternate in consistent fashion (see Figure 5), and are linked through the use of two additional melodicles.[40] Combining the last two pitches of each odd-numbered *gatra* with the first two pitches of each even-numbered *gatra* (for example, 3532 as the connector spanning across the first two *gatra*) results in melodicle *g*, with the contour +1, −1, −1. Similarly, melodicle *h* is created through the connection between the last two pitches of even-numbered *gatra* and the first two pitches of odd-numbered *gatra* (for example, 3325 formed from the respective halves of the second and third *gatra*), and each occurrence of melodicle *h* conforms to the contour of 0 (or octave equivalence) −1, +2. Melodicles *g* and *h* alternate in the same consistent fashion as the rotation of melodicles *e* and *f* (see Figure 6).

In addition to contour patterning, Harrison further organizes the *gambang* pitches through the process of repetition. In Figure 7, notice groupings that span two *gatra*. The first three pairs of *gatra* repeat, providing another layer of structure to the first three lines. Harrison seems to be playing with groupings of three against two. The fourth line remains more independent from the first three lines. The line, however, is not without ties to other formal aspects of the composition. The final pitch of each *gatra* in this line (7665) comes from the final pitch of each line in part A.

As we have seen, Harrison's melodic inventiveness is expressed in a variety of forms in *Main Bersama-sama*. Taking a single melody (the *balungan*) as the guiding linear strand for the work, he employs the gong cycle as the frame for melodic motion and thus adopts the structural underpinning of gamelan. But moreover, the piece reveals the rich ways in which Harrison thought about the function of melody. In tying all instrumental parts to the skeletal melody (*balungan*), Harrison not only explored the writing of graceful lines to be played by the French horn

[40] A pitch discrepancy occurs in the second beat of the second *gatra* of the last line. The published score includes individually notated parts using ciphers and a full score written in Western notation, and, whereas the *gambang* part indicates that pitch 2 is to be played at this moment, the full score clearly indicates the pitch B (corresponding to pitch 5). Due to the unmistakable alternation of melodicles *e* and *f*, it seems that pitch 5 is the intended pitch, and that the writing of pitch 2 was a simple oversight. Furthermore, the full score appears in Harrison's beautiful handwriting, whereas the individual parts appear to be copied in someone else's hand. Lou Harrison, *Main Bersama-sama* (Lebanon, NH: American Gamelan Institute, n.d.).

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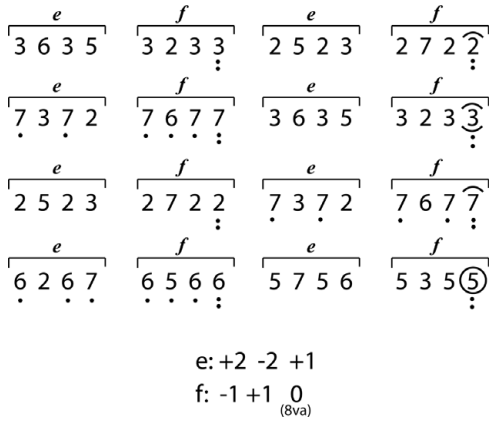


Figure 5. Melodicles *e* and *f*, operating at the surface level, *Main Bersama-sama*.

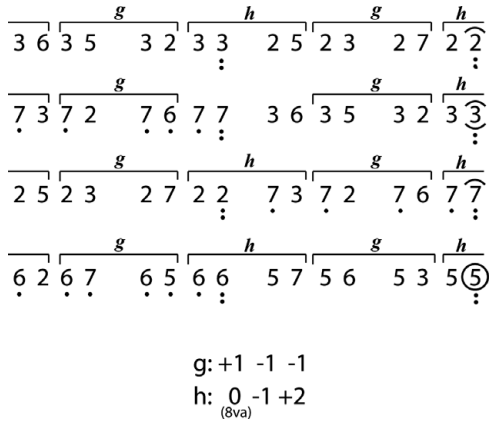


Figure 6. Melodicles *g* and *h*, operating at the surface level, *Main Bersama-sama*.

and *suling*, but he also experimented with creating a mosaic of small melodic cells ("melodicles") based on melodic contour. Thus *Main Bersama-sama* shows an elegance of design in its refinement of means, as both flowing melody and tightly knit patterning are derived from the same ten-note skeleton of the work.

Bubaran Robert

Although more widely known as a work for gamelan and piccolo trumpet, *Bubaran Robert* was originally conceived and published in 1976 for gamelan alone. Only after the passage of five years did Harrison add the trumpet melody, while simultaneously revising the gamelan's melodic structure.[41] Harrison's interest in melodic

[41] Harrison's reuse and revision of earlier compositions is discussed by Miller and Lieberman (*Composing a World*, 231–33); see also Leta E. Miller, "Lou Harrison and the Aesthetics of Revision, Alteration and Self-Borrowing," *Twentieth-Century Music* 2/1 (March 2005): 79–107. In composing his works for gamelan and Western instruments, Harrison returned to his first attempt at writing for traditional gamelan, *Music for Kyai Hudan Mas*, on two occasions. *Bubaran Robert*, the third piece

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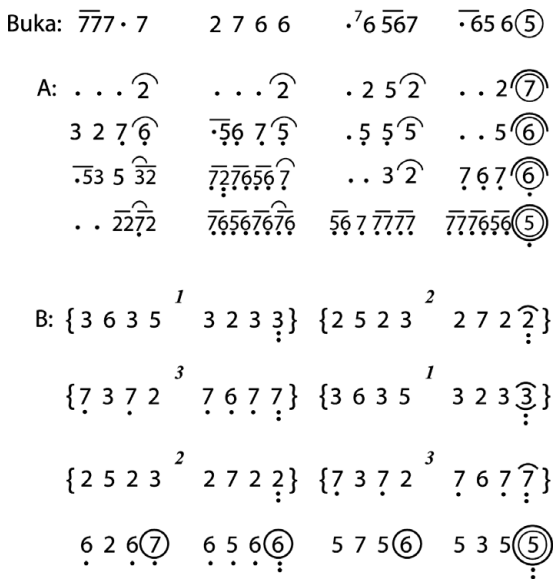


Figure 7. Melodic repetition in Part B; relationship between Part A and fourth line of Part B, *Main Bersama-sama*.

expressivity was not confined to his writing for the solo Western instruments, but inhered in his construction of the gamelan parts as well.[42] That melody served as a generating force for his construction of both entities, East and West, did not mean, however, that a Western listener would necessarily understand the gamelan in melodic terms. In *Main Bersama-sama* the solo Western melodic lines seem to fulfill Harrison's notion of writing memorable "tunes"; the gamelan *balungan*, on the other hand, may not be heard as similarly tuneful by Western audiences. Harrison constructed his 1981 revision of *Bubaran Robert* in such a way that it challenges listeners to confront their ideas of what a melody is.

Specifically, Harrison challenges listeners to hear the gamelan as an equal partner in the musical fabric and not merely as an accompaniment to the Western

in the collection, retained its original title with the addition of the piccolo trumpet part, and it is this revised version of the piece that is best known today. *A Cornish Lancaran* for saxophone and gamelan follows the same pattern of adopting a previously written gamelan part as the backdrop for a prominent solo line played by the Western instrument. In this case, Harrison used a section of the first piece in *Music for Kyai Hudan Mas*, *Gending Samuel* (the section marked "Lancaran style"), as the basis for his later work. See Lou Harrison, "Music for Kyai Hudan Mas," *Soundings* 10 (1976): n.p. The anthology *Gending-Gending California*, compiled by Harrison and Trish Neilson, contains a slightly altered version of the *lancaran*, titled *Lancaran Samuel* in this collection. Additionally, Harrison's *Double Concerto for Violin, Cello, and Gamelan* was based on two previously published gamelan works, *Gending Hephaestus* and *Ladrang Epikuros*, which can be found in the anthology *Gending-Gending California*. The catalog of works created by Leta Miller and Charles Hanson provides a detailed account of the links among various versions, revisions, and alterations of Harrison's compositions. See Miller and Lieberman, *Composing a World*, 267–316.

[42] Jody Diamond's well-known analysis of *Bubaran Robert* similarly emphasizes Harrison's interest in melody; see Jody Diamond, "'In the Beginning was the Melody': The Gamelan Music of Lou Harrison," in *A Lou Harrison Reader*, ed. Peter Garland (Santa Fe, NM: Soundings Press, 1987), 101–3.

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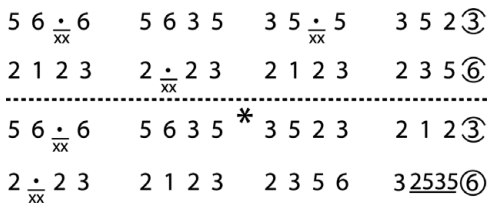
instrumental line. This is not to suggest that the gamelan serves an accompanimental role in *Main Bersama-sama* or in any of his other gamelan-plus pieces, but rather that Harrison structured the interaction between the gamelan and solo instrument in such a way that invites the listener to engage more fully with the gamelan on its own terms. This engagement is achieved through the alternation of passages played by gamelan alone and passages played by gamelan and piccolo trumpet, and through the gamelan's maintenance of a single melodic structure in both solo and combined passages. Significantly, Harrison's own melodic interest in the gamelan increased with his addition of a melody for piccolo trumpet, as he tightened the gamelan's melodic structure in anticipation of this substantial alteration to the work.

In revisiting an existing work, Harrison found himself considering anew the melodic potential of a traditional form. In traditional gamelan music, short forms such as the *bubaran* are governed by the colotomic structure of the gong cycle.[43] The time-keeping instruments, the *kenong*, *kempul*, *kempyang*, and *kethuk*, mark internal subdivisions of the gong cycle, and the specific interaction of these instruments establishes the formal structure of the music. Harrison's interest in understanding formal aspects of Javanese gamelan music is evident in *Bubaran Robert*, with its titled acknowledgment of employing *bubaran* form, as well as its indication of scale (*slendro*) and *pathet* (*manyura*).[44] Yet, just as Harrison explored the world of gamelan, keeping an eye towards tradition, he also pursued his own compositional strategies. His 1981 revision of the work is yet another instance of his application of individual compositional strategies to melodic construction. In this revised version of *Bubaran Robert*, form is determined not only by Harrison's employment of a traditional colotomic structure, but also through melodic patterning. The changes he makes to the gamelan reveal a tightening of structure. Harrison retains his compositional practice of building form through melody, and he overlays a melodic scheme on top of the *bubaran* structure.

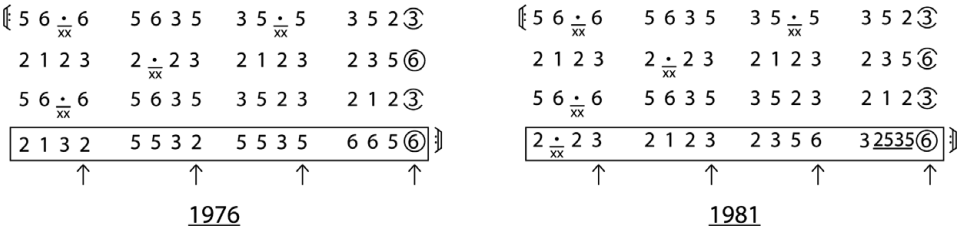
[43] Like other small forms such as *ladrang* and *lancaran*, *bubaran* is articulated by a particular pattern of punctuating strokes played on a handful of instruments that serve to lay out an underlying timeline for other instruments moving at higher rhythmic densities. Ethnomusicologists commonly refer to this foundational layer as the *colotomy* (or *colotomic* structure) and to the instruments involved as *colotomic* instruments. Henry Spiller provides the following explanation for the root of the terms *colotomy* or *colotomic form*: "These terms are based on the Greek word for a unit of rhythm (*colon*) and the Greek-derived suffixes for something that cuts or divides into sections (*-tomy* or *-tomic*); see Henry Spiller, *Focus: Gamelan Music of Indonesia*, 57. These instruments include the *gong ageng*, *gong suwukan*, *kenong*, *kethuk*, *kempul*, and *kempyang*.

[44] Frequently translated as "mode," the Javanese word *pathet* embraces a system of restraint that guides the musical treatment of the notes of the scale. Each of the two tuning systems contains three modes called *pathet*. In *slendro* the three modes are *pathet nem*, *pathet sanga*, and *pathet manyura*; in *pelog* the three modes are *pathet lima*, *pathet nem*, and *pathet barang*. The *pathet* of a piece is expressed through the emphasis of particular pitches at important metric junctions and, conversely, the avoidance of other tones at structurally prominent moments. The melodic parts also display the *pathet* of a piece through the use of characteristic cadential patterns and patterns of elaboration. As Jennifer Lindsay points out, *pathet* "is therefore a limitation on the player's choice of variation. . . . Awareness of such limitations, and exploration of variation within them reflects a basic philosophical aim of gamelan music, and indeed all art in central Java, namely, the restraint and refinement of one's own behavior." Jennifer Lindsay, *Javanese Gamelan: Traditional Orchestra of Indonesia*, 2nd ed. (New York: Oxford University Press, 1992), 40.

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Example 8. Two halves of the *balungan*, *Bubaran Robert*.



Example 9. Changes to the melodic contour of the fourth *gongan*, *Bubaran Robert*.

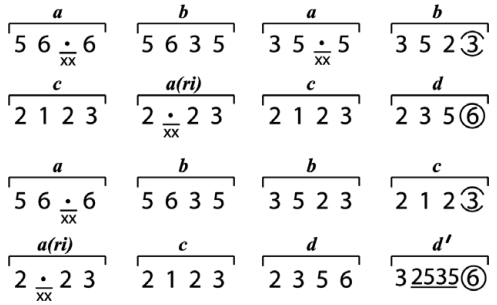
This layering of two formal designs occurs within the gamelan's *balungan*, as the particular configuration of *kethuk*, *kempul*, and *kenong* iterations provides a backdrop against which Harrison displays his melodic idea. The colotomic instruments create a regularity of pulse and phrase structure, but Harrison establishes a larger pattern of repetition through melodic motion that spans two gong phrases, thereby dividing the entire *balungan* into two equal halves. The *balungan* is reproduced in Example 8, and I have indicated the two halves through the use of a dotted line. Harrison writes nearly identical melodic material for each half of the *balungan*, highlighted by motion to tone 3 at the end of the first gong phrase and to tone 6 at the end of the second gong phrase. The two halves, in fact, follow the same melodic sequence of *gatra*, differing only by the omission of the third *gatra* (35 · 5) and subsequent addition of a new final *gatra* (32535**6**) in the second half. The location of the omitted third *gatra* is marked with an asterisk in Example 8.

The near symmetry of the two halves of the *balungan* did not take form until Harrison's 1981 reworking of the piece. The original version of *Bubaran Robert*, though structurally organized around gong tones 3 and 6, displays a through-composed approach to developing the gamelan's principal melody, with the fourth line expressing independence from what came before it. Example 9 presents the *balungan* of both published versions of the work. Although the concluding gong tone on pitch 6 is preserved, Harrison changed essentially every other pitch played in this final gong phrase in his 1981 revision.

A comparison of the two versions reveals a tightening of formal structure and a pronounced affirmation of the two structural gong tones. The 1976 version of *Bubaran Robert* highlights the pitches 2, 2, 5, and 6 as the metrically prominent *kenong* pitches of the fourth line.[45] The revised version, in comparison, emphasizes

[45] Cipher notation not only expresses melodic pitch content as represented by numerals, but also conveys aspects of the metric organization of gamelan music as well. Metrically important moments are underscored by the punctuation of colotomic instruments. In addition to delineating form, points of metric stress—namely, the stroke of the large gong and the strokes of the *kenong*—provide a

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Example 10. Pattern of gamelan *gatra*, *Bubaran Robert*.

the two pillar pitches upon which the entire melody hangs. I have indicated these pitches with arrows in Example 9. Harrison's revision not only refocused the *balungan*'s central pitch structure, but it also showed newfound concern for creating a cohesive form by means of melodic design. Harrison stripped the fourth line of its previous melodic freedom, as he continued the repeated sequence of *gatra* already established in the third *gongan*. The resultant binary structure thus replaced the freer form of the original version of the piece. This alteration shows Harrison's characteristic concern with maintaining careful control of form and other parameters even as the music suggests a kind of fluent, even intuitive melodicism.

An analysis of the revised *balungan*'s undulating melody suggests that Harrison organized these core melodic pitches not as long, floating phrases, but as short musical segments to be manipulated and reordered. As noted above, Harrison frequently challenged himself to create melodies or entire pieces from small melodic cells—"melodicles"—throughout his compositional career. Having employed melodicles in his construction of elaborating parts in *Main Bersama-sama*, Harrison returned to this familiar technique in his second look at *Bubaran Robert*.

In *Bubaran Robert*, each *gatra* stands alone as a small melodic cell and can be described by its internal shape, which is determined by the interval size and direction between two adjacent pitches. Conforming to a handful of such contour patterns, the *gatra* provide an overall unity to the *balungan*'s structure. The first line presents two melodicles in alternation, labeled *a* and *b* (see Example 10). Melodicle *a* expresses a contour shape of rising one scale degree and then maintaining that pitch level for the final two beats of the *gatra* (+1, 0, 0). Melodicle *b* rises one scale degree, descends two scale degrees, and then ascends one scale degree to return to its starting pitch (+1, −2, +1).[46] The third and fourth *gatra* of the line repeat melodicles *a* and *b*, sequenced down a scale step. The second line introduces two new melodicles,

frame for the occurrence of melodic cadences. Visually, such points of metric emphasis, and hence potential moments of melodic closure, occur at the end of each notated *gongan* or on the last beat of a subsection (e.g., *kenongan*) and reveal the end-weighted rhythmic sensibility of gamelan music, as discussed earlier in this article. The significance placed on the last beat of rhythmic groupings is felt not only in metric terms, but also in its influence on the melodic progression of the individual parts.

[46] The *slendro* scale uses pitches 1, 2, 3, 5 and 6. Thus, interval size is calculated using only these scale degrees, making the distance from tone 3 to tone 5 one scale degree. Similarly, motion from tone 6 to tone 3 is measured as a descent of two scale degrees.

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labeled *c* and *d*. Melodicle *c* follows a descent of one scale degree and then changes direction to ascend two subsequent scale steps (−1, +1, +1). Melodicle *d* follows a steady scalar ascent (+1, +1, +1). In addition to transpositions of melodicles *a* and *b*, the retrograde inversion of melodicle *a* appears in the second and fourth lines. The final *gatra* presents a more elaborate version of melodicle *d*.
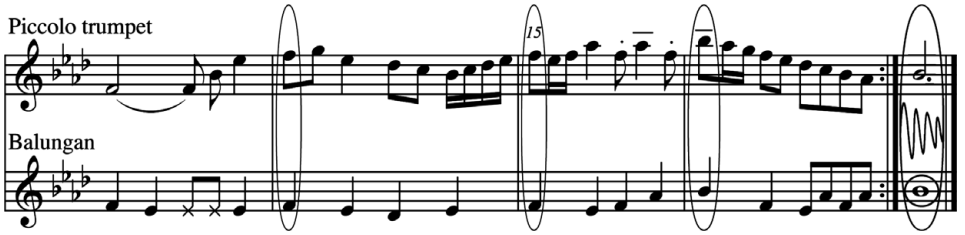
This labeling of *gatra* according to their melodic contour strongly illustrates the pervasive repetition of melodic material mentioned above and Harrison's overall tightening of form. The two halves of the *balungan* follow the same sequence of *gatra*, with the exception that in the third line of Example 10 the third *gatra* (melodicle *a*) is omitted and the following material is moved one *gatra* earlier, resulting in the addition of melodic *d*′ as a kind of cadential arrival. In analyzing the ways in which Harrison's music incorporates structural principles of gamelan music, Bill Alves points to the deletion of the third *gatra* of *Bubaran Robert* as a metric shifting of the following melodicles to earlier time points. Notably, the new melodicle introduced at the start of the second line (melodicle *c* in my labeling) now falls on the gong, a metrically strong position, at the end of the third line. "This shifting of gatra from metrically weak to strong parts of the formal structure is a favorite trick of Javanese composers as well," notes Alves, citing Jody Diamond's comparison of *Bubaran Robert* to the traditional piece *Bubaran Rediguntur*.[47]

Although Alves and Diamond see this metric shifting as an element of compositional play in both Harrison's writing and in traditional Javanese gamelan music, Harrison's realignment of *gatra* in the second half of *Bubaran Robert* suggests another kind of structural "game." The *balungan*'s binary construction carries over to the piccolo trumpet part, added in 1981. The trumpet plays two highly similar eight-measure phrases corresponding to the two halves of the gamelan, thus highlighting the parallelism already created. Unlike the *balungan* melody, the trumpet melody maintains its skeletal eight-bar structure in its second phrase and does not eliminate material in order to follow the gamelan's forward leap. As a result, the gamelan and trumpet play "out-of-phase" for much of the second half of the repeated cycle of music.[48] Harrison eases this tension by loosely tying the two parts together through pitch coincidence, establishing octave alignment on the fourth beat of the thirteenth through sixteenth *gatra* (on the downbeats of mm. 13–16 in the Western score). Example 11 illustrates Harrison's use of pitch alignment in the final *gongan* in Western score form, with the salient pitches (and of greatest metric stress) circled.

[47] Alves, "Kembangan in the Music of Lou Harrison," 41; Diamond, "In the Beginning was the Melody," 101.

[48] Harrison's 1978 composition *Threnody for Carlos Chávez* (for viola and gamelan degung) similarly employs moments of "misalignment" between the Western instrument and gamelan ensemble. In this work the viola frequently cadences at moments that do not coincide with the completion of gong phrases and in other ways resists the gamelan's regular cyclic phrase structure and patterning. See Rachel Chacko, "Beyond the Myth of East-West Hybridity: An Analysis of Lou Harrison's Works for Gamelan and Western Instruments" (Ph.D. diss., University of Colorado, 2010), Ch. 4. The first movement of the *Concerto for Piano with Javanese Gamelan* also shows Harrison's interest in such rhythmic interplay and the play of phrase alignment; as Miller and Lieberman detail, the A section of the work combines irregular length phrases in the piano (phrases of five or seven beats, for example) with gamelan *gatra* of four or six beats. Miller and Lieberman, *Lou Harrison*, 62.

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Example 11. Pitch coincidence between the *balungan* and solo piccolo trumpet line in the final *gongan*, *Bubaran Robert*.

The "misalignment" of the two melodies creates an interesting juxtaposition of the trumpet and gamelan, as Harrison writes two seemingly independent melodies that operate according to separate principles yet somehow make sense together. It is as if Harrison is making a humorous, if hidden, comment on how two musical traditions can be disconnected yet perfectly in harmony with one another. This hidden "puzzle" is yet another example of the compositional games that lie beneath the beguiling surface in Harrison's music.
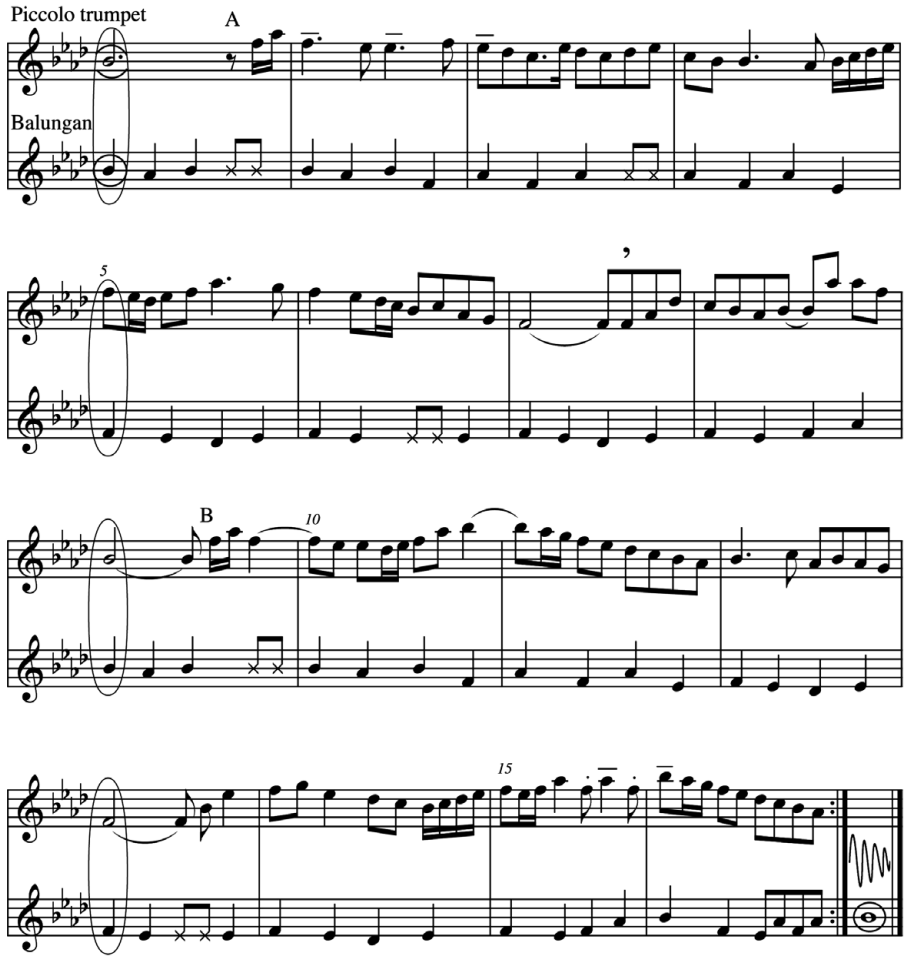
Because of his blending of two highly different melodies, Harrison had to find a way for the gamelan and piccolo trumpet to "play together." His strategy seems to have been periodic pitch coincidence at moments key to the unfolding of this traditional Javanese form.[49] In revisiting his 1976 version of *Bubaran Robert*, Harrison chose to maintain the hierarchical structures of pitch and regularity of phrase length originally established in the work. The paired sixteen-beat *gongan* lead to the gong tones on pitches 3 and 6, and this underlying melodic motion extends to the contour of the trumpet's melody.

In writing the solo trumpet line, Harrison pairs the Western instrument with the *balungan*, which he has notated in Western staff notation (see Example 12). The *slendro* scale is represented by the following Western pitch approximations: 1 = D♭, 2 = E♭, 3 = F, 5 = A♭, 6 = B♭. The trumpet comes into alignment with the gamelan's fundamental melody at the gong strokes. These points of coincidence are marked by elongated circles in Example 12.[50] Harrison's transnotation of the *balungan* from ciphers to pitches on a staff presents the metrically stressed endpoints of metric units as downbeats. In other words, the gamelan's arrival at its first gong stroke (on tone 3 or F) occurs on the downbeat of m. 5; similarly, the second *gongan* concludes on the downbeat of m. 9, the third on the downbeat of m. 13, and the

[49] This use of pitch coincidence differs from the prevalence of pitch alignment between the gamelan and French horn in *Main Bersama-sama*, which was the result of their sharing a single melodic outline. Given the piccolo trumpet's distinct melody from the *balungan*, points of pitch coincidence suggest a more concerted effort on Harrison's part to establish moments of connection between the gamelan and Western instrument.

[50] Because the Western notation of the *balungan* can only be an approximation of the actual pitches, such notation provides a kind of blueprint for the piccolo trumpet player, indicating moments of pitch coincidence with the gamelan. It is the responsibility of the trumpet player to make pitch adjustments according to the particular tuning of a set of gamelan instruments. It is also important to note that, in building gamelan sets for San Jose State University and Mills College, Harrison and his partner Bill Colvig tuned the instruments using pure intervals. This tuning has implications for other vertical sonorities in the piece.

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Example 12. Structural pitch coincidence between the trumpet and *balungan, Bubaran Robert*.

fourth on the downbeat of m. 1. The trumpet melody follows suit in its emphasis on the pitches F (3) and B♭ (6) at these structural moments, as Harrison essentially pins the trumpet and gamelan parts together through pitch alignment. Not only does the trumpet simultaneously voice the gong tones, but the extended rhythmic duration of these pitches lends weight to the final tone of the second, third, and fourth *gongan* (downbeats of mm. 9, 13, and 1).

Harrison notes in the published score that the final ending of the piece may be taken at the conclusion of either the second or fourth line. As we have seen, these are the two places where the gong corresponds with the structural pitch 6. This indication matches the binary division of the *balungan* and allows performers a certain freedom in deciding where to end the piece. More importantly, Harrison's performance indication confirms a melodic scheme that spans two gong phrases and corresponds to his belief that melody can provide structure on a large scale. The gamelan thus simultaneously expresses both formal ideas: binary form in its melodic organization and *bubaran* form in its colotomy or gong phrasing.

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Harrison's inclusion of the trumpet, while reinforcing the gamelan's binary structure with its parallel eight-measure phrases, creates a new aural perception of the work's form. Although constructed as two complementary halves, the music is performed as a sequence of interludes in which the trumpet enters intermittently within the gamelan's continuous churning. In an explanatory note accompanying the trumpet part, Harrison indicates that the trumpet is to enter the musical texture only after the gamelan has finished playing the first pair of gong phrases. The trumpet then begins with its second phrase, labeled B in the Western score, proceeds to play the A phrase, and then rests while the gamelan continues with its cycling of the *balungan* and elaborating parts (refer to Example 12). Following the purely gamelan interlude, the trumpet reenters, now beginning with the A phrase and bridging into the B phrase before resting once again. As Harrison states in the published part, the trumpet is to maintain this ordering of phrases and *tacet* sections throughout the performance of the piece.

In creating this dynamic between the gamelan and solo Western instrument, Harrison establishes a larger formal structure that is based on his intermittent foregrounding of the trumpet melody. Unlike *Main Bersama-sama*, which articulates a single solo line shared by the Western instrument and a solo Indonesian instrument that remains prominent above the gamelan polyphony throughout much of the work, *Bubaran Robert* expresses a shifting musical texture that highlights the alternation of sections of music that include the trumpet with those that do not.[51] This fluctuation in instrumental forces becomes a central feature of one's hearing of the work, as it emphasizes the added color of the trumpet.

By the same token, the trumpet's absence results in a foregrounding of the gamelan not achieved in Harrison's earlier hybrid works. In writing passages for gamelan alone, Harrison invites the listener to hear the gamelan as melodic in its own right. By juxtaposing two melodies, the piccolo trumpet line and the gamelan *balungan*, Harrison asks us to consider the nature of melody itself, and also how these two melodies interact ("play together").

Harrison's deep interest in understanding the structural workings of traditional gamelan music did not, as we have seen, result in an abandonment of melodic invention. Rather, as is consistently the case for Harrison, certain "rules of order" are established—in this case, the colotomic structure of the gamelan—within which he creates music that is melodically driven, but in a very rich sense. The *bubaran* form functioned as a template into which he could "pour" his melodic creativity.[52] More importantly, Harrison's interest in melodic expressivity led him to challenge Western-trained ears (perhaps his own included) to hear the gamelan as more than accompaniment.

[51] *Main Bersama-sama* also includes a twice-recurring section for gamelan alone. This section is non-traditional in its homophonic texture, and it is this distinction from the expected stratified polyphony of the work's larger section in the gamelan itself that marks the two as texturally different.

[52] In describing the form of Central Javanese gamelan pieces, Henry Spiller states, "Just as construction workers, when building a concrete structure, start with a wooden form into which they pour cement and rocks, composers of gamelan music begin with a colotomic template or mold into which they "pour" the melody and elaboration. *Focus: Gamelan Music of Indonesia*, 73.

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Conclusion

As early as 1959, Peter Yates contended that Lou Harrison "has been, since Ives, the most fundamentally original of American composers, the one best able to compete in creative ability with the young, radical postwar theorists of Europe."[53] Yet Harrison's inventiveness has nonetheless gone unrecognized by the concert-going public and even by many of his peers in part, perhaps, because he did not intend for us to find it.[54]

The possibility that Harrison did not especially care whether listeners discovered the underlying processes of his compositions is suggested by his own comments about his aesthetic aims. In stressing his concern with beauty during a 1975 interview of composer Alan Hovhaness, Harrison reveals that he may actually have been seeking to deflect our attention from his craftsmanship:

> Harrison: I think that it is the duty of the composer to make memorable melody, and you're one of the very few who does.
>
> Hovhaness: Well, I'm glad you feel that way, because it's almost a disgrace and has been considered a disgrace, but I don't care. I have long since ceased to care, no matter how disgraceful I am. I have to be natural.
>
> Harrison: . . . May I add that Richard Dee had a beautiful phrase for this a few years ago. He said, "Lou, it seems that every time now that there's a piece that's either attractive or interesting or beautiful, it's immediately described as primitive or archaic."
>
> Hovhaness: Yes, that's right.
>
> Harrison: [laughing] So we can all go around being primitive and archaic or even disgraceful as you put it.[55]

Harrison's eagerness to describe himself as a "melode" and a writer of "tunes" appears to have made him reticent to address the underlying complexities of his music. Moreover, because his structural games arise out of (or are realized in) melody, it befitted Harrison to subordinate his games in order to assure that the melodies at his works' surface held the listener's attention securely enough to become memorable.

Simply put: Harrison's games were more than likely private ones, intended only for himself. But even though unheard and heretofore largely unseen, these compositional games link Harrison with Schoenberg and those more typically associated with algorithmic compositional methods, no matter how far from serialism he may

[53] Peter Yates, Introductory Essay to *Some Twentieth Century American Composers: A Selective Bibliography*, by John Edmunds and Gordon Boelzner, Vol. 1 (New York: The New York Public Library, 1959), 21.

[54] A notable exception is Brenda Ravenscroft's analysis of Harrison's *Fugue for Percussion* (1941), in which she explores Harrison's approach to rhythmic complexity as expressed in his creation of rhythmic equivalents to the tonal relationships of a traditional four-voice fugue. Brenda Ravenscroft, "Working Out the 'Is-Tos and As-Tos': Lou Harrison's *Fugue for Percussion*," *Perspectives of New Music* 38/1 (2000): 25–43.

[55] "Lou Harrison, Alan Hovhaness Interview," University of California, Santa Cruz Spec Collections, LCD 9019 v. 2, 2006, compact disc. (Interview with Lou Harrison and Alan Hovhaness recorded 21 October 1975 at San Jose State University. Original is on reel-to-reel tape. Audio archival conversion made by University of California, Santa Cruz McHenry Library.) Transcribed by the author.

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have roamed. Precisely because his intent was to play the game so unobtrusively, to avoid letting it detract from his primary goal of melodic expressivity, Harrison accomplished the difficult feat of being complex without seeming so. Knowing for himself the full extent of his rigorous craftsmanship, Harrison was apparently content for us to think his music primitive, archaic, even disgraceful, as long as we also thought it beautiful.

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