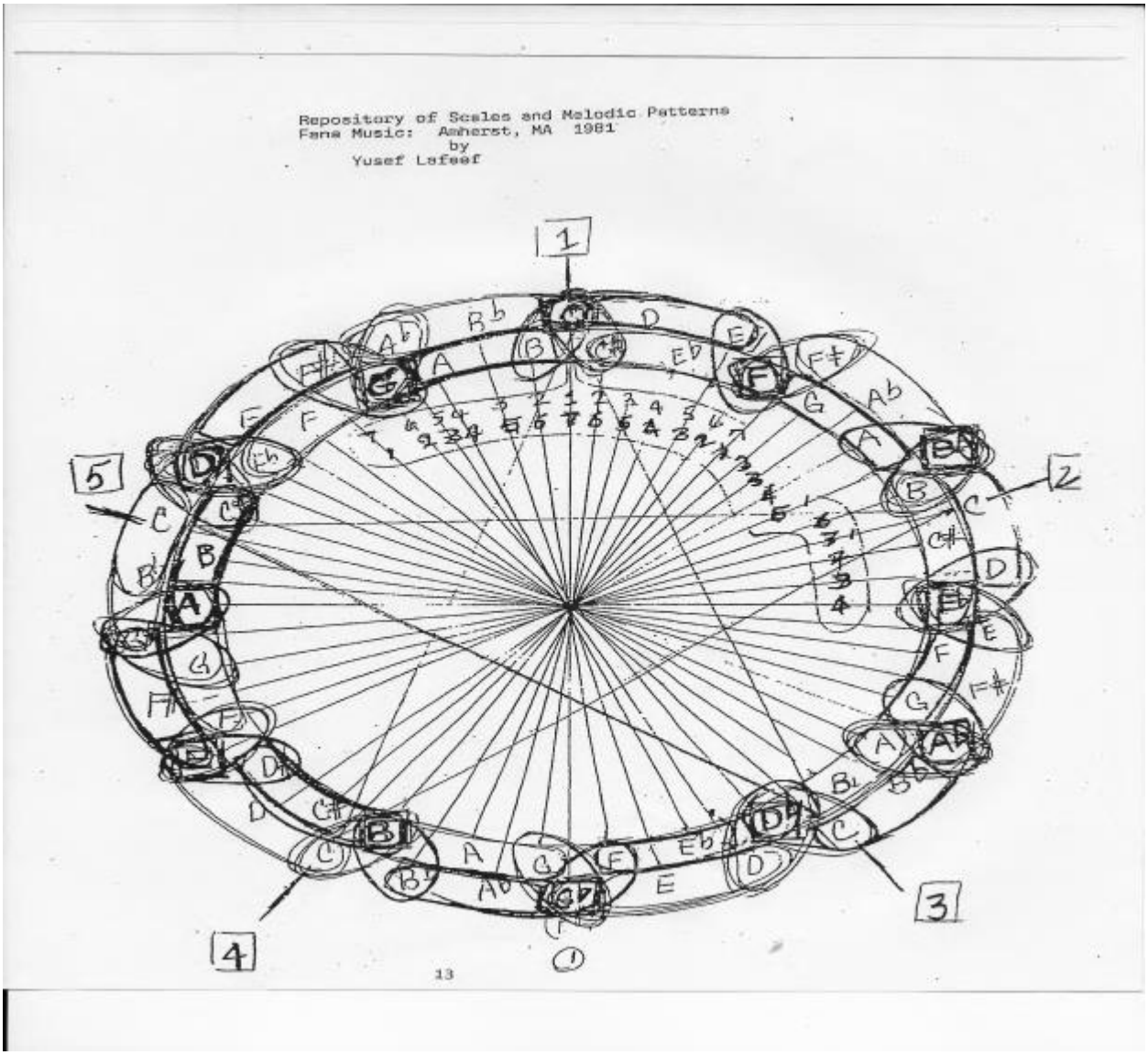
Andy Jaffe Coltrane Symposium Lecture at NEC 2/27/17:

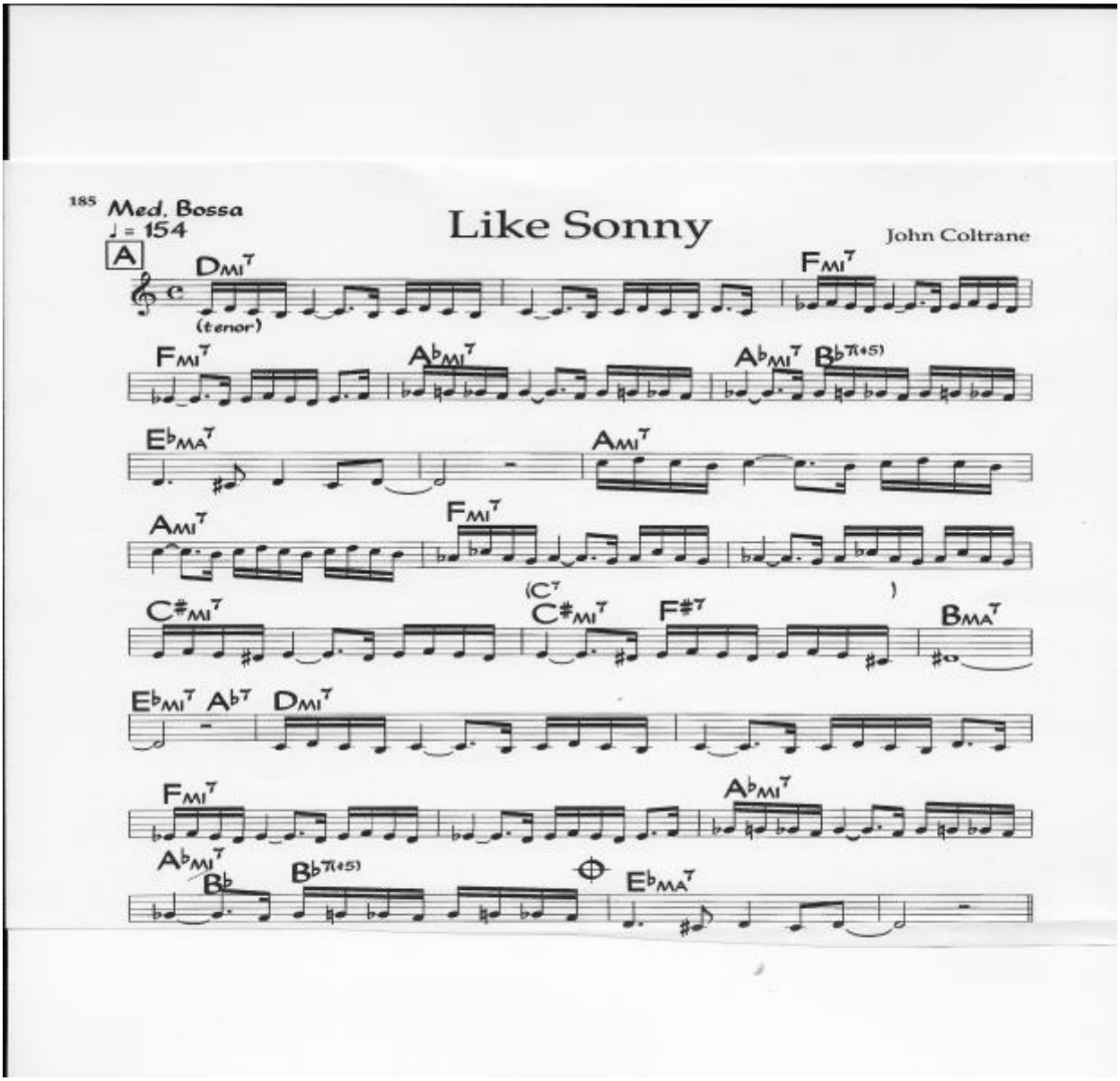
Symmetry as a Compositional Principle in the Music of John Coltrane



What are we to make of this sketch, given to Brother Yusef Lateef by Coltrane backstage at the Five Spot in 1957? Today we will examine some of the compositional manifestations of Coltrane's interest in symmetry, hoping to provide a slightly different emphasis and analytical framework through which to consider structural elements of his compositions. Among the topics we'll be discussing are:

- Intervallic symmetry (as expressed through symmetrical key relationships, chord cycles, chord voicings, and use of complementary pitch sets).
- Formal symmetry (key relationships over the course of extended works, and formal designs that offer 'more than meets the ear' on the macro level).
- Some cultural and historical context for Coltrane's interest in such 'devices' (to use Ellington's term).
- The numerous and varied situational approaches to his use of symmetry.

I. **Like Sonny** (recorded 1959, 60): https://www.youtube.com/watch?v=CAeO7nicvns
Symmetrical key relationships (minor 7th chords first up in minor thirds, then down in Major thirds, with two familiar terminal tonal centers: Eb and B):



(As noted by Lewis Porter, the main motif of this piece likely is developed from a Sonny Rollins solo on "My Old Flame"; *Lewis Porter Lecture at Williams College, 9/27/16*; also *Porter, 157*). It's also worth mentioning here that the two keys referred to above, Eb and B, are the same ones visited in Billy Taylor's "Good Groove", one of Coltrane's earliest (1951) recorded outings on Tenor (see "The Last Giant"; discography).

II. **Central Park North**. Again, the key centers are symmetrically related, this time by minor thirds. Further, each of the four tonics is preceded by it's related "ii-V", resulting in a tone row in the bass line: (starts about :20): https://www.youtube.com/watch?v=9-UDGjgyRPI

There are many examples of the use of tone rows in Coltrane's music, some explicit and some in 'unheard' underlying compositional structures, such as occurs in **Giant Steps**.

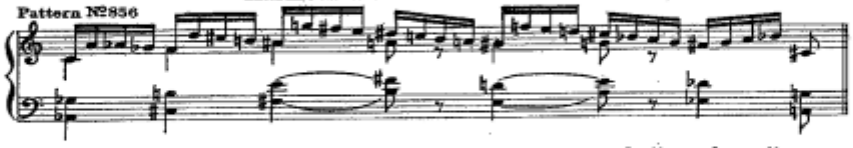
III. Of course, the most conspicuous of these is **Giant Steps**. Before discussing the compositional structure of "Giant Steps", it's worth examining a couple of related concepts. First of course, as I'm sure most of you know, Coltrane's theory teacher Dennis Sandole hipped him to the Slonimsky "Thesaurus of Scales", wherein the 'smoking gun' for the "Giant Steps" source may be seen in the introduction. Of note is the fact that Slonimsky's goal with this example was in effect to put a "human face" on the twelve tone principle, i.e. demonstrating that it doesn't necessarily have to be jarring and dissonant but may be used in the context of traditional tonal relationships:

Harmonization of both types is given in the tables on pp.240-241. To harmonize in major triads, it is necessary to alternate the Octave, Tertian, and Quintan positions given in the table. In harmonizing by seventh-chords, ninth-chords, and whole-tone chords, any chord under a given melody note will furnish a workable harmony.

The patterns in the Diatessaron and Diapente Progressions lend themselves to harmonization characteristic of the Dominant-Tonic cycle. When harmonized in consecutive seventh-chords, such patterns acquire a Schumannesque quality.

Harmonization in Seventh-Chords

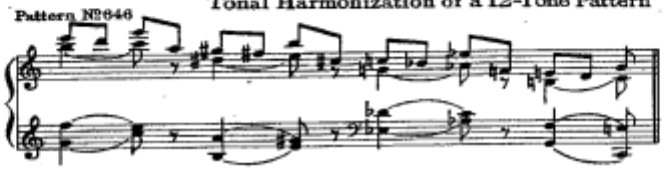
Pattern №836



A harmonization of the Dominant-Tonic type will impart a feeling of tonality even to a 12-tone progression.

Tonal Harmonization of a 12-Tone Pattern

Pattern №646



Traditional harmonization in major and minor keys uses chords formed by the diatonic scale. Similarly, new scales may be harmonized with the aid of chords formed by the notes of the scale itself. Examples of such Autochordal Harmonization are given in a special table. There are scales that admit of only 2 different triads, as Scale No. 7, which can be harmonized with C major and F♯ major triads. The 8-tone scale No. 393 is capable of forming 8 different triads, while other scales, such as No. 5, do not yield a single triad.

All scales and patterns in the THESAURUS are centered on C as the initial and concluding tone. It goes without saying that these progressions can be transposed to any tonal center according to a composer's requirements.

John Stuart Mill once wrote: "I was seriously tormented by the thought of the exhaustibility of musical combinations. The octave consists only of five tones and two semitones, which can be put together in only a limited number of ways of which but a small proportion are beautiful: most of these, it seemed to me, must have been already discovered, and there could not be room for a long succession of Mozarts and Webers to strike out, as these have done, entirely new surpassing rich veins of musical beauty. This sort of anxiety, may, perhaps, be thought to resemble that of the philosophers of Laputa, who feared lest the sun be burnt out."

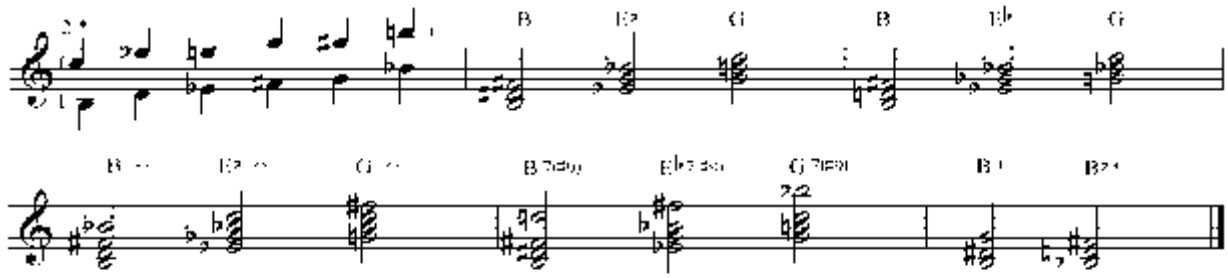
The fears of John Stuart Mill are unjustified. There are 479,001,600 possible combinations of the 12 tones of the chromatic scale. With rhythmic variety added to the unbounded universe of melodic patterns, there is no likelihood that new music will die of internal starvation in the next 1000 years.

NICOLAS SLONIMSKY

1 January 1947 Boston, Massachusetts

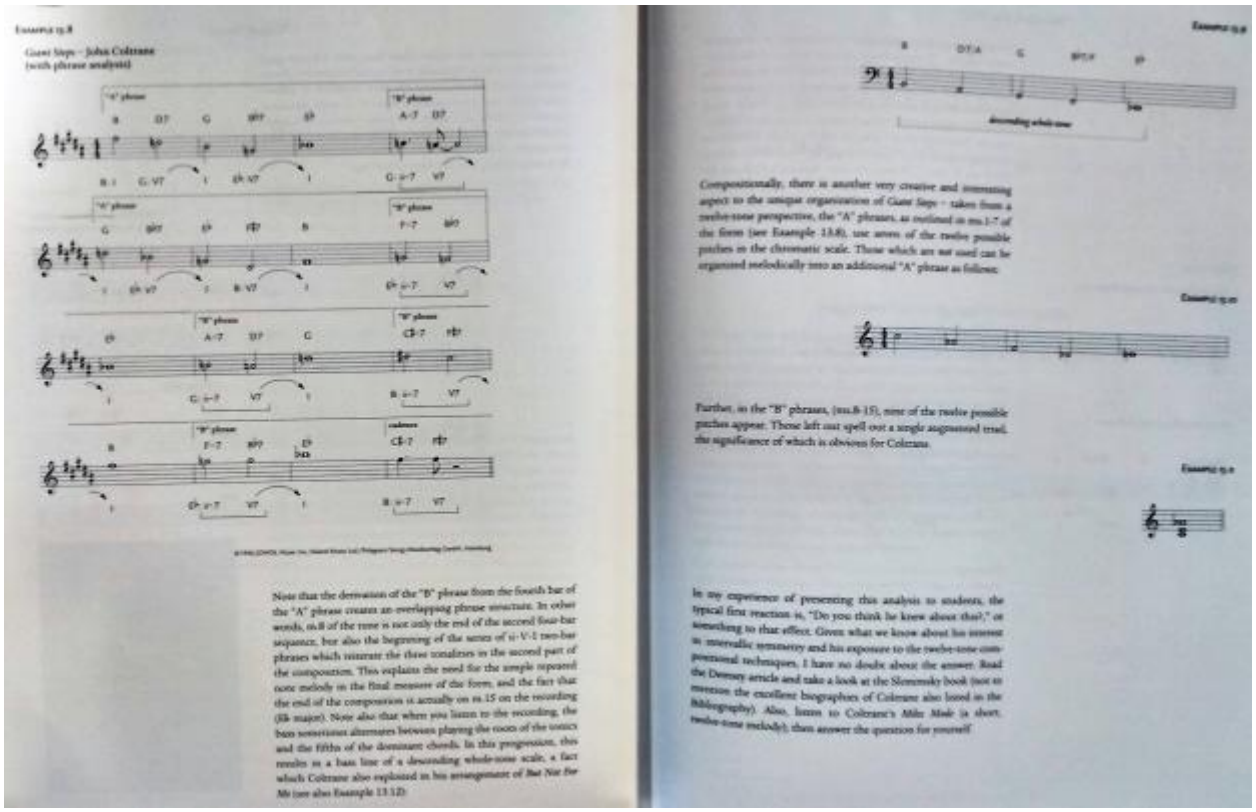
The other interesting element to consider in the melodic structure of Giant Steps (see also *Demsey, 13-15)*, is the diatonic harmony in the hexatonic (aka 'augmented') scale:

The Hexatonic or "Augmented" Scale, built out of minor minor thirds and half steps, showing its most commonly used diatonic harmonies

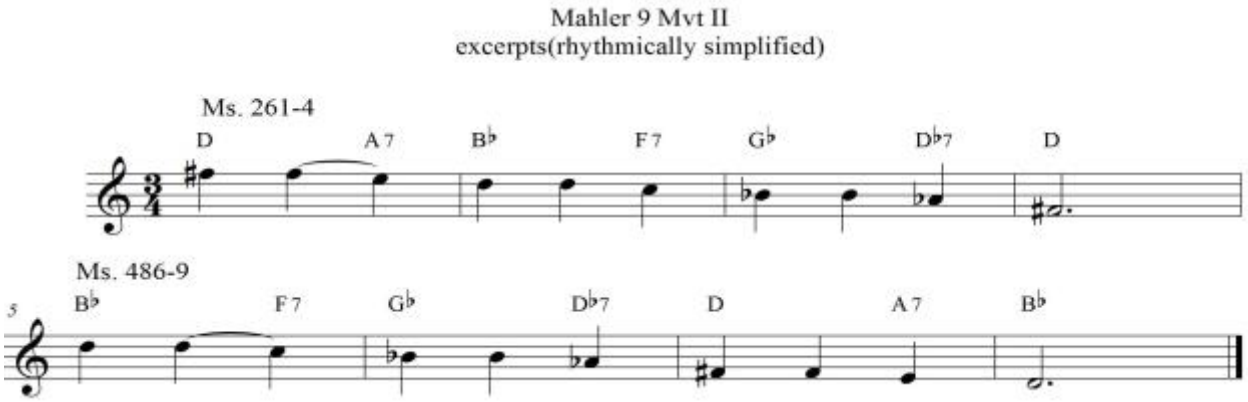


1. Hexatonic Scale used for this example, "2[illegible]" above it's complement

Like the Whole Tone scale, the notes not used in a hexatonic scale comprise the same scale a half step away, allowing composers to employ identical material in each if desired. At the risk of being self-serving, the following example shows an ostinato built out of the scale shown above, which is then 'answered' by the two chromatically related augmented triads that comprise its complement (starts at 1:24). (PLAY MP3 of "Yther"). This is significant to our discussion, because it was in experimenting with this device in my own compositions 40 or so years ago that I noticed this relationship in **Giant Steps**:



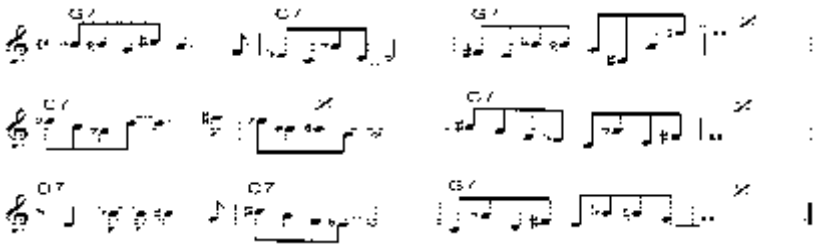
John Coltrane was not the first composer to experiment with symmetrically related key centers. Consider the following excerpt from Mahler 9. Note, by the way, the whole tone melody above the three equidistant (major third apart) key centers, a favorite solo trope of Trane as found in his solos on "26.2" and "Satellite" for example. Note also that this usage of the three keys differs from **Giant Steps** in that the new key is not prepared by its dominant): PLAY Mahler MP3 (right at beginning of track*): (I am not intending to imply that Coltrane got this idea from Mahler per se, notwithstanding the numerous examples of his appropriation of other composers' material for his own musical ends.)*



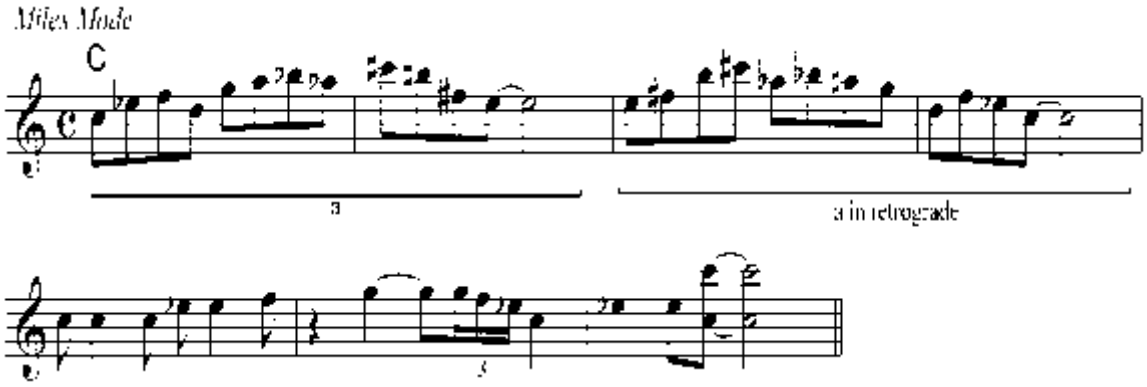
(Another notable example of Trane's use of complementary pitch sets is the horizontal juxtaposition of the two whole tone scales in the beginning of his arrangement of "But Not For Me" https://www.youtube.com/watch?v=1m1AziEQM1w). Also, as Lewis Porter has pointed out (*Porter, 242-3*), in "Acknowledgement" starting at around 4:55, Coltrane plays the eponymous leitmotif in all twelve keys (some more than once). Further, the harmonic and melodic material of **A Love Supreme** is integrated through the deliberate use of the pentatonic scale (Coltrane was quoted in an interview that he perceived there to be "***a common base"…"the same pentatonic sonority***…" underlying folk music worldwide [Interview by Clouzet and Delorme entitled "Entretien avec John Coltrane," as cited in *Porter, 211*]). Of course the harmonic manifestation of the pentatonic scale is its diatonic quartal harmony (any pentatonic scale generates diatonic quartal harmony – also see *Porter*, 237). In any event it seems that Coltrane's deliberate use of the pentatonic scale in his iconic composition seems to have been a deliberate attempt to address commonalities among the musical cultures of the world's peoples.

In terms of the cultural context of Coltrane's musical colleagues and teachers, besides Sandole, Bill Barron, Yusef Lateef, and many others were experimenting with and discussing 12-tone principles. While there were some examples that applied serial principles 'strictly' (for example William O. Smith's **Clarinet Concerto**, based on a serialization of the opening 4-note motif of "I Got Rhythm"), in general jazz composers employing tone rows have treated them as sources of melody using typical jazz phrasing:

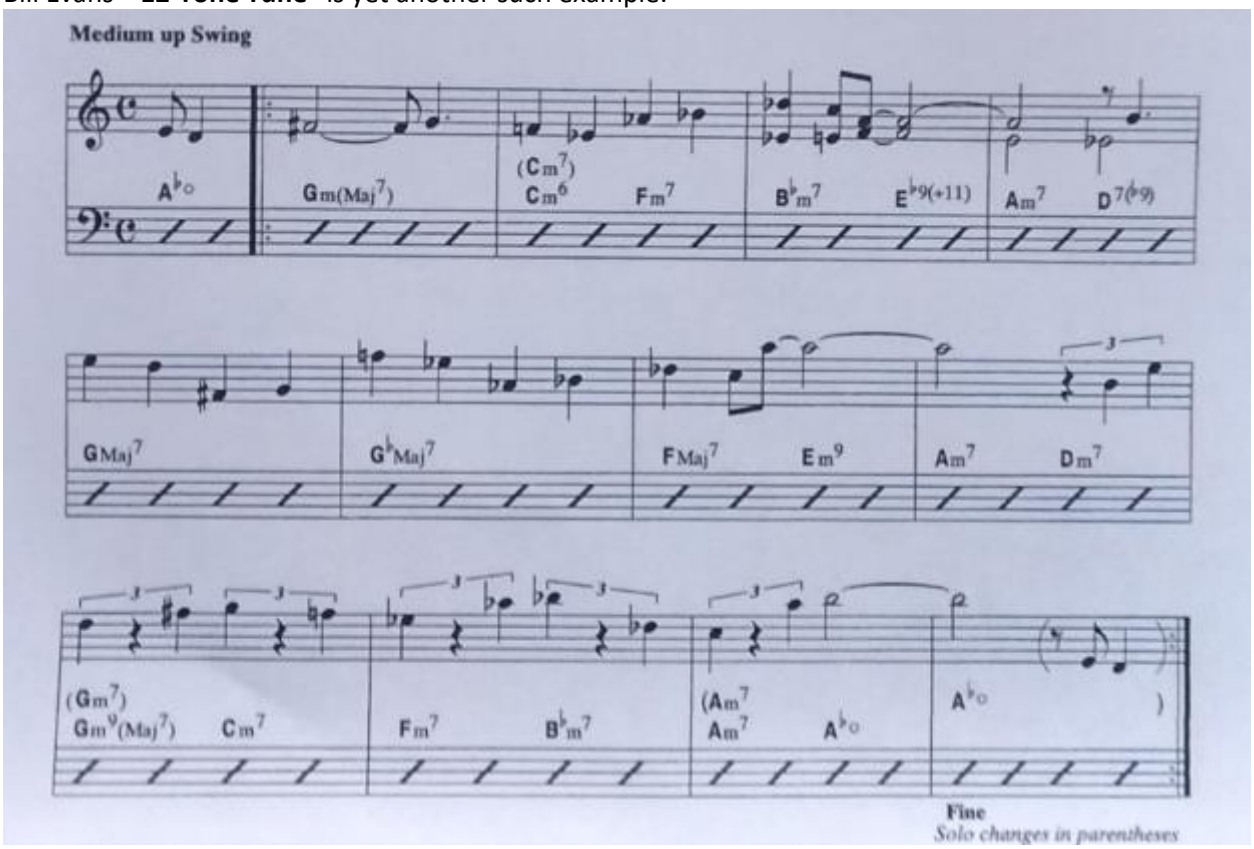
One such example is **Row House**, a 12-bar blues by Kenny Barron:



Another, “Miles’ Mode” (aka “Red Planet”), is credited in the Hal Leonard Coltrane fakebook to Coltrane, but has also been attributed to Eric Dolphy:



Bill Evans’ “**12-Tone Tune**” is yet another such example.



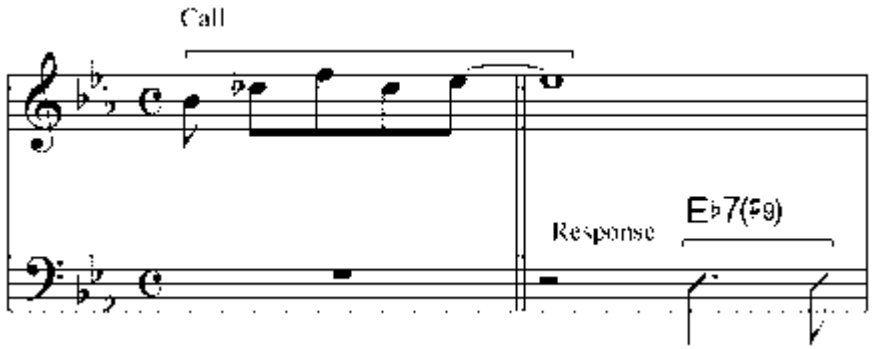
https://www.youtube.com/watch?v=UeXaGsBFe2E

IV. Finally, there is an argument to be made for musical evidence in **Blue Train** that the entire recording constitutes an arch form with carefully controlled key relationships, in which emphasis gradually shifts from the minor third (Gb) to the major third (G natural) over the course of the piece. Consider the following:

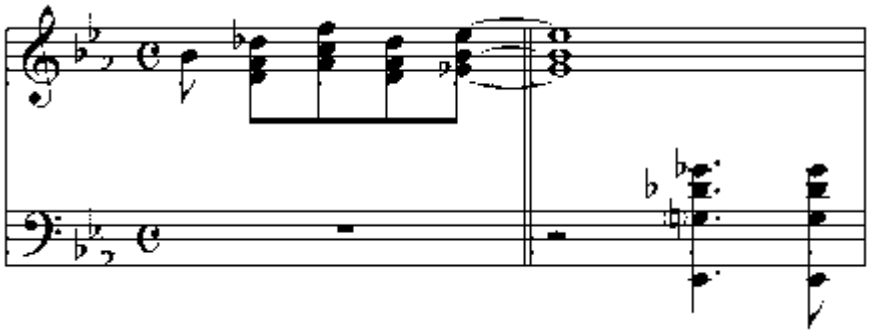
The following is a formal outline of the album "Blue Train", showing key centers visited and formal characteristics of the individual pieces.:

Title	Primary Key Centers Visited	Form
Blue Train	Eb	Blues
Moment's Notice	Eb and Gb	ABAC
Locomotion	Bb	AABA (A sections are Blues, connected by a "Rhythm" Bridge)
I'm Old Fashioned	Eb and G	ABAC
Lazy Bird	G and Eb	AABA

"*Blue Train"* is a traditional 12 bar blues. It begins in unison.
https://www.youtube.com/watch?v=Yzm5AbXLUKc

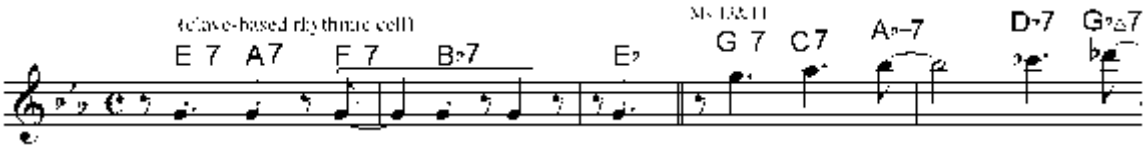


At the outset of the second chorus, the horns are harmonized triadically, with resulting emphasis on the *minor third* (Gb) in an idiomatic "#9" sound.

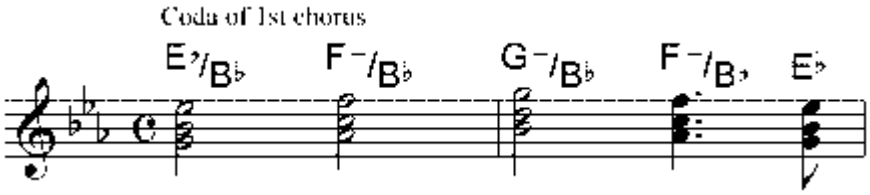


Moment's Notice

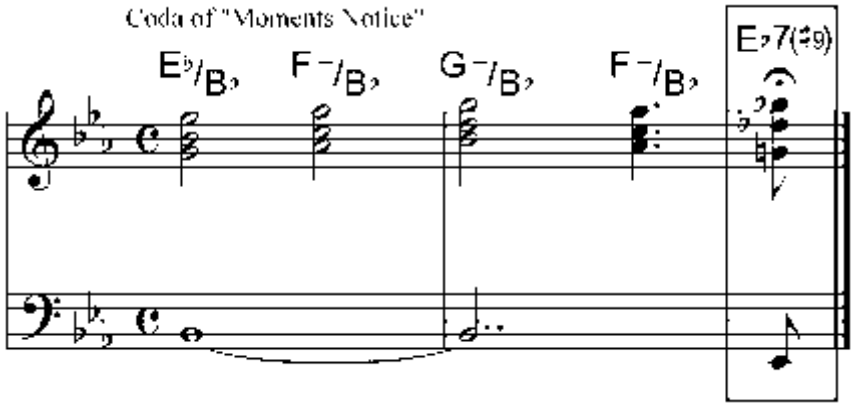
"*Moment's Notice*" begins with the standard device of playing the second half of its ABAC songform as an introduction. Following this the main melodic motif (which is essentially rhythmic in character) recurs throughout the form, with two notable harmonic landmarks; the opening key of Eb and the secondary key Gb in the first ending. The opening motif and this modulation are juxtaposed below for purposes of comparison:
https://www.youtube.com/watch?v=gocGlRuW1bw



The second is its *coda*, which features parallel diatonic chords over a dominant pedal preceding the break that leads to solos (Skip to 8:52 above link).



Of note is the variation in the coda that *concludes* the piece, in which the familiar #9 sound from "*Blue Train*" is reiterated.



Locomotion
https://www.youtube.com/watch?v=2RyrB89s8q8

"*Locomotion"* departs the primary key center of Eb for its dominant key, Bb. It's form is AABA, with the A's being the 12-bar blues, and the B section being a reharmonized variation of the "*I Got Rhythm*" Bridge. (In this sense it is also a "*compound*" form, identical to the Beatles' "*Can't Buy Me Love*"; and sort of the opposite of Richie Powell's "*Jacqui*").

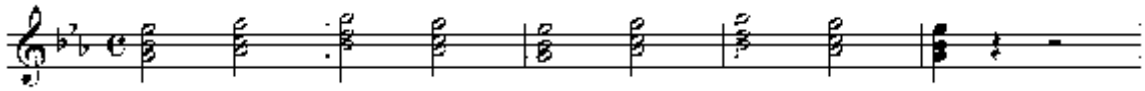
Following the recapitulation of the main tune, there is an interesting coda, in which the other two horns descend in whole tones in parallel tritones over a series of dominant 7 (b5) chords, beginning on Bb and ending on B natural, over all of which Coltrane solos. It is interesting that this middle piece of the suite is unique harmonically (tonal center of Bb) as well as formally (compound). The harmonic detail of the Coda in "*Locomotion*" is also fascinating: parallel tritones descending the whole tone scale from Bb then ending chromatically on B natural. (skip to 6:50)

I'm Old Fashioned

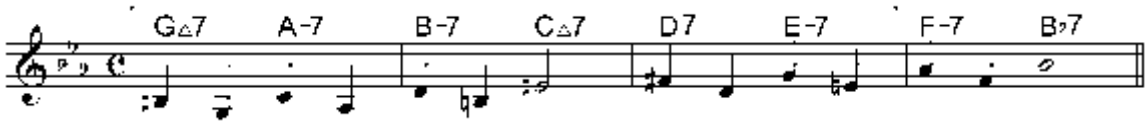
https://www.youtube.com/watch?v=0JMKi10Q32M

Ordinarily performed and originally composed in F, Coltrane performs this standard here in here Eb. What could the reasons for be for this choice of key, and if it *was* made deliberately in order to fit the key scheme of the entire piece, how does that work? (While the choice of key certainly *could* be reflective of Coltrane's well-documented proclivity for playing ballads in Eb, it also fits the theory of the overall "*Arch*" form of the piece). Like its companion piece in the first half of the record ("*Moment's Notice*"), *"I'm Old Fashioned"* has what is essentially an ABAC form, and uses the second half of the tune as an introduction (in a five movement *archform*, the second and fourth movements are usually related – see Bartók, "Concerto for Orchestra" for example). Also, like "*Moment's Notice*", it features diatonic *planing* (while this took place in the *Coda* of "*Moment's Notice*", it is a part of the *bridge* here).

Diatonic Planing in the Coda of "*Moment's Notice*":



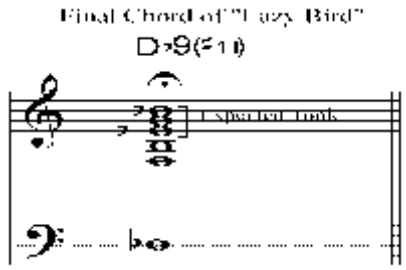
Diatonic Planing in the Bridge of "*I'm Old Fashioned*":



And importantly, the secondary key here is G *Major*, a *major* third as contrasted with the earlier emphasis on the minor third-related Gb.

Lazy Bird **https://www.youtube.com/watch?v=DAsUNTHRjaM**

"*Lazy Bird*" begins with a standard ii-7 to V7 progression in the key of *G*, then ends in *Eb*. By the end of the record any reference to the *minor* third, or to the key center of Gb, has disappeared, replaced instead by emphasis on the *major* third. The piece ends on a deceptive resolution to Db instead of the expected Eb. The deceptive final resolution to bVII instead of I is heard frequently in the music of Monk, and of course the expected tonic, Eb, is still present in the upper extensions of the voicing.



(go to 6:42 or so for ending)

Sources:

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Demsey, David. *John Coltrane Plays Giant Steps*. Hal Leonard, Milwaukee. 1996.

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Recordings:

Barron, Kenny	*Golden Lotus*, Muse Records MR-5220 (1982) (*Row House*)
Coltrane, John	*Blue Train* Blue Note Records (1957)
"" ""	*A Love Supreme* Impulse Records (1964) (*Acknowledgement*)
"" ""	*The Last Giant* (Atlantic R2 71255)
"" ""	*The Heavyweight Champion*: Complete Atlantic Recordings (Rhino R2 1984) (includes *Giant Steps; Like Sonny; Central Park North: But Not For Me*)
Dolphy, Eric or Coltrane	Coltrane: *Complete Village Vanguard Recordings* (Impulse, 1961) (*Miles' Mode*)
Evans, Bill	*The Bill Evans Album* (Columbia, 1971) (*Twelve Tone Tun*e)
Jaffe, Andy	*Yther (Portaculture*, Mvt. V) An Imperfect Storm, The Large Ensemble Compositions of Andy Jaffe, Parma Recordings (2002)
Mahler, Gustav	*Symphony #9*, Berlin Philharmonic, Deutsche Grammophon (1982)
Smith, William O.	*Clarinet Concerto* (Orchestra USA) (??)