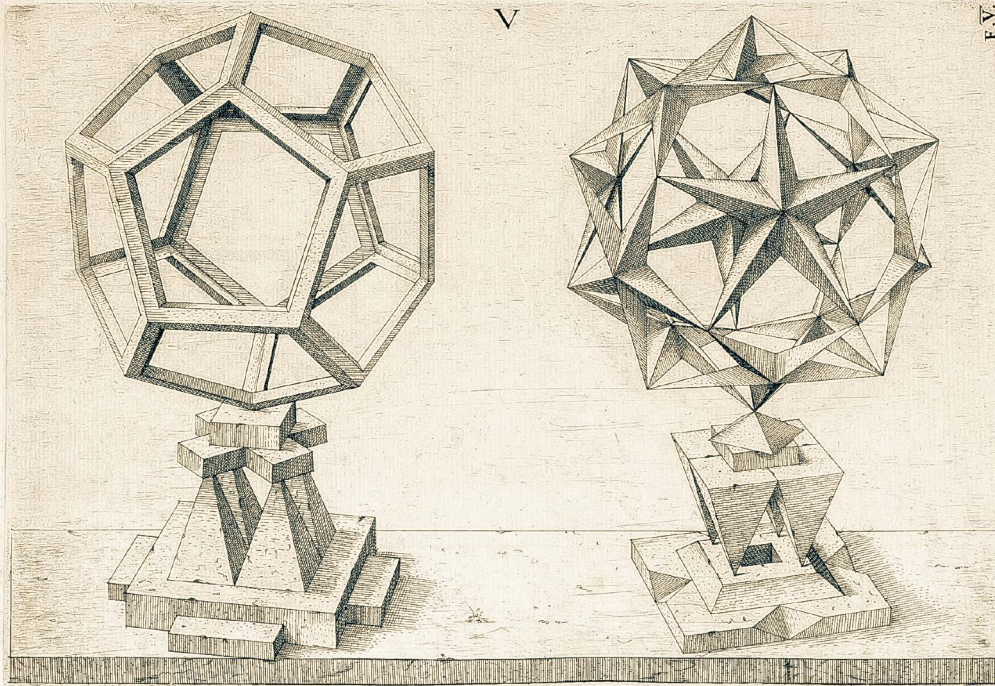


CANONS

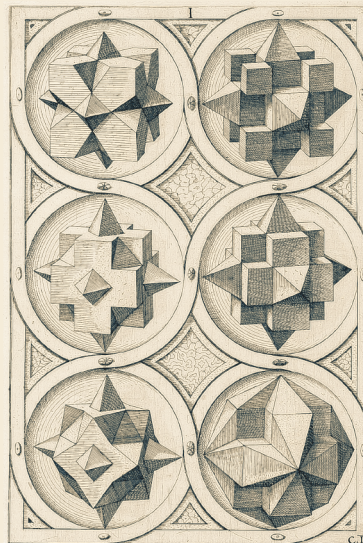
Rudi Seitz – composer
Matthew McConnell – harpsichordist



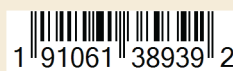
CANONS A comprehensive and stylistically diverse exploration of the canon form, honoring its past and probing new possibilities.

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|-------------------------|--------|----------------------|--------|
| 01. Tourmaline | [0:42] | 24. Shchedryk | [1:29] |
| 02. Serpentine | [1:36] | 25. Palladium | [1:46] |
| 03. Sapphire | [1:30] | 26. Amethyst | [1:38] |
| 04. Pyrite | [1:49] | 27. Jet | [1:20] |
| 05. Sunstone | [1:13] | 28. Jade | [1:14] |
| 06. Bloodstone | [1:11] | 29. Osmium | [1:33] |
| 07. Flint | [0:38] | 30. Gallium | [2:18] |
| 08. Moonstone | [0:53] | 31. Mica | [1:03] |
| 09. Pearl | [0:52] | 32. Peridot | [0:53] |
| 10. Magnetite | [1:28] | 33. Bismuth | [1:07] |
| 11. Emerald | [0:54] | 34. Sugilite | [1:08] |
| 12. Aquamarine | [1:27] | 35. Iolite | [1:25] |
| 13. Mercury | [1:29] | 36. Goshenite | [1:46] |
| 14. Lapis Lazuli | [2:18] | 37. Opal | [1:03] |
| 15. Zebra Marble | [1:26] | 38. Platinum | [1:37] |
| 16. Onyx | [0:46] | 39. Gold | [1:44] |
| 17. Obsidian | [1:51] | 40. Silver | [1:20] |
| 18. Hematite | [1:03] | 41. Nickel | [1:24] |
| 19. Lodestone | [1:29] | 42. Copper | [1:27] |
| 20. Calcite | [1:34] | 43. Zinc | [1:19] |
| 21. Tektite | [1:05] | 44. Titanium | [1:40] |
| 22. Fluorite | [1:11] | 45. Malachite | [1:52] |
| 23. Quartz | [1:46] | | |

Duration: 62:17



Rudi Seitz – composer
Matthew McConnell –
 harpsichordist



About The Album

A canon is a composition in which one melodic part, the follower, imitates another part, the leader, with a delay. Such pieces range in complexity from children's tunes like "Frère Jacques" to intricate masterworks like the canons in Ockeghem's *Missa Prolationum* or Bach's *Goldberg Variations* and *Art of Fugue*. While the canon is a fundamental and centuries-old form, at once puzzle-like and admitting of great beauty, it does not often receive the close focus of a dedicated collection. The present album is unique in featuring a stylistically diverse set of contemporary two-part canons performed on the harpsichord. The forty-five compositions recorded here—each one, the realization of a musical impetus under a specific set of technical constraints—together form a tribute to the canon's history as well as an exploration of its potential as seen by one composer working in the 21st century.

About the Cover

The cover shows two polyhedra drawn by Renaissance German artist Wenzel Jamnitzer in *Perspectiva Corporum Regularium* (1568), a study of shapes that can be built from the five Platonic Solids. Jamnitzer's treatise is a compendium of possibilities—a record of the variety that emerges when fundamental structures are creatively combined under tight constraints. Inasmuch as it is both mathematical and whimsical (notice the ornate and precarious stands on which Jamnitzer chooses to balance his objects), its aesthetic is a model for the present album, in which each piece was wrought from elemental musical ideas, and where the pieces together form a partial catalogue, and a celebration, of the possibilities of music's most constrained but bountiful format.

About The Artists

Rudi Seitz (b. 1976) is an American composer. He began studying counterpoint with Stephen Siegel in 1994 and continued his musical education at Yale University where he also pursued Computer Science (B.S./M.S). Rudi's ongoing efforts in composition have been complemented by studies in classical guitar with Scott Sanchez, Olav Chris Henriksen, and Jerome Mouffe; North Indian Classical music with Amitava Chatterjee, Warren Senders, and Pandit Nirmalya Dey; South Indian Classical music with Prasanna; Persian music with Nima Janmohammadi; and classical voice with Amy Dancz. Rudi draws upon his passion for the counterpoint of Bach and Renaissance masters, his delight in the expressive poignancy of Schubert and Chopin, and his fascination with jazz and the improvisational traditions of Asia to craft compact works in which every note counts.



Matthew McConnell (b. 1980) is an American composer and keyboardist. Educated at Bennington College (B.A.) and the New England Conservatory of Music (M.M. and D.M.A.), he studied with Stephen Siegel, Allen Shawn, John Heiss, Erik Lundborg, Dr. Dwight Killam, and Daniel Pinkham. He has served as organist and director of music at numerous churches throughout Massachusetts, and has taught composition, piano, organ, orchestration, keyboard harmony, and music theory. McConnell's compositional output includes symphonic works, sacred choral pieces, concerti (including one for toy piano), incidental music for the theater, chamber music, and solo and vocal works.



About The Instrument

Matthew McConnell performs on a single-manual, French-inspired harpsichord built in 1962 by James S. Nicolson. (Mr. Nicolson is the overseer of the Boston Early Music Festival, and president of the Cambridge Society for Early Music.) This single-manual harpsichord contains an 8' stop, a 4' stop (refurbished in 2014), and a buff or lute stop. While Matthew collects naturally-fallen crow feathers to shape as plectra, he asserts that no crows are ever harmed in the process.

In the recordings here, the instrument is tuned roughly a whole-step lower than modern concert pitch. Many of the recordings employ equal temperament, while others use irregular temperaments such as Kirnberger II and III, and Werckmeister III, according to the tonal personality of the piece. Some recordings employ the clearer sound of the 8' stop alone (e.g. TRACK 3: *Sapphire*), while others employ the richer sound of the coupled 8'+4' stops (e.g. TRACK 2: *Serpentine*). The lute stop can be heard on TRACK 14: *Lapis Lazuli* and TRACK 24: *Shchedryk*.

Highlights

Among the technical highlights of this collection are:

- » A set of six invertible **bitonal canons**, considering all possible key distances, where the two parts maintain a consonant vertical relationship no matter how far apart their tonalities fall. See TRACKS 38-43: *Platinum, Gold, Silver, Nickel, Copper, Zinc*.
- » A set of pieces that explore the concept of **vertical-shifting counterpoint** attributed to Russian composer Sergei Taneyev (1856-1915) where the parts still fit together after one part is transposed up or down by a certain interval without crossing the other part. See TRACK 13: *Mercury*, TRACK 25: *Palladium*, and TRACK 29: *Osmium* for strict transposition by a semitone. See TRACK 30: *Gallium* for transposition by a fourth. See also TRACK 33: *Bismuth* where the lower voice is diatonically transposed up from a minor key to its relative major.
- » Two **crab canons** where one part is a backwards version of the other. See TRACK 15: *Zebra Marble* and TRACK 32: *Peridot*.

- » Two canons inspired by **Escher's never-ending staircases** (also known as Penrose stairs), where the music actually rises as it seems to descend, and vice versa. See TRACK 7: *Flint* and TRACK 18: *Hematite*.
- » A canon that rapidly modulates all around the **circle of fourths**. See TRACK 37: *Opal*.
- » Several pieces that explore the potential of specific pitch material in a canonic context. See TRACK 8: *Moonstone* and TRACK 17: *Obsidian* for applications of the **whole-tone scale**. See TRACK 27: *Jet* for the octatonic or **diminished scale**.
- » Four “**recurring interval**” canons adhering to the extreme constraint that the same musical interval must occur at the beginning of every measure. See TRACK 4: *Pyrite* for perfect fourths in the first half, and perfect fifths in the second half. See TRACK 10: *Magnetite* for minor sevenths. See TRACK 21: *Tektite* for major seconds. See TRACK 34: *Sugilite* for major thirds, and note that *Sugilite* also uses strict contrary motion, meaning that one part is an upside-down version of the other.
- » A **prolation canon** where the voices move at different speeds. See TRACK 19: *Lodestone*.
- » Three canons where the voices have a very **short lag** of only one beat. See TRACK 12: *Aquamarine*, TRACK 20: *Calcite*, and TRACK 36: *Goshenite*. Compare these with other selections like TRACK 4: *Pyrite* where the lag is a full six measures.
- » A canon that makes deliberate use of **parallel fourths and fifths**, taking inspiration from Medieval contrapuntal technique. See TRACK 45: *Malachite*.
- » A **variation canon** where the two parts, originating from the same outline, are allowed to diverge melodically and take on different ornaments. See TRACK 26: *Amethyst*.
- » A canon built entirely from the four-note motif known as the **Ukrainian carol**, employing the harpsichord's lute stop. See TRACK 24: *Shchedryk*.
- » A canon built from a **twelve-tone row**. See TRACK 44: *Titanium*.
- » In the planned sequel to this album, look for canons that explore the concept of rhythmic tiling, canons that employ nonstandard tuning systems, canons that make deliberate use of parallel octaves while attempting to maintain overall contrapuntal independence, canons where the follower adds or omits part of the leader's material so the displacement between voices gradually changes, and more.

Track Notes

1 **Tourmaline.** *Imitation at the second above.*

This piece explores how an energetic but simple theme gains interest by interacting with its follower, which tracks it closely, always responding a step higher and keeping the dialogue in motion. The recording features ornamentation improvised by the performer.

2 **Serpentine.** *Imitation at the octave above, then at the octave below.*

This piece originates from a jagged skeleton containing wide melodic jumps that have been connected with scalar runs, resulting in a wavy pattern of rise and fall. The piece is schema-driven but there are deviations at the climax of each of the two sections, when the generally rising motif morphs into a falling one. Despite its repetitive elements, the piece aims for surprise through rhythmic contrast (quintuplets vs. dotted motifs) and the use of ornaments at certain melodic destination points. An incidental feature of this canon is that each section modulates downward by a semitone, so if the performer possessed an endless keyboard, the piece could be played as an infinitely descending spiral.

3 **Sapphire.** *Imitation at the octave above.*

A fabric of vocally inspired phrases in Renaissance style. Brisk but delicate.

4 **Pyrite.** *Imitation at the octave above, then at the octave below.*

This piece adheres to the constraint that each measure should begin with the same musical interval—the perfect fourth—with no exceptions till the end of the first section, when the voices are inverted and the fourths become fifths. Once the opening section of such a restricted canon has been composed, the stated constraint determines the pitches at the beginning of each measure throughout the rest of the piece, which makes it critical to devise an opening section that expands well: of course, there is ample room for creativity in handling registration, and developing the insides of each measure. The challenge in writing any canon based on a clear pattern or sequence is to elaborate it in a way that builds interest and surprise, so that it may stand on its own as act of expression and not just an exercise—like developing a Spirograph drawing, beautiful but fully regular and predictable, into something more.

5 **Sunstone.** *Imitation at the octave above, then at the octave below.*

This invertible canon is elaborated from a very simple outline of “Do Re Mi Fa Sol Fa Mi Re Do.” That pattern can be superimposed over itself with a

skew of two beats to form a rudimentary canon with motion in parallel thirds and sixths. In this piece, the notes of “Do Re Mi Fa Sol Fa Mi Re Do” can be found by looking at the onset of each measure; however, there is so much intervening figuration that the pattern may not be obvious to the ear. The mood is cheerful.

6 **Bloodstone.** *Imitation at the octave above.*

This piece explores what is possible within the tight rhythmic constraint of uninterrupted quarter notes. The steady, marching theme includes several sections of repeated pitches that function like a pedal when they occur in the lower part, or an inverse pedal when they occur in the upper part. The theme and its follower are repeated four times in a sequence of different keys and ranges, creating the sense of a continuing search through shifting terrains.

7 **Flint.** *Imitation at the octave above and below with a shifting leader/follower relationship.* This piece is based on a whole-tone skeleton that has been elaborated with passing tones for a full use of the chromatic set. Multiple sections with different leader/follower relationships bleed into each other without a clear break. There is a sense of dizzy motion towards some unknown objective. With a constantly shifting perspective, it's unclear whether progress or Sisyphean recurrence is the true state of affairs, and the performance ends in an acceleration that gives way to silence before we can find out.

8 **Moonstone.** *Imitation at the octave above, then at the octave below.*

This piece grapples with the constraint of adhering to a single whole-tone scale without employing any of the techniques that are used for variety in the other whole-tone canons in the collection: passing tones between scale members, and transposition of material between whole-tone sets. Dissonances are employed liberally on strong beats. The theme is jagged but aiming for coherence; the mood is active, approaching restlessness.

9 **Pearl.** *Imitation at the third below.*

A brief but sturdy theme and its follower are repeated eight times, in an overlapping fashion, passing through a cycle of keys that begins and ends in C major. The last note of the theme is varied to create, alternately, an upward-moving or a downward-moving gesture. The performance employs staggered articulation to better separate the lines.

10 **Magnetite.** *Imitation at the octave above.*

Along the lines of *Pyrite* (TRACK 4), this piece is a restricted-interval canon that situates the same interval—here, a minor seventh—at the beginning of every measure. Although these dissonances are not classically prepared and resolved, the piece aims for continuity of line. Preparation and resolution are reinterpreted for this particular context, so that a dissonant seventh may be “prepared” by another dissonance that acclimates the ear for its arrival, and “resolved” not through a traditional stepwise descent but through any subtle rhythmic or melodic gesture that hints at a release of tension. The mood is somber, brooding, and mysterious.

11 Emerald. *Imitation at the octave below.*

The core of this canon is a set of four simple but jaunty phrases, each with a distinct rhythmic signature. The four-phrase set is itself stated four times, passing through multiple modes, in such a way that the beginning of one statement overlaps the end of the previous statement. The composer considers *Emerald* as a particularly clear and approachable introduction to the canon form for listeners who are new to it.

12 Aquamarine. *Imitation at the third below, then at the sixth above, then at the third below.* A brisk canon where the follower playfully chases the leader, lagging just one beat behind, as if the parts were two dolphins rushing nearly side-by-side through the water. The piece has an A-B-A structure where in the B section the roles of the voices are reversed: the top voice, which had been the leader, now becomes the follower.

13 Mercury. *Imitation at the octave below, then at the minor ninth below, then again at the octave below.* This piece employs the concept of vertical-shifting counterpoint, attributed to Russian composer Sergei Taneyev (1856-1915), where one part can be transposed up or down by a certain interval without crossing the other part (this is different from inversion, where the parts cross). Imagine taking a melody line that fits nicely above a bass and transposing the whole line up a semitone; further, imagine that the transposed melody still fits nicely above the original bass. This seemingly impossible scenario can be achieved if the melody and bass are written so as to create minor thirds, perfect fifths, and minor sixths, so that when the melody is transposed up, the new intervals are major thirds, minor sixths, and major sixths: consonances remain as such. The challenge, of course, is that an interval palette of minor thirds, perfect fifths, and minor sixths is restrictive and does not lend itself to traditional diatonic elaboration. Mercury presents the same material three times: in the first statement, the bass follows an octave below the soprano. In the second statement, the bass is transposed a semitone down, and therefore follows a minor ninth below the soprano. In the third statement, the soprano is also transposed a semitone down so that the voices once again relate at the octave. The novelty of the composition is evident in the middle section which would sound dissonant and chaotic after the semitone transposition if the piece had not been planned for this precise occurrence.

14 Lapis Lazuli. *Imitation at the octave with the leader/follower relationship changing throughout.* A sequence of short, slow canons in Renaissance style passing through different modes and emphasizing the technique of suspension or syncopated dissonance. Free counterpoint is sometimes used near cadences. Although the suspensions were written with the sustained sonority of an instrument like the organ in mind, the piece can also be effective as performed here with the lute stop of the harpsichord.

15 Zebra Marble. *Crab canon—retrograde imitation.* As this piece is a crab canon, the parts enter together, with one playing a backwards version of the other. The material is invertible, so the top and bottom line are swapped after their initial statement, at which point the music appears to be “rewinding”

back to the beginning. In this piece, the material is iterated three times in rising half-steps. The retrograde imitation is not entirely strict in the rhythmic domain: while the sequence of pitches in one line is indeed an exact reverse of the sequence of pitches in the other line, some notes have different rhythmic values in the two versions. Based on a whole-tone framework, this piece brings to mind the interacting lines in a geometric sketch—perhaps a sketch of heavenly bodies. Compare with the other crab canon in the collection, *Peridot* (TRACK 32).

16 Onyx. *Imitation at the major second above, then at the minor seventh below.*
A bright, playful theme with hints of severity. The imitation is largely chromatic as opposed to diatonic; there is a hint of bitonality here.

17 Obsidian. *Imitation at the octave above.*
Exclusive use of the whole-tone scale gives the piece a floating, anchorless quality, but the writing aims for the same strict approach to preparing and resolving dissonances that is employed in many of the canons here with more conventional tonalities. The material is restated four times with transpositions that keep it within one whole-tone set, except for the third statement which is transposed chromatically into the opposing whole-tone set, creating the highest point of tension in the piece. The theme is somber, spare, mysterious.

18 Hematite. *Imitation at the octave above and below, with multiple switches in leader/follower position.* This canon pursues an effect reminiscent of Escher's never-ending staircases where one might climb up and yet find oneself moving down, or vice versa. The motif consists of many small steps that suggest movement in one direction, while the line progresses in the opposite direction over time. When the line seems to be moving upward, for example, its frequent ascending steps are cancelled out by occasional descending leaps. The canon was conceived around the whole-tone scale with strong beats restricted to one whole-tone set and outlying notes used as passing tones. The ethos is busy, mathematical, and strange. As with the closely related canon *Flint* (TRACK 7), this piece ends abruptly, as if it were a torn piece of patterned fabric, showing enough of its pattern for the observer to imagine the item in its fullness.

19 Lodestone. *Imitation at the octave.*
A sequence of four prolation canons at the octave. (In a prolation canon, or a canon by augmentation/diminution, the voices move at different speeds.) SECTION 1: The bottom voice leads; the top voice enters later at double speed; the voices finish together. SECTION 2: The voices begin together; the bottom voice moves at double speed and finishes first. SECTION 3: The bottom voice leads; the top voice enters later at double speed; the voices finish together. SECTION 4: The bottom voice leads; the top voice enters later at 1.5 times the speed. The top voice eventually catches up with the bottom voice. When they meet, the top voice becomes the leader, continuing at 1.5 times the speed of the bottom voice and finishing first.

20 **Calcite.** *Imitation at the fourth above.*
When one canonic voice follows very closely behind another, with only a one-beat lag, the resulting quality is often active or propulsive, but Calcite is melancholy and mysterious. The contrapuntal style is modern, with an embrace of fourths and an occasional use of parallel perfect consonances. The second section is a repeat of the first section, transposed up a fourth without any inversion of the voices: while simple transposition sometimes yields nothing new for the ear, it may at other times reveal a new face of the material and may even seem to answer a question set up by the earlier statement.

21 **Tektite.** *Imitation at the octave above.*
Opening with a syncopated motif, this piece adheres to the constraint of using a major second at every measure onset, aiming to connect these recurring dissonances in the most fluid way possible. It is a modern piece with a few subtle echoes of Medieval counterpoint.

22 **Fluorite.** *Imitation at the octave above, then at the octave below.*
With fourths, seconds, and sevenths used liberally on strong beats, this piece is full of dissonance, but that dissonance strives to be of the open, ringing variety rather than the closed, crowded, or murky variety. The mood is mysterious and dark, with an aura of impending change: picture an icy terrain at dusk.

23 **Quartz.** *Imitation at the octave above.*
This gentle piece opens with a sense of stasis or repose and follows a path of gradually increasing tension. The core material ends an octave higher than it begins and is stated three times in ascending ranges, reaching towards the highest notes on the instrument. The tension built at the end of one statement gives way to repose at the beginning of the next statement. Successive statements feature increasingly decorated rhythms.

24 **Shchedryk.** *Imitation alternating between the sixth and the octave below.*
This canon is named after, and built from, the four-note motif of the Ukrainian folk chant called *Shchedryk*. While this simple theme has become famous as the basis of the Christmas piece *Carol of the Bells* (composed by Mykola Leontovych in 1904) it is also suitable for abstract development in a canon. In the present piece, the four-note motif can be heard in every measure, alternating between the upper voice in odd measures and the lower voice in even measures. The canon is not strict—there are some subtle differences between the upper and lower voices—but the overall effect is of one voice echoing the other. To achieve variety with so many statements of the same motif, the canon proceeds through a cycle of keys, with a modulation every four bars. The piece is divided into two halves. In the first half, the rhythms are simpler, but the entrances of the motif may be harder to hear, because whenever the motif enters there is also something changing in the other voice. In the second half, the rhythms are highly syncopated and the impression is one of increased complexity and excitement; the pitches are basically the same as before, but now the motif can always be heard as the single entrance at the beginning of each bar (the other voice is now tied on the first

beat). Each of these halves actually consists of two copies of the same cyclic progression, first starting in a higher register and descending one octave by the time the home key is reached again, then repeating the whole cycle to descend another octave. The performance employs the harpsichord's lute stop in the second half.

25 Palladium. *Imitation at the octave above, then at the minor ninth above, then at a shifting interval.* A companion to *Mercury* (TRACK 13) that applies Sergei Taneyev's concept of vertical-shifting counterpoint. Where *Mercury* uses flexible pitch material, *Palladium* restricts itself to a specific 7-note scale with no alterations. The scale is known in the South Indian melakarta system as Shadvidamargini though it is employed here simply as a collection of notes and not as a raga; Western musicians would recognize it as a subset of the octatonic/diminished scale. In the first section of the piece, the top voice imitates the bass at the octave. In the second section, the top voice is transposed up a semitone and now falls a minor ninth above the bass, which itself remains fixed. The effect of this upward transposition in the top line is reminiscent of a hatch opening in a ceiling, letting in shafts of light that reveal unseen colors in the room—the room is still mostly dark, but with new profiles in view. In the third section, the top voice is transposed up an octave further and stands more distinct from the bass; and now, there are some chromatic transpositions inside each line, so that the interval of imitation expands and contracts several times within this one section. The composer dedicates this piece to Matthew McConnell who provided an introduction to Taneyev's work and the inspiration to explore its applications in the canon form.

26 Amethyst. *Imitation at the octave above.* This piece consists of two contrasting sections. The first section is a traditional canon that has been left spare. The second section is an elaboration of the first, where the top and bottom voices are developed separately, breaking the rule that they should closely imitate each other. The voices are allowed to go in their own directions mid-measure, taking on different ornaments, while still following the same outline and hitting the same waypoints at the beginning of each measure. Because significant divergence is allowed between the two voices, this could be called a “variation canon.”

27 Jet. *Imitation at the octave above, then at the octave below.* This dark and pensive canon employs the octatonic or diminished scale, which consists of alternating half and whole steps. Notes outside the octatonic scale are used occasionally in an unaccented, passing capacity. While the pitch material has chameleon potential, the writing here aims for uniformity. Vertical sonorities are mostly restricted to thirds, sixths, and tritones. Instead of cadencing on the octave, each section concludes with the sound of the major third, which, although it occurs throughout the piece, only reveals its brightness when brought into focus in those ending positions.

28 Jade. *Imitation at the octave above, then at the octave below, and again at the octave above.* A buoyant, playful theme with some chromatic inflections.

29 Osmium. *Imitation at the octave below, then at the minor ninth below, then at the octave below.* A third piece, joining *Palladium* (TRACK 25) and *Mercury* (TRACK 13), where one voice undergoes a semitone transposition while remaining in friendly conversation with the other voice. The pitch material is an extended minor scale where natural and raised versions of the sixth and seventh degrees are freely employed. The imitation begins at the octave below, then the material is restated with the bass shifted down a semitone, and then it is repeated again with the top voice also shifted down.

30 Gallium. *Imitation at the eleventh above, then at the octave above, then at a shifting interval.* This piece features Taneyev-inspired vertical-shifting counterpoint where the top line is transposed down by a perfect fourth while the bass remains fixed. In contrast to the bitonal canons in this collection (TRACKS 38-43) where tonality is challenged by juxtaposing two firmly tonal lines in different keys, here each line by itself begins with tonal clarity that devolves into tonal ambiguity and is later recovered. Three instances of this tonal-then-atonal-then-tonal-again material are played in succession, first with imitation at the eleventh, then with the top voice transposed down a perfect fourth to create imitation at the octave, and finally with a shifting interval of imitation.

31 Mica. *Imitation at the fourth above.* This canon situates dissonances (mostly seconds and sevenths) on strong beats except at phrase endings where thirds and other consonances appear. There's a mood of curiosity and playful exploration. While this is a modern piece, the performance makes use of the early keyboard practice of paired fingering.

32 Peridot. *Crab canon—imitation in retrograde.* This piece, like *Zebra Marble* (TRACK 15), is an invertible crab canon where the music begins rewinding when it reaches its midpoint (the performance dramatizes that moment with a deceleration approaching the midpoint and an acceleration following it). Unlike *Zebra Marble*, however, *Peridot* is a strict crab canon where the rhythmic values of the notes in each line are preserved in the backwards version. A single melodic liberty is taken: there is one place where a note is played sharp when the line is moving backwards, but natural when it is moving forwards. Whereas *Zebra Marble* presents a somewhat exotic soundscape, *Peridot* has a simple, straightforward style—it's a cheerful piece that aims to avoid being suspected of containing so much technical artifice as a crab canon requires.

33 Bismuth. *Imitation at the octave above, then at the sixth above.* This piece explores counterpoint where the lower voice may be shifted up from a minor key to its relative major while the upper voice remains fixed. This constraint forces the use of many perfect fifths and octaves, which intensifies the challenge of avoiding undesirable parallels. Some subtle modifications were made between the two statements of the canon, and separate endings were employed.

34 Sugilite. *Imitation in contrary motion beginning at the octave above.*
This piece explores the possibility of making music under two special constraints. First, the piece uses strict contrary motion, which means that the follower is an upside-down version of the leader: wherever the leader descends, the follower ascends by the exact same melodic distance, and vice versa. Second, as with other restricted-interval canons in the collection like *Pyrite*, *Tektite*, and *Magnetite*, this piece employs the same interval on the downbeat of every measure, in this case a major third. The challenge of working in contrary motion is that many melodic gestures are orientation-specific: they make sense when played in their upright form but sound confusing or unconvincing when played in their mirrored form, so the composer must search for those gestures that are musically persuasive in both orientations. The further challenge of working in strict contrary motion where interval sizes are preserved exactly in the mirrored voice (a major third up translates into a major third down, never a minor third) is that it's nearly impossible to stay within the notes of a given key. The technique lends itself best to pieces with a free or floating kind of tonality as in the present work. Whereas in most canons the two lines can be readily perceived as the same, here the listener is invited to ask whether the line and its contrary version are more similar than they are different, or more different than they are similar.

35 Iolite. *Imitation at the octave above, then at the fifth below.*
The piece opens with the grave and majestic gesture of descending octaves. The counterpoint is invertible at the twelfth, meaning that the follower, which enters an octave above the leader, can be transposed down so it falls a fifth below the leader.

36 Goshenite. *Imitation at the fourth below, then at the fifth above.*
This piece showcases the rhythmic excitement that can ensue when the voices enter in very close succession with only a one-beat lag between them. Unlike *Aquamarine* (TRACK 14), another piece in the collection with a short lag, *Goshenite* does not adhere to a traditional contrapuntal style but makes free use of parallel fourths and fifths and occasional unmediated dissonances. The palette here is darker than *Aquamarine's* and the mood is more contemplative. *Malachite* (TRACK 45) is another piece that makes deliberate use of parallel fifths, but it features a corresponding avoidance of thirds and sixths, whereas in *Goshenite* these intervals are freely mixed.

37 Opal. *Imitation at the octave above.*
While many of the canons here were developed from melodic skeletons, this piece was born from a harmonic or chordal skeleton. The piece proceeds steadily through a cycle of ascending fourths. It starts in C major and follows the cycle almost all the way back to the starting key, concluding in D major. Modulation can be difficult to achieve in canon writing; this canon employs relative minor chords to help achieve transitions between major chords a fourth apart. The leader outlines C major, and then moves to A minor while the follower imitates the leader in C major. The leader then moves to F major while the follower is outlining A minor, and so on. While modulation is a source of variety in music, a long sequence of modulations of the same kind can begin to sound repetitive; a challenge in writing

this piece was to make sure something unique happened in each of the many visited keys. The mood is playful; the piece strives for a kaleidoscopic effect.

38 **Platinum.** *Imitation at the tritone above, then at the tritone below.*

A strict bitonal canon at the tritone: the bottom voice leads in C major; the top voice imitates it exactly in F# major, then they swap. The piece situates consonances—thirds, sixths, and octaves—on strong beats, so that the bitter clash one might expect to hear in such a bitonal context is never realized. Instead of seeming to battle with each other, the lines appear as identical twins separated by glass—something keeps them apart, preventing direct communication, but they are nevertheless inextricably linked.

39 **Gold.** *Imitation at the minor third above, then at the major sixth below.*

A strict bitonal canon at the minor third and major sixth: the bottom voice leads in C major, the top voice follows in Eb major, then they swap. Heard on its own, the theme is bright and joyful. The mixing of distant tonalities has a somewhat muting or canceling effect on the palette, but the brightness of the theme is not easily effaced. The two instances of the theme have a playful rhythmic interaction while a tonal chasm remains between them.

40 **Silver.** *Imitation at the minor second above, then at the major seventh below.*

A strict bitonal canon at the minor second and major seventh: the bottom voice leads in A minor; the top voice follows in A# minor, then they swap. This is the slowest and most grave of the bitonal canons in the collection.

41 **Nickel.** *Imitation at the major third above, then at the minor sixth below.*

A strict bitonal canon at the major third and minor sixth: the bottom voice leads in C major and the top voice follows in E major, then they swap. As with Gold, an energetic rhythmic interplay occurs between two instances of the theme situated far apart in tonal space.

42 **Copper.** *Imitation at the major second above, then at the minor seventh below.*

A strict bitonal canon at the major second and minor seventh: the bottom voice leads in C major and top voice follows in D major; later, the top voice leads in D major and the bottom voice follows in E major. A subtle shift of moods might be detected, with earnestness giving way to dance-like levity at the end of each section.

43 **Zinc.** *Imitation at the perfect fifth above, then at the perfect fourth below.*

A strict bitonal canon at the perfect fifth and perfect fourth: the bottom voice leads in C major and the top voice follows in G major, then they swap. The mood is jaunty and dance-like but with calmer demeanor than *Gold* or *Nickel*. The parts are closer in tonal space here than in any of the other bitonal canons, allowing for a more casual dialogue.

44 **Titanium.** *Imitation at the octave below, then at the octave above.*
An elegiac and dissonant canon developed from a twelve-tone row.

45 **Malachite.** *Imitation at the octave above and below.*
Inspired by Medieval contrapuntal technique, this piece treats perfect fourths, fifths, and octaves as consonant while all other intervals are handled as dissonant. Parallel perfect consonances are embraced, and the voices are allowed to leap—even by similar motion—into those consonances. These freedoms are counterbalanced by tight restrictions on the use of thirds and sixths, which come to prominence only at cadences. The result is a sound-world that's different from any other in the album. The piece is a sequence of three canons, each of which is followed by its inversion. The mood is solemn but exultant.

Credits

Compositions by Rudi Seitz, 2014-2016, Boston MA

Performed and recorded by Dr. Matthew McConnell
First Baptist Church, North Adams MA (multiple sessions, 2015-2016)
Harpsichord built by James S. Nicolson, 1962

Mastered by Jeff Lipton at Peerless Mastering, Boston MA
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