

The Un-Tempered Orchestra. Paul Dolden 2010

Program notes:

Bach wrote *"The Well-Tempered Clavier"* in order to demonstrate the musical possibilities of a new tuning system called 12-Tone Equal Temperament (12 ET). Bach built a beautiful perfectly symmetrical building which has become the model home for all Western music since. I wrote *"The Un-Tempered Orchestra"* to demonstrate the musical possibilities of a non-symmetrical building which uses non-tempered tuning systems many of which have no octaves. The octave, like the symmetrical building, surrounds us every day with its repetitive pattern. My artistic intention is to create a new musical space within which Western and non-Western musical practices can co-exist. I want to create a big modern multicultural family, in which everyone gets along together harmoniously under one non-symmetrical roof.

These artistic intentions to break the familiar hold of 12 ET upon our ears can also be summarized by James Joyce's aphorism: "History is a nightmare from which I am trying to awake." The nightmare in this case was already announced by the third century Chinese tuning theorist who was probably the first to observe the musical perfection of 12 ET but also decided that it was "too ugly for human ears."

In order to construct this house, first I wrote simple diatonic melodies and chord progressions. Then I recorded Eastern and Western performers reading these lines in their native dialect or tuning system. With the aid of the new technologies I next retuned and edited all these performances to fit under one non-symmetrical roof. Everyone had to comprise a bit to get along together harmoniously.

In the end, our family gets along together so harmoniously that there is time for musical humour. To pick one of many examples, I will select the room we find ourselves beginning at 3'. This room is stuffed with "free jazz" solos each of which I recorded separately. These solos have been retuned into ancient Greek, Babylonian, and Chinese tuning systems. This room in the house, acts like the "Room of Mirrors" such as found in circuses. Specifically we see our current Western jazz-style of playing reflected back to us and distorted by ancient musical tuning systems. By combining different musical languages and styles we invert time: what is old becomes new and vice versa. Please enjoy these moments of musical transcendence.

The Un-Tempered Orchestra was commissioned by the Sinus Ton Festival in Germany with assistance from the Canada Council for the Arts. The work was premiered at the festival on October 14, 2010.

Acknowledgments.

Special thanks must be given to Oliver Schneller, the artistic director of the Sinus Ton Festival for organizing this commission.

I would like to also extend special thanks to X.J. Scott of *Red Barn Goat Farm*, who has designed a unique software device for retuning samples in a transparent, convincing way.

The Un-Tempered Orchestra. An Analysis.

Background.

If I were forced to classify my music I would describe it as composed of "virtual orchestras." I use the plural form for orchestra, as the works always move rapidly through vastly different instrumentations. My primary musical concerns when I started to compose were micro tonality and polyrhythm, the neglected parameters of recent Western Music. My attraction to the recording studio was directly related to knowing that live ensembles could not perform works based on these musical parameters accurately. Each musical part had to be individually recorded with the performer listening to a click track and tuning tone. In *Veils* (1984-85), *In the Natural Doorway I Crouch* (1986-87), and *Caught in an Octagon of Unaccustomed Light* (1987-88), I explored Just Intonation and non-octaval tuning systems that were often invented or sometimes based on the spectrum of the sounds I was using. In the Walls cycle (*Below, Dancing, and Beyond the Walls of Jericho* and the *Physics of Seduction* works) I explored Just Intonation and 1/8 tones, providing 48 notes to the octave.

In 1992, after twelve years of highly time-consuming work of retuning instruments and manipulating musicians' performing techniques, I stopped using micro tonality. By 2010, the digital technologies had advanced so that a composer could transparently transform the rhythm and intonation of any recording. Using these new technologies, *The Un-Tempered Orchestra* returns to seeking new vibration patterns to inform our consciousness with new thoughts and sensations.

Overview for Reading this Score. (A Quick Start Guide).

During the writing and production of this work (January to September 2010) my working title was "Un-Tempered Songs." On bad days I referred to the work as "Ill-Tempered Songs." Like a song this work consists of a melody and chordal accompaniment. The melodic part is accurately notated in this score, usually in the upper staves, and consists of monophonic or polyphonic treatment of the themes. The chordal accompaniment is not notated in the same detail and appears in the lowest two staves, marked as "Chords". In these two staves the microtonal harmony is written out horizontally in whole notes. Near the start of each new Chord part there is text, which stipulates the orchestration and types of rhythm used. For both the melodic and chordal parts, the micro tonality is notated in cents from our closest 12 Tone Equal Tempered Notes (12 ET). For example, a G note with 38 written immediately above, below or beside the note means a G note 38 cents sharp. This same G note 38 cents flat would be marked -38. In most sections articulation and expression marks, such as legato, tenuto, accents, etc are not notated because of space limitations. This score is mainly for the study of the micro tonality used in the piece, and not for creating parts, which could be re-performed with correct articulations.

In this score middle C is C3 and one octave higher is C4. The tuning systems are named: X1, X2, X3, X4, etc. or Z1, Z2, Z3, Z4, etc. All of these tuning systems are non-octaval. Therefore, the pitch levels of the individual notes of a C triad in the second octave are completely different than the pitch levels of the C, E, or G notes in the third octave. In contrast, tuning systems, which repeat at the octave, like 12 ET, are also used and are defined when they occur on pages 4,13,14, and 23. Twelve Tone Equal Temperament, the most prevalent and over analyzed octave based tuning system in western musical history, is used often in the score. If music is the art of building and releasing tension, it surprises me that the least tension in this work is produced by the 12 ET moments. This suggests that tension-release harmonically maybe more of a function of familiarity with a tuning system rather than the actual interval size.

Musical Material of the Work.

The first stage of writing involved creating simple diatonic themes and harmonies. These materials were kept simple in order to allow for the listener to perceive their transformation by the various tuning systems. Theme one appearing in contrapuntal stretto is found at 29", 7'34", 9'17", and 12'29", in monophonic form at 4'07", 5'01", 5'41" and in two-part counterpoint at 16'34".

Theme two, or the happy theme, appears in contrapuntal stretto at 1'35", 10'03", and 14'16", in monophonic form at 2'52", 3'52" and 6'22", and in two part counterpoint at 17'23".

A more minor theme I refer to as a microtonal blues appears at 53" and 12'53".

In between these themes are non-notated improvisations based on the harmonies. Some of these improvisations are completely "free" while others are based on the melodic curves of the themes. This is related to current Western jazz improvisation where there is a unison statement of the theme and then free improvisation based on the harmonic progression. The contrast between thematic unity and the "flights of fantasy" that improvisation can provide was also the main structuring device in my last studio work, "Who Has the Biggest Sound?"

It is important to remember that the themes and their harmonies, given above in 12 ET notation, never sound like this in the final work. These 12 ET themes and harmonies were "grafted" or "filtered" through the different tuning systems. For example take the notes of a C major triad, or C, E, and G, and look ahead to the tuning charts provided. The "Play" line is where we find our 12 ET notes of C, E, and G. Below this "Play", or 12 ET, line is the "Sound" line, which notates the new notes produced in the microtonal tuning system. For example the first tuning system provided after this introduction is called C1 or X1, and it transforms our C triad as:

“Play”(original 12ET note). “Sound” (new microtonal pitch=X1)

C0 (0=octave number 0)	C0 36c (c=cents)
E0	E0 32c
G0	G0 29c
C1	C1 24c
E1	E1 20c
G1	G1 17c

The reader at this point may be wondering why I am still using tertian 12 ET harmonies in new tuning systems. In order to answer this question I must transform myself from a composer following his inner ear to a speculative theorist with magical explanations, bordering on alchemy, for musical perception and cognition. I propose two unproven theories (that do not, however, guarantee good music): “Melodic Gesture” and “The Seven Steps to Heaven.”

Melodic Gesture.

It is possible that we experience melody as a sequence of generalized interval types of 2nds, 3rds, and 4ths-5ths, rather than exact interval sizes. (In this theory 6ths and 7ths are heard as inversions of 3rds and 2nds). When processing a long sequence of notes, or a flowing melody, we develop “tags” for memory like: downwards some sort of 2nd, upwards some sort of 4th-5th, downwards some sort of 2nd, repeat last interval change quicker, downwards some sort of 4th-5th, upwards some sort of 4th-5th, upwards some sort of 2nd, upwards some sort of 3rd, upwards some sort of 2nd. What I have just described is the first eleven notes of Theme One, or the first seven bars. In the final microtonal work notice how we perceive this same melodic gesture even though the actual size of the 2nds, 3rds, or 4th-5ths vary greatly. For example, the first interval, a descending minor 2nd, which in 12 ET is 100c becomes at 29”: 129c(Bass Voice), 65c (Alto and Tenor Voice), 129c (Boy Soprano), and 57c (Soprano). Likewise at 7’34” the opening interval of Theme One becomes: 155c (Double Bass), 156c(Cello), 38c(Viola), and 78c (Violin). The dedicated listener is invited to edit together all the occurrences of Theme one or two and hear how similar they sound with each occurrence, even though they use different tuning systems with vastly different sized intervals.

If I had more time for research, I would further argue that Melodic Gesture is related to when a group of musically untrained voices sings “Happy Birthday” together. Each individual has their own idea of the size of a 2nd, 3rd, and 4th-5th, yet they are able to keep a tempo and comprehend each others sense of interval size. In addition my work has lead me notice a relationship between speech and music as a function of what could be called: “Melodic Gesture Compression.” Most people speak within a range of Major Third, but within this third people express the behavior of singing melodies, which typically cover a range of one to two octaves. In other words, speech is a form of melody making in which the singing range is compressed from two octaves to a third. Varying this range of compression and cross-fertilizing it with the melodic gestures of dogs, pigs and insects informed my previous studio work: “*Who Has the Biggest Sound?*”.

The Seven Steps to Heaven.

Twentieth Century Western composed music made a fundamental mistake when it grew beyond seven to have harmonies and scales or note sets that was based on 12, 10 or 9. Seven is the magical number to get to music heaven. For years, cognitive theorists have known that seven items is the limit of short-term memory. We can hold seven items in our human RAM, possibly helping to explain why telephone numbers are seven digits. The diatonic system of seven (or 5) is the basis underlying every music except recent Western Music.¹

More than any other art form, music deals with time and the greatly disappointing phenomenon that our “window of perceptual memory” only lasts one to four seconds. With active music no one can accurately retain information from ten or thirty seconds previously. Western music prior to atonality excelled at modulation, in which a new group of seven notes, or a new key, is introduced every one to four seconds. If the music does not modulate to a new key it at least changes mode, or to a new chord, within the same key. A change of mode could be understood as a new arrangement of the existing seven notes. Musicians and non-musicians perceive this constant shifting of seven notes as a type of motion.

Diatonic music has interested me for the decade since “*Entropic Twilights*” because of this motion or movement through time, which allows for structural articulation. Indeed I feel that seven note scales combined with tertian harmonies, (chords built from scale degrees 1,3,5,7, or 2,4,6,8, etc.), mirror some sort of “archetypical perception.” In this work we hear diatonic melodies and tertian harmonies transposed through a large number of vastly different tuning systems, and yet we still hear motion and not static dissonances. This work may indicate that it is possible to create new dissonances, which have the motion of 12 ET diatonic music.

¹ Other music (such as Indian music) may have 33 notes to the octave, but each raga is characterized by the use of 4-7 specific notes, which are selected from the galaxy of 33 notes. Each of these 4-7 notes may have microtonal variations but it is clear to the performer and listener the deviation from the established pitch of the selected scale.

Microtonal deviation from the established pitch also occurs in Western jazz and extremely pronounced deviations occur in Blues and Rock music.

At this point I am arguing for 7 melodic notes and 3 or 4-part harmony to an octave. However the reader could argue that these seven notes appear at a different pitch level in each octave when using non-octaval tuning systems. But notice what I am often producing is beating octaves. For example, the C note of a C triad may be -20c in octave one, -10c in octave two, 0c in octave three, 10c in octave four and 20c in octave five. Indeed much of this work consists of a huge study in first and second order beating! However, in some tuning systems there may be octaves, which are closer to 1000 cents or 1400 cents (octaves that are parallel minor 7ths or major 9ths). What is interesting about these moments is I do not hear these as 7ths or 9ths but as some enlarged or contracted octave. Could this be related to our perception of the repeat ratio even in non-octaval scales? (In repeat ratios, notes of the scale repeat their sequence of intervals. That is, in 12 ET, 1200c is the repeat ratio for the major scale consisting of the following sequence of intervals: 200c, 200c, 100c, 200c, 200c, 200c, 100c.)

What could be the reason for diatonic music creating an "archetypical perception", even when the music is not in 12 ET or some form of Just Intonation? Some form of diatonicism exists in all music, except for a lot of recent Western composed music, which seems static. In *"The Un-Tempered Orchestra"* the normal distances of 1,3,5,7 are so distorted through microtones that perception of diatonicism and motion should have broken down. Perhaps diatonic music is not a culturally learned perception but has its basis in the physics of hearing. Lets look closer at what may be happening in the physical perception of diatonic music.

In diatonic music the melodies move from note to note often in scalar motion and by contrast the harmonies only represent every other note of the scale. In short, melodies are a series of chord tones mixed with passing tones, or non-chordal tones. This creates a constant shifting of "meaning" for a note in which a note in one harmony is a chord tone and on another harmony this same note is a passing note. In addition the "meaning" of a note changes whether it is the root, 3rd, 5th, or 7th of the harmony.

In summary, diatonic music creates a hierarchy of perception. Chords based on tertian harmony are perceived as the mid-ground of the work and the melody as the foreground. Despite contradictory instrumentation, or dynamic markings, in diatonic music the brain can comprehend the difference between foreground and mid-ground. For example we are able to focus on a soft melody in the lowest register, while listening

to a large register harmony. Our brains easily perceive the correct hierarchy with the soft melody in the low end as the foreground figure with everything else being mid-ground. For most of the musical range (E1 to E5) each critical bandwidth is spaced apart by about a major third on the Basilar Membrane. Each critical bandwidth becomes a single nerve firing in the brain. If this nerve firing has several melodic foreground notes and one chordal mid ground tone it is easy for the brain to disentangle the difference in musical function of both parameters. Tertian harmony, or harmony by 3rds, prevents an over saturation of each critical bandwidth with mid-ground information. By contrast if each critical bandwidth on the Basilar Membrane is being saturated by mid-ground information of secundal harmonies (harmonies by seconds or clusters), then the relationship between foreground and mid-ground dissolves.

Notwithstanding this potentially conservative argument there are lots of secundal harmonies in this work that often confuse the musical hierarchies of foreground and mid-ground. For example the scale steps in a tuning system like E8 (or Z8) are: 129c, 129c, 64c, 64c, 64c, 129c, 129c, 129c. By far the most used harmony in this work is Major 7 #11 or scale degrees 1,3,#4,5,7 which starting on middle C, with Z8, produces a chord covering almost an octave and a 4th:

C3, E3-12c, F#3-18c, G3 11c, C4-36c, C4 28c, F4-18c

The C4-36c and C4 28c notes are 64 cents apart and will certainly be grouped as one nerve firing on the Basilar Membrane. However, the next lowest harmony note is almost a 4th lower (G 11c) and the next higher harmony note is almost a 4th above (F-18c). This type of chord voicing, with large spacing between the seconds, appears frequently in the work and prevents too much mid-ground information from confusing the brain.

Nonetheless, there are many moments where the ear cannot distinguish the difference between harmony and melody or mid-ground and foreground. One of my favourite moments of this dissolving of foreground and mid-ground occurs in bar 31 on page 5, when hearing the melodic movement from B 12c to B-12c, with both B notes being in the harmony.

Tuning Systems: The Tuning Charts.

This work was created by retuning recorded performances and by the use of sample libraries (MIDI). In each case I needed to map the 87 notes of our 12 ET system to 87 notes of each non-octaval tuning system. In the following charts "Play" is the 12ET note and "Sound" is the equivalent note in the non-octaval tuning system. Middle C, or C3, is always the identical note in 12 ET and the micro tuning system. Each tuning system ascends upwards from C3 and descends downwards from C3. Since most music occurs in the two octaves above and below middle C, this minimized the degree of pitch shifting for each performed 12 ET note. The tuning systems are grouped by "Contraction" (i.e. C1, C2, C3, C4 etc) or "Expansion" (i.e. E1, E2, E3, E4 etc.). As one moves sequentially through Contraction the musical register becomes smaller than the 87 notes of 12 ET which goes from low A0=27.5 Hz to C7=4186 Hz. This same register in tuning C3 is A0=28.8 Hz C7= 3852 Hz. In tuning C4 the register is A0=38.89 Hz and C7=2258.8 Hz. In contrast, as one moves sequentially through Expansion the musical register becomes larger than 12 ET. In other words radiating out from C3 the notes are getting further and further apart.

For this work I needed transition tuning systems to get from 12 ET to the non-octaval systems. Therefore in the Contraction series the notes of C1 are 99c apart radiating outwards from middle C, C2 is 98c, C3 is 97c, C4 is 96c and C5 is the first tuning system where the repeating ratio is not one or twelve. Likewise, in the Expansion

series E1=101c, E2=102c, E3=103c, and then there are more transition tunings called E3=105c, E3=106c, E3=107c until we get to E4 where the repeating ratio is not one or twelve.

After I wrote the original score with tuning system names like E7,E9,C6,C9, I realized I also had 12 ET chords called E7,E9,C6 and C9. Therefore in order to avoid confusion in this Listeners' Score, all the expansion tunings were called Z and Contraction tunings were called X. (i.e. E9=Z9 and C9=X9). At the top of each tuning system in the following pages both names (E or Z and C or X) are provided.

Each page contains information on how the non-octaval tuning system was created. In the previous section I used E8 (or Z8) with its scale steps of 129c, 129c, 63c, 63c, 129c, 129c, 129c. At the bottom of the page for E8 it explains that one starts with the ratio of 13/8 or 841c, which in 12 ET is an augmented 5th plus 41c. If you take this 841c and divide by 13 you get 64c. The final series of notes (129c, 129c, 64c, 64c, etc.) can be understood as equivalent to whole tone of 129c (WT=64c times 2) and semi-tone (ST=64c). Therefore the scale is: WT, WT, ST, ST, ST, WT, WT, WT. Likewise the tuning system before this is E7 or X7. In this case the repeating ratio is 7:3 or 1698c. This ratio divided into 14 is 61c and WT would be twice 61c or 122c. In all tuning systems the repeating ratio, or where our sequence of scale steps starts repeating is circled in both the Play and Sound line. For example in E7 C3 is circled in Play and Sound, and then D4 in Play and D#4-33c in Sound, then E5 in Play and F5 33c in Sound.

Closing Remarks.

This short analysis has restricted its focus to the micro tonality in this work. Another idea I have developed over the years of observing and creating musical behavior is the importance of a central "groove" or "feel" even when working with multiple tempos. However this discussion will have to wait for another written document in the future.

When returning to microtonal music it was very important to me, that the work did not just explore one or two tuning systems for an entire composition. I wanted to develop a system of tuning systems, which constantly changed but had some sort of logic. In addition, I wanted to maintain our Western habit of creating movement through the use of chord progressions. However, from page 7 to 11 of the score there are no chord progressions as the music is based on the static harmony of Amaj7#11 (notes=A, C#, D#, E, G#). The movement of this static harmony through different tuning systems creates motion and a form of modulation.

I have always followed my own inner ear and I cannot fully explain my modulation choices, particularly when I change from an Expansion tuning to a Contraction tuning or vica versa. Sometimes when I study the Chord notation I can begin to see some sort of logic in the voice leading. However it is extremely hard to eyeball voice leading when every octave has different notes! Obviously it is up to the listener to decide if there is an inner logic to my choices.

Chord Names.

For those of you unfamiliar with jazz harmony names:

C=1,3,5 or C, E, G
 C7=1,3,5,7 or C, E, G, B
 C9=1,3,5,7,9, or C, E, G, B, D
 C7#11=1,3,#4,5,7 or C, E, F#, G, B

Cm or C-=1,flat 3, 5 or C, Eflat, G
 C-7=1,flat 3, 5, flat7 or C, Eflat, G, B flat
 C-9=1,flat 3, 5, flat7, 9 or C, Eflat, G, B flat,D
 C-7 5=1,flat 3,flat 5, flat7 or C, Eflat, flat G, B flat
 C7=1,3,5,flat7 or C, E, G, Bflat
 C9=1,3,5,flat7,9 or C, E, G, Bflat, D
 C7#11=1,3,#4,5,flat7 or C, E, F#, G, Bflat

By far the most used harmony in this work is maj7#11 or 7#11. This harmony when analyzed is two tetra chords of 1,3,#4 and 5,7,8. Both tetra chords are Major third, minor second. Many of my non-octaval tuning systems have repeating ratios around 700c or where the tetra chord repeats in this harmony. Clearly the difference between the repeating ratio of a tuning system and 700c creates its own tension.

994 99,99, 99, 99,99 etc.

(C1) (X1)

Play

Sound

Play

Sound

Play

Sound

Play

Sound

984 984, 984, 98, 98, 98

(C2) (X2)

Play

Sound

Play

Sound

Play

Sound

Play

Sound

974 97, 97, 97, 97, 97, 97, ...

(C3) (X3)

Play 7

Sound

18ua

93 87 75 72 69 66 63 60 57 54 51

Play 7

Sound

C2

C3

48 45 42 39 36 33 30 27 24 21 18 15 12 9 6 3 -3 -6 -12 -9

Play 7

Sound

C4

C5

-18 -24 -30 -36 -42 -48 -54 -60 -66 -72 -78 -81 -15 -21 -27 -33 -39 -45 -51 -57 -63 -69 -75

Play 8

Sound

18ua

15ua

87 93 99 105 114 120 126 132 138 144 -84 -90 -96 -102 -108 -111 -117 -123 -129 -135 -141

964 96, 96, 96, 96, 96

(C4) (X4)

Play 7

Sound

18ua

44 48 40 36 32 28 24 20 16 12 8 4 88 80 72 68 96 92 84 76

Play 7

Sound

C2

C3

64 56 48 44 40 36 32 28 24 20 16 12 8 4 -4 -8 -12 -16 60 52

Play 7

Sound

C4

C5

-24 -32 -40 -48 -56 -62 -70 -78 -84 -92 -100 -108 -116 -124 -132 -140 -148 -156 -164 -172 -180 -188 -196 -204 -212 -220 -228 -236 -244 -252 -260 -268 -276 -284 -292 -300 -308 -316 -324 -332 -340 -348 -356 -364 -372 -380 -388 -396 -404 -412 -420 -428 -436 -444 -452 -460 -468 -476 -484 -492 -500 -508 -516 -524 -532 -540 -548 -556 -564 -572 -580 -588 -596 -604 -612 -620 -628 -636 -644 -652 -660 -668 -676 -684 -692 -700 -708 -716 -724 -732 -740 -748 -756 -764 -772 -780 -788 -796 -804 -812 -820 -828 -836 -844 -852 -860 -868 -876 -884 -892 -900 -908 -916 -924 -932 -940 -948 -956 -964 -972 -980 -988 -996 -1004 -1012 -1020 -1028 -1036 -1044 -1052 -1060 -1068 -1076 -1084 -1092 -1100 -1108 -1116 -1124 -1132 -1140 -1148 -1156 -1164 -1172 -1180 -1188 -1196 -1204 -1212 -1220 -1228 -1236 -1244 -1252 -1260 -1268 -1276 -1284 -1292 -1300 -1308 -1316 -1324 -1332 -1340 -1348 -1356 -1364 -1372 -1380 -1388 -1396 -1404 -1412 -1420 -1428 -1436 -1444 -1452 -1460 -1468 -1476 -1484 -1492 -1500 -1508 -1516 -1524 -1532 -1540 -1548 -1556 -1564 -1572 -1580 -1588 -1596 -1604 -1612 -1620 -1628 -1636 -1644 -1652 -1660 -1668 -1676 -1684 -1692 -1700 -1708 -1716 -1724 -1732 -1740 -1748 -1756 -1764 -1772 -1780 -1788 -1796 -1804 -1812 -1820 -1828 -1836 -1844 -1852 -1860 -1868 -1876 -1884 -1892 -1900 -1908 -1916 -1924 -1932 -1940 -1948 -1956 -1964 -1972 -1980 -1988 -1996 -2004 -2012 -2020 -2028 -2036 -2044 -2052 -2060 -2068 -2076 -2084 -2092 -2100 -2108 -2116 -2124 -2132 -2140 -2148 -2156 -2164 -2172 -2180 -2188 -2196 -2204 -2212 -2220 -2228 -2236 -2244 -2252 -2260 -2268 -2276 -2284 -2292 -2300 -2308 -2316 -2324 -2332 -2340 -2348 -2356 -2364 -2372 -2380 -2388 -2396 -2404 -2412 -2420 -2428 -2436 -2444 -2452 -2460 -2468 -2476 -2484 -2492 -2500 -2508 -2516 -2524 -2532 -2540 -2548 -2556 -2564 -2572 -2580 -2588 -2596 -2604 -2612 -2620 -2628 -2636 -2644 -2652 -2660 -2668 -2676 -2684 -2692 -2700 -2708 -2716 -2724 -2732 -2740 -2748 -2756 -2764 -2772 -2780 -2788 -2796 -2804 -2812 -2820 -2828 -2836 -2844 -2852 -2860 -2868 -2876 -2884 -2892 -2900 -2908 -2916 -2924 -2932 -2940 -2948 -2956 -2964 -2972 -2980 -2988 -2996 -3004 -3012 -3020 -3028 -3036 -3044 -3052 -3060 -3068 -3076 -3084 -3092 -3100 -3108 -3116 -3124 -3132 -3140 -3148 -3156 -3164 -3172 -3180 -3188 -3196 -3204 -3212 -3220 -3228 -3236 -3244 -3252 -3260 -3268 -3276 -3284 -3292 -3300 -3308 -3316 -3324 -3332 -3340 -3348 -3356 -3364 -3372 -3380 -3388 -3396 -3404 -3412 -3420 -3428 -3436 -3444 -3452 -3460 -3468 -3476 -3484 -3492 -3500 -3508 -3516 -3524 -3532 -3540 -3548 -3556 -3564 -3572 -3580 -3588 -3596 -3604 -3612 -3620 -3628 -3636 -3644 -3652 -3660 -3668 -3676 -3684 -3692 -3700 -3708 -3716 -3724 -3732 -3740 -3748 -3756 -3764 -3772 -3780 -3788 -3796 -3804 -3812 -3820 -3828 -3836 -3844 -3852 -3860 -3868 -3876 -3884 -3892 -3900 -3908 -3916 -3924 -3932 -3940 -3948 -3956 -3964 -3972 -3980 -3988 -3996 -4004 -4012 -4020 -4028 -4036 -4044 -4052 -4060 -4068 -4076 -4084 -4092 -4100 -4108 -4116 -4124 -4132 -4140 -4148 -4156 -4164 -4172 -4180 -4188 -4196 -4204 -4212 -4220 -4228 -4236 -4244 -4252 -4260 -4268 -4276 -4284 -4292 -4300 -4308 -4316 -4324 -4332 -4340 -4348 -4356 -4364 -4372 -4380 -4388 -4396 -4404 -4412 -4420 -4428 -4436 -4444 -4452 -4460 -4468 -4476 -4484 -4492 -4500 -4508 -4516 -4524 -4532 -4540 -4548 -4556 -4564 -4572 -4580 -4588 -4596 -4604 -4612 -4620 -4628 -4636 -4644 -4652 -4660 -4668 -4676 -4684 -4692 -4700 -4708 -4716 -4724 -4732 -4740 -4748 -4756 -4764 -4772 -4780 -4788 -4796 -4804 -4812 -4820 -4828 -4836 -4844 -4852 -4860 -4868 -4876 -4884 -4892 -4900 -4908 -4916 -4924 -4932 -4940 -4948 -4956 -4964 -4972 -4980 -4988 -4996 -5004 -5012 -5020 -5028 -5036 -5044 -5052 -5060 -5068 -5076 -5084 -5092 -5100 -5108 -5116 -5124 -5132 -5140 -5148 -5156 -5164 -5172 -5180 -5188 -5196 -5204 -5212 -5220 -5228 -5236 -5244 -5252 -5260 -5268 -5276 -5284 -5292 -5300 -5308 -5316 -5324 -5332 -5340 -5348 -5356 -5364 -5372 -5380 -5388 -5396 -5404 -5412 -5420 -5428 -5436 -5444 -5452 -5460 -5468 -5476 -5484 -5492 -5500 -5508 -5516 -5524 -5532 -5540 -5548 -5556 -5564 -5572 -5580 -5588 -5596 -5604 -5612 -5620 -5628 -5636 -5644 -5652 -5660 -5668 -5676 -5684 -5692 -5700 -5708 -5716 -5724 -5732 -5740 -5748 -5756 -5764 -5772 -5780 -5788 -5796 -5804 -5812 -5820 -5828 -5836 -5844 -5852 -5860 -5868 -5876 -5884 -5892 -5900 -5908 -5916 -5924 -5932 -5940 -5948 -5956 -5964 -5972 -5980 -5988 -5996 -6004 -6012 -6020 -6028 -6036 -6044 -6052 -6060 -6068 -6076 -6084 -6092 -6100 -6108 -6116 -6124 -6132 -6140 -6148 -6156 -6164 -6172 -6180 -6188 -6196 -6204 -6212 -6220 -6228 -6236 -6244 -6252 -6260 -6268 -6276 -6284 -6292 -6300 -6308 -6316 -6324 -6332 -6340 -6348 -6356 -6364 -6372 -6380 -6388 -6396 -6404 -6412 -6420 -6428 -6436 -6444 -6452 -6460 -6468 -6476 -6484 -6492 -6500 -6508 -6516 -6524 -6532 -6540 -6548 -6556 -6564 -6572 -6580 -6588 -6596 -6604 -6612 -6620 -6628 -6636 -6644 -6652 -6660 -6668 -6676 -6684 -6692 -6700 -6708 -6716 -6724 -6732 -6740 -6748 -6756 -6764 -6772 -6780 -6788 -6796 -6804 -6812 -6820 -6828 -6836 -6844 -6852 -6860 -6868 -6876 -6884 -6892 -6900 -6908 -6916 -6924 -6932 -6940 -6948 -6956 -6964 -6972 -6980 -6988 -6996 -7004 -7012 -7020 -7028 -7036 -7044 -7052 -7060 -7068 -7076 -7084 -7092 -7100 -7108 -7116 -7124 -7132 -7140 -7148 -7156 -7164 -7172 -7180 -7188 -7196 -7204 -7212 -7220 -7228 -7236 -7244 -7252 -7260 -7268 -7276 -7284 -7292 -7300 -7308 -7316 -7324 -7332 -7340 -7348 -7356 -7364 -7372 -7380 -7388 -7396 -7404 -7412 -7420 -7428 -7436 -7444 -7452 -7460 -7468 -7476 -7484 -7492 -7500 -7508 -7516 -7524 -7532 -7540 -7548 -7556 -7564 -7572 -7580 -7588 -7596 -7604 -7612 -7620 -7628 -7636 -7644 -7652 -7660 -7668 -7676 -7684 -7692 -7700 -7708 -7716 -7724 -7732 -7740 -7748 -7756 -7764 -7772 -7780 -7788 -7796 -7804 -7812 -7820 -7828 -7836 -7844 -7852 -7860 -7868 -7876 -7884 -7892 -7900 -7908 -7916 -7924 -7932 -7940 -7948 -7956 -7964 -7972 -7980 -7988 -7996 -8004 -8012 -8020 -8028 -8036 -8044 -8052 -8060 -8068 -8076 -8084 -8092 -8100 -8108 -8116 -8124 -8132 -8140 -8148 -8156 -8164 -8172 -8180 -8188 -8196 -8204 -8212 -8220 -8228 -8236 -8244 -8252 -8260 -8268 -8276 -8284 -8292 -8300 -8308 -8316 -8324 -8332 -8340 -8348 -8356 -8364 -8372 -8380 -8388 -8396 -8404 -8412 -8420 -8428 -8436 -8444 -8452 -8460 -8468 -8476 -8484 -8492 -8500 -8508 -8516 -8524 -8532 -8540 -8548 -8556 -8564 -8572 -8580 -8588 -8596 -8604 -8612 -8620 -8628 -8636 -8644 -8652 -8660 -8668 -8676 -8684 -8692 -8700 -8708 -8716 -8724 -8732 -8740 -8748 -8756 -8764 -8772 -8780 -8788 -8796 -8804 -8812 -8820 -8828 -8836 -8844 -8852 -8860 -8868 -8876 -8884 -8892 -8900 -8908 -8916 -8924 -8932 -8940 -8948 -8956 -8964 -8972 -8980 -8988 -8996 -9004 -9012 -9020 -9028 -9036 -9044 -9052 -9060 -9068 -9076 -9084 -9092 -9100 -9108 -9116 -9124 -9132 -9140 -9148 -9156 -9164 -9172 -9180 -9188 -9196 -9204 -9212 -9220 -9228 -9236 -9244 -9252 -9260 -9268 -9276 -9284 -9292 -9300 -9308 -9316 -9324 -9332 -9340 -9348 -9356 -9364 -9372 -9380 -9388 -9396 -9404 -9412 -9420 -9428 -9436 -9444 -9452 -9460 -9468 -9476 -9484 -9492 -9500 -9508 -9516 -9524 -9532 -9540 -9548 -9556 -9564 -9572 -9580 -9588 -9596 -9604 -9612 -9620 -9628 -9636 -9644 -9652 -9660 -9668 -9676 -9684 -9692 -9700 -9708 -9716 -9724 -9732 -9740 -9748 -9756 -9764 -9772 -9780 -9788 -9796 -9804 -9812 -9820 -9828 -9836 -9844 -9852 -9860 -9868 -9876 -9884 -9892 -9900 -9908 -9916 -9924 -9932 -9940 -9948 -9956 -9964 -9972 -9980 -9988 -9996 -10004 -10012 -10020 -10028 -10036 -10044 -10052 -10060 -10068 -10076 -10084 -10092 -10100 -10108 -10116 -10124 -10132 -10140 -10148 -10156 -10164 -10172 -10180 -10188 -10196 -10204 -10212 -10220 -10228 -10236 -10244 -10252 -10260 -10268 -10276 -10284 -10292 -10300 -10308 -10316 -10324 -10332 -10340 -10348 -10356 -10364 -10372 -10380 -10388 -10396 -10404 -10412 -10420 -10428 -10436 -10444 -10452 -10460 -10468 -10476 -10484 -10492 -10500 -10508 -10516 -10524 -10532 -10540 -10548 -10556 -10564 -10572 -10580 -10588 -10596 -10604 -10612 -10620 -10628 -10636 -10644 -10652 -10660 -10668 -10676 -10684 -10692 -10700 -10708 -10716 -10724 -10732 -10740 -10748 -10756 -10764 -10772 -10780 -10788 -10796 -10804 -10812 -10820 -10828 -10836 -10844 -10852 -10860 -10868 -10876 -10884 -10892 -10900 -10908 -10916 -10924 -10932 -10940 -10948 -10956 -10964 -10972 -10980 -10988 -10996 -11004 -11012 -11020 -11028 -11036 -11044 -11052 -11060 -11068 -11076 -11084 -11092 -11100 -11108 -11116 -11124 -11132 -11140 -11148 -11156 -11164 -11172 -11180 -11188 -11196 -11204 -11212 -11220 -11228 -11236 -11244 -11252 -11260 -11268 -11276 -11284 -11292 -11300 -11308 -11316 -11324 -11332 -11340 -11348 -11356 -11364 -11372 -11380 -11388 -11396 -11404 -11412 -11420 -11428 -11436 -11444 -11452 -11460 -11468 -11476 -11484 -11492 -11500 -11508 -11516 -11524 -11532 -11540 -11548 -11556 -11564 -11572 -11580 -11588 -11596 -11604 -11612 -11620 -11628 -11636 -11644 -11652 -11660 -11668 -11676 -11684 -11692 -11700 -11708 -11716 -11724 -11732 -11740 -11748 -11756 -11764 -11772 -11780 -11788 -11796 -11804 -11812 -11820 -11828 -11836 -11844 -11852 -11860 -11868 -11876 -11884 -11892 -11900 -11908 -11916 -11924 -11932 -11940 -11948 -11956 -11964 -11972 -11980 -11988 -11996 -12004 -12012 -12020 -12028 -12036 -12044 -12052 -12060 -12068 -12076 -12084 -12092 -12100 -12108 -12116 -12124 -12132 -12140 -12148 -12156 -12164 -12172 -12180 -12188 -12196 -12204 -12212 -12220 -12228 -12236 -12244 -12252 -12260 -12268 -12276 -12284 -12292 -12300 -12308 -12316 -12324 -12332 -12340 -12348 -12356 -12364 -12372 -12380 -12388 -12396 -12404 -12412 -12420 -12428 -12436 -12444 -12452 -12460 -12468 -12476 -12484 -12492 -12500 -12508 -12516 -12524 -12532 -12540 -12548 -12556 -12564 -12572 -12580 -12588 -12596 -12604 -12612 -12620 -12628 -12636 -12644 -12652 -12660 -12668 -12676 -12684 -12692 -12700 -12708 -12716 -12724 -12732 -12740 -12748 -12756 -12764 -12772 -12780 -12788 -12796 -12804 -12812 -12820 -12828 -12836 -12844 -12852 -12860 -12868 -12876 -12884 -12892 -12900 -12908 -12916 -12924 -12932 -12940 -12948 -12956 -12964 -12972 -12980 -12988 -12996 -13004 -13012 -13020 -13028 -13036 -13044 -13052 -13060 -13068 -13076 -13084 -13092 -13100 -13108 -13116 -13124 -13132 -13140 -13148 -13156 -13164 -13172 -13180 -13188 -13196 -13204 -13212 -13220 -13228 -13236 -13244 -13252 -13260 -13268 -13276 -13284 -13292 -13300 -13308 -13316 -13324 -13332 -13340 -13348 -13356 -13364 -13372 -13380 -13388 -13396 -13404 -13412 -13420 -13428 -13436 -13444 -13452 -13460 -13468 -13476 -13484 -13492 -13500 -13508 -13516 -13524 -13532 -13540 -13548 -13556 -13564 -13572 -13580 -13588 -13596 -13604 -13612 -13620 -13628 -13636 -13644 -13652 -13660 -13668 -13676 -13684 -13692 -13700 -13708 -13716 -13724 -13732 -13740 -13748 -13756 -13764 -13772 -13780 -13788 -13796 -13804 -13812 -13820 -13828 -13836 -13844 -13852 -13860 -13868 -13876 -13884 -13892 -13900 -13908 -13916 -13924 -13932 -13940 -13948 -13956 -13964 -13972 -13980 -13988 -13996 -14004 -14012 -14020 -14028 -14036 -14044 -14052 -14060 -14068 -14076 -14084 -14092 -14100 -14108 -14116 -14124 -14132 -14140 -14148 -14156 -14164 -14172 -14180 -14188 -14196 -14204 -14212 -14220 -14228 -14236 -14244 -14252 -14260 -14268 -14276 -14284 -14292 -14300 -14308 -14316 -14324 -14332 -14340 -14348 -14356 -14364 -14372 -14380 -14388 -14396 -14404 -14412 -14420 -14428 -14436 -14444 -14452 -14460 -14468 -14476 -14484 -14492 -14500 -14508 -14516 -14524 -14532 -14540 -14548 -14556 -14564 -14572 -14580 -14588 -14596 -14604 -14612 -14620 -14628 -14636 -14644 -14652 -14660 -14668 -14676 -14684 -14692 -14700 -14708 -14716 -14724 -14732 -14740 -14748 -14756 -14764 -14772 -14780 -14788 -14796 -14804 -14812 -14820 -14828 -14836 -14844 -14852 -14860 -14868 -14876 -14884 -14892 -14900 -14908 -14916 -14924 -14932 -14940 -14948 -14956 -14964 -14972 -14980 -14988 -14996 -15004 -15012 -15020 -15028 -15036 -15044 -15052 -15060 -15068 -15076 -15084 -15092 -15100 -15108 -15116 -15124 -15132 -15140 -15148 -15156 -15164 -15172 -15180 -15188 -15196 -15204 -15212 -15220 -15228 -15236 -15244 -15252 -15260 -15268 -15276 -15284 -15292 -15300 -15308 -15316 -15324 -15332 -15340 -15348 -15356 -15364 -15372 -15380 -15388 -15396 -15404 -15412 -15420 -15428 -15436 -15444 -15452 -15460 -15468 -15476 -15484 -15492 -15500 -15508 -15516 -15524 -15532 -15540 -15548 -15556 -15564 -15572 -15580 -15588 -15596 -15604 -15612 -15620 -15628 -15636 -15644 -15652 -15660 -15668 -15676 -15684 -15692 -15700 -15708 -15716 -15724 -15732 -15740 -15748 -15756 -15764 -15772 -15780 -15788 -15796 -15804 -15812 -15820 -15828 -15836 -15844 -15852 -15860 -15868 -15876 -15884 -15892 -15900 -15908 -15916 -15924 -15932 -15940 -15948 -15956 -15964 -15972 -15980 -15988 -15996 -16004 -16012

174, 58, 58, 58, 116, 116,
7:5 = 5734

(C5) (X5)
7:5 = 5734

Play 7

Sound

18va

13 18va

28 -20 -4 -30 -37 -36 20 -21 36 -30 44 +3 19 -47 27

Play 7

Sound

62

-14 43 2 18 34 9 -32 26 17 -7 49 8 -16 33 -25 49 0 33 -8

Play 7

Sound

54

33 -17 -42 -26 32 48 -34 -2 -43 31 47 -19 38 14 30 4 -36 22 3 14

Play 8

Sound

8va 15va

8va 15va

-4 -12 4 -21 28 44 -22 10 43 40 20 12 45 -37 5 30 -13 -39 -47 -31 27 -39

179, 45, 45, 45, 179, 89

7:5 (5734)
(C6) (X6)

Play 7

Sound

18va

8 36 15 29 18 -2 -12 11 -43 -39 -30 49 -6 38 -31 -47 +31

Play 7

Sound

62

-23 21 -33 45 34 14 -14 3 48 27 17 3 -13 10 20 -31 24 2 3

Play 7

Sound

54

-7 -17 -38 6 -48 3 24 44 -34 -10 -21 26 26 16 -38 40 30 -45

Play 8

Sound

8va 15va

8va 15va

43 22 12 36 26 19 8 43 46 -39 -8 -29 39 -25 -36 -12 -22

(A8)

$$= 9694$$

200, 200, 50, 50, 100, 50, 50, 50, 50, 50, 50, 50, 100, 50, 50

CS X8

17:8 (Repeat)

$$= 1404 \text{ d}$$
[illegible]

A9

155, 77, 38, 38, 38, 155, 77

C9 X9

7:5

=5734

Play

Sound

Handwritten musical notation for the first system on the left page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals (sharps and naturals) and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 23, 15, 9, 42, 40, 20, -2, 36, -30, 25, 3, 41, 19, 19, 25, 7, -47, -14, 24, -36) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

116, 58, 58, 58, 58, 116, 116

C10 X10

7:5

=5734

Play

Sound

Handwritten musical notation for the first system on the right page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., -45, -12, -37, -21, 20, 36, 46, -30, -13, 44, 3, -38, 20, 35, -47, 31, 27, -14, 43) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the second system on the left page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 2, -42, 34, -32, 6, 45, -15, 39, 17, 27, -10, 33, 33, 10, -28, -44) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the second system on the right page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 2, 18, 35, 10, -32, -15, 17, 34, -49, -16, 16, -25, 33) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the third system on the left page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 49, -17, 37, -45, -6, 32, -34, 20, 36, 14, 47, 3, -19, 19, -3, -47, -41) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the third system on the right page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 49, -33, -1, -42, -26, 32, 48, -35, -18, 40, 2, 43, 14, 47, -36, 22, -19, 38, -3, 14) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the fourth system on the left page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., -36, 30, -14, 2, 40, 34, -32, 45, -15, 23, -37, 17, 4, -49, 28, 6, 44, -22) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

Play

Sound

Handwritten musical notation for the fourth system on the right page. It consists of two staves. The top staff is labeled 'Play' and contains a sequence of notes with accidentals and some circled notes. The bottom staff is labeled 'Sound' and contains a sequence of notes with accidentals and some circled notes. There are various numerical annotations (e.g., 30, 46, 5, -36, 21, 21, -4, 12, 29, 12, 45, 4, -38, -5, 11, -30, 28, -13, 44, -39, -22) written below the notes, likely indicating fret positions or other performance instructions. A circled note is present in the top staff.

A10

$$= 961 \text{ f}$$

Play?

Sum?

8va

8va

9614

Handwritten musical notation for two tracks, 'Play' and 'Sound'. The 'Play' track is written on a treble clef staff with a key signature of one sharp (F#). The 'Sound' track is written on a bass clef staff with a key signature of one sharp (F#). Both tracks feature a series of notes with various accidentals and a final measure with a double bar line. The 'Sound' track includes a large 'X' over the final measure.

Handwritten musical notation for two tracks, 'Play' and 'Sound'.

Play Track: Treble clef, one sharp (F#). Notes include: F#4, G#4, A#4, B#4, C#5, D#5, E#5, F#5, G#5, A#5, B#5, C#6, D#6, E#6, F#6, G#6, A#6, B#6, C#7, D#7, E#7, F#7, G#7, A#7, B#7, C#8, D#8, E#8, F#8, G#8, A#8, B#8, C#9, D#9, E#9, F#9, G#9, A#9, B#9, C#10, D#10, E#10, F#10, G#10, A#10, B#10, C#11, D#11, E#11, F#11, G#11, A#11, B#11, C#12, D#12, E#12, F#12, G#12, A#12, B#12, C#13, D#13, E#13, F#13, G#13, A#13, B#13, C#14, D#14, E#14, F#14, G#14, A#14, B#14, C#15, D#15, E#15, F#15, G#15, A#15, B#15, C#16, D#16, E#16, F#16, G#16, A#16, B#16, C#17, D#17, E#17, F#17, G#17, A#17, B#17, C#18, D#18, E#18, F#18, G#18, A#18, B#18, C#19, D#19, E#19, F#19, G#19, A#19, B#19, C#20, D#20, E#20, F#20, G#20, A#20, B#20, C#21, D#21, E#21, F#21, G#21, A#21, B#21, C#22, D#22, E#22, F#22, G#22, A#22, B#22, C#23, D#23, E#23, F#23, G#23, A#23, B#23, C#24, D#24, E#24, F#24, G#24, A#24, B#24, C#25, D#25, E#25, F#25, G#25, A#25, B#25, C#26, D#26, E#26, F#26, G#26, A#26, B#26, C#27, D#27, E#27, F#27, G#27, A#27, B#27, C#28, D#28, E#28, F#28, G#28, A#28, B#28, C#29, D#29, E#29, F#29, G#29, A#29, B#29, C#30, D#30, E#30, F#30, G#30, A#30, B#30, C#31, D#31, E#31, F#31, G#31, A#31, B#31, C#32, D#32, E#32, F#32, G#32, A#32, B#32, C#33, D#33, E#33, F#33, G#33, A#33, B#33, C#34, D#34, E#34, F#34, G#34, A#34, B#34, C#35, D#35, E#35, F#35, G#35, A#35, B#35, C#36, D#36, E#36, F#36, G#36, A#36, B#36, C#37, D#37, E#37, F#37, G#37, A#37, B#37, C#38, D#38, E#38, F#38, G#38, A#38, B#38, C#39, D#39, E#39, F#39, G#39, A#39, B#39, C#40, D#40, E#40, F#40, G#40, A#40, B#40, C#41, D#41, E#41, F#41, G#41, A#41, B#41, C#42, D#42, E#42, F#42, G#42, A#42, B#42, C#43, D#43, E#43, F#43, G#43, A#43, B#43, C#44, D#44, E#44, F#44, G#44, A#44, B#44, C#45, D#45, E#45, F#45, G#45, A#45, B#45, C#46, D#46, E#46, F#46, G#46, A#46, B#46, C#47, D#47, E#47, F#47, G#47, A#47, B#47, C#48, D#48, E#48, F#48, G#48, A#48, B#48, C#49, D#49, E#49, F#49, G#49, A#49, B#49, C#50, D#50, E#50, F#50, G#50, A#50, B#50, C#51, D#51, E#51, F#51, G#51, A#51, B#51, C#52, D#52, E#52, F#52, G#52, A#52, B#52, C#53, D#53, E#53, F#53, G#53, A#53, B#53, C#54, D#54, E#54, F#54, G#54, A#54, B#54, C#55, D#55, E#55, F#55, G#55, A#55, B#55, C#56, D#56, E#56, F#56, G#56, A#56, B#56, C#57, D#57, E#57, F#57, G#57, A#57, B#57, C#58, D#58, E#58, F#58, G#58, A#58, B#58, C#59, D#59, E#59, F#59, G#59, A#59, B#59, C#60, D#60, E#60, F#60, G#60, A#60, B#60, C#61, D#61, E#61, F#61, G#61, A#61, B#61, C#62, D#62, E#62, F#62, G#62, A#62, B#62, C#63, D#63, E#63, F#63, G#63, A#63, B#63, C#64, D#64, E#64, F#64, G#64, A#64, B#64, C#65, D#65, E#65, F#65, G#65, A#65, B#65, C#66, D#66, E#66, F#66, G#66, A#66, B#66, C#67, D#67, E#67, F#67, G#67, A#67, B#67, C#68, D#68, E#68, F#68, G#68, A#68, B#68, C#69, D#69, E#69, F#69, G#69, A#69, B#69, C#70, D#70, E#70, F#70, G#70, A#70, B#70, C#71, D#71, E#71, F#71, G#71, A#71, B#71, C#72, D#72, E#72, F#72, G#72, A#72, B#72, C#73, D#73, E#73, F#73, G#73, A#73, B#73, C#74, D#74, E#74, F#74, G#74, A#74, B#74, C#75, D#75, E#75, F#75, G#75, A#75, B#75, C#76, D#76, E#76, F#76, G#76, A#76, B#76, C#77, D#77, E#77, F#77, G#77, A#77, B#77, C#78, D#78, E#78, F#78, G#78, A#78, B#78, C#79, D#79, E#79, F#79, G#79, A#79, B#79, C#80, D#80, E#80, F#80, G#80, A#80, B#80, C#81, D#81, E#81, F#81, G#81, A#81, B#81, C#82, D#82, E#82, F#82, G#82, A#82, B#82, C#83, D#83, E#83, F#83, G#83, A#83, B#83, C#84, D#84, E#84, F#84, G#84, A#84, B#84, C#85, D#85, E#85, F#85, G#85, A#85, B#85, C#86, D#86, E#86, F#86, G#86, A#86, B#86, C#87, D#87, E#87, F#87, G#87, A#87, B#87, C#88, D#88, E#88, F#88, G#88, A#88, B#88, C#89, D#89, E#89, F#89, G#89, A#89, B#89, C#90, D#90, E#90, F#90, G#90, A#90, B#90, C#91, D#91, E#91, F#91, G#91, A#91, B#91, C#92, D#92, E#92, F#92, G#92, A#92, B#92, C#93, D#93, E#93, F#93, G#93, A#93, B#93, C#94, D#94, E#94, F#94, G#94, A#94, B#94, C#95, D#95, E#95, F#95, G#95, A#95, B#95, C#96, D#96, E#96, F#96, G#96, A#96, B#96, C#97, D#97, E#97, F#97, G#97, A#97, B#97, C#98, D#98, E#98, F#98, G#98, A#98, B#98, C#99, D#99, E#99, F#99, G#99, A#99, B#99, C#100, D#100, E#100, F#100, G#100, A#100, B#100, C#101, D#101, E#101, F#101, G#101, A#101, B#101, C#102, D#102, E#102, F#102, G#102, A#102, B#102, C#103, D#103, E#103, F#103, G#103, A#103, B#103, C#104, D#104, E#104, F#104, G#104, A#104, B#104, C#105, D#105, E#105, F#105, G#105, A#105, B#105, C#106, D#106, E#106, F#106, G#106, A#106, B#106, C#107, D#107, E#107, F#107, G#107, A#107, B#107, C#108, D#108, E#108, F#108, G#108, A#108, B#108, C#109, D#109, E#109, F#109, G#109, A#109, B#109, C#110, D#110, E#110, F#110, G#110, A#110, B#110, C#111, D#111, E#111, F#111, G#111, A#111, B#111, C#112, D#112, E#112, F#112, G#112, A#112, B#112, C#113, D#113, E#113, F#113, G#113, A#113, B#113, C#114, D#114, E#114, F#114, G#114, A#114, B#114,

Handwritten musical notation for 'Play' and 'Sound'. The 'Play' staff shows a sequence of notes with accidentals and a circled 'c6' annotation. The 'Sound' staff shows a sequence of notes with accidentals and a circled 'c6' annotation, with additional numbers (45, 12, 44, 32, 10, 34, 21, 23, 32) written below the notes.

Next page:
expansion
starts

ALL

101, 101, 101, 101, etc.

(E01) (Z01)

Play

Sound

18va

38 36 34 32 30 28 26 24 22 20 18 17

34 31 35 33 31 29 27 25 23 21 19 18 17

Play

Sound

18va

13 11 9 7 5 3 1

16 15 14 12 10 8 6 4 3 1

Play

Sound

18va

17 19 21 23 25 27

5 7 9 10 12 13 14 15 16 17 18 20 22 24 26

Play

Sound

18va

33 35 37 39 41 43 45 47 49

28 29 30 31 32 34 36 38 40 41 42 44 45 46 47 49

102 102, 102, 102, 102 etc.

(E2) (Z2)

Play

Sound

18va

16 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94 98 102

16 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94 98 102

Play

Sound

18va

13 11 9 7 5 3 1

16 15 14 12 10 8 6 4 3 1

Play

Sound

18va

17 19 21 23 25 27

5 7 9 10 12 13 14 15 16 17 18 20 22 24 26

Play

Sound

18va

33 35 37 39 41 43 45 47 49

28 29 30 31 32 34 36 38 40 41 42 44 45 46 47 49

(A12)

103 ♯

103, 103, 103, 103, etc.

E3 Z3-1034

Play 7

18va

Sound

11 13 16 19 22 25 28 31 34 40 43 46 49

18va

Play 7

Sound

42 36 30 24 18 12 6 3 6 9 12

Play 7

Sound

15 18 21 27 33 42 48 54 57 40 37 28 22 19

Play 8

Sound

13 17 26 38 47

104 ♯, 104 ♯, 104 ♯

E3 1044

Z3 1044

Play 7

18va

Sound

40 32 24 16 12 8 4 12 16 20 24 28 32

Play 7

Sound

36 40 44 48 48 44 40 36 32 28 24 20 16 12 8 4 12 16

Play 7

Sound

20 24 28 32 36 40 44 48 48 44 40 36 32 28 24 20 16 12 8 4 12 16

Play 8

Sound

12 16 20 24 28 32 36 40 44

A13

E03=105 cents. 105, 105, 105, 105, etc.

231054

Play

Sound

Play

Sound

Play

Sound

Play

Sound

E03=1064

106, 106, 106, 106

E3-1064

23-1064

Play

Sound

Play

Sound

Play

Sound

Play

Sound

A14

E3 1074 107, 107, 107

E3-1074

Z3-1074

Play 7

Sound 7

18ua

48 45 40 31 24 17 10 3 4 11 18 25 32 46

40 47 40 32 26 19

Play 7

Sound 7

c2

c3

49 35 21 7

-12 -5 2 9 16 23 30 38 44

42 28 41 7 14 21 28

Play 7

Sound 7

c4

c5

43 30 16 2 33 45 25

35 49 37 22 9 5 12 19 26 40 47 38 32 18 12

Play 7

Sound 7

8ua

c6

15ua

c7

231, 38, 38, 77, 115, 115

E4 Z4 10:7 = 6174

Play 7

Sound 7

20

26 20 26 3 3 21 30 2 38 31 20

-13 -4 34 19 12 44 17 1 14 38 16 41

Play 7

Sound 7

c2

c3

49 47 31

17 43 34 3 35 26 33 17 14 8 31 29 74

Play 7

Sound 7

c4

c5

26 20 15 22 2 38 40

2 17 49 12 3 19 34 33 5 43 36 47 38 45 30

Play 7

Sound 7

8ua

c6

15ua

c7

28 10 24 28

44 12 18 42 3 26 36 13 9 6 22 46 31 8 39

A15

200, 70, 70, 100, 85, 85
(Not based on a ratio)

E5 Z5

Play 7

Sound

18va

30 30 40 40 10 35 50 25 30 30 40 10 20 20 50 20 20 5 10 30 15 30 30

18va

Play 7

Sound

40 10 10 -5 -20 -20 50 20 20 5 10 30 15 30 15 30 40 40

Play 7

Sound

25 10 10 -20 -50 -50 20 20 -40 45 30 -30 -45 40 -20

Play 8

Sound

20 50 50 10 25 30 16 30 40 10 10 20 20

108, 108, 108, 108, 108, 54, 54, 54,
54, 108, 108, 216, 108, 108,

E6 Z6 9:4

Play 7

Sound

12 20 17 10 40 32 16 2 8 22 14 48 36 28 36 44 24 8 24 32 40 44 36

Play 7

Sound

-28 12 20 28 36 2 48 32 16 8 15 24 32

Play 7

Sound

40 48 -44 -28 36 12 20 36 11 2 6 -24 -8 -2

Play 8

Sound

8 32 40 48 2 36 28 12 20 36 2 40

A16

61, 61, 122, 122, 122, 122, 122, 61, 61,
122, 122, 122, 122, 122 E7 Z7 (16984) 7:3

Play 7

Sound

Play 7

Sound

Play 7

Sound

Play 8

Sound

7/3=16984

129, 129, 64, 64, 64, 129, 129, 129 E8 Z8 13:8

Play 7

Sound

Play 7

Sound

Play 7

Sound

Play 8

Sound

13/8=841♩ = #5+4(♩), 841♩ ÷ 13=64

Page number → (A17)

135, 135, 135, 135, 135, 135, 135, 135

E9 Z9

Play 7

Sound

18va

6 37 32 +1 -30 4 -28 38 7 42 -23 11 45 -20

-40 28 -2 -33 35 -26

15 8va

125, 125, 125, 125, 250, 125, 125, 125, 125, 250

E10 Z10

Play 7

Sound

18va

24 24 25 49 25 50 -49 25 49 25 49 -49 -24 0

-49 23va 15va 8va

Play 7

Sound

17 48 21 -44 24 29 -34

-49 -13 -10 -41 34 -31 3 38

Play 7

Sound

25 49 24 -49 25 -49 25 -24 25 49 -24

Play 7

Sound

6 41 8 -24 10 44 21 13 48 17 17 -14 -12 -45 23 -7

-49 20 -11 8va 26 38

Play 7

Sound

24 25 -49 -24 -24 25 49 25 49 -49 25 -49 -24

-49 15va 8va

Play 8

Sound

3 30 33 2 36 -28 6 40 -25 9 7

18va 15va 8va 27

Play 8

Sound

24 25 -49 -49

8va 15va 24

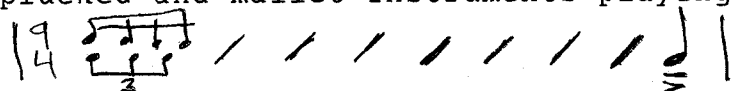
A18

The Un-Tempered Orchestra

Paul Dolden 2010

①

Throughout the first section the harmony or chords is created by various plucked and mallet instruments playing the following rhythm pattern:



(Note: first section lasts until 4'47")

PLUCK INSTRUMENTS = Acoustic Guitar (2=low and high register). Nylon Acoustic Guitar (2=low & high register), Banjo (2=Low & high) Santors (3=low, middle & high register), Guzheng (3=low, middle & high)

MALLET INSTRUMENTS = 2 stone instruments (low & high), 2 sets of rubber tubes (low and high), 2 Gyils (low & high)

By 29" the entire register of each Pluck and Mallet instrument is being used until 4'47" or the end of the first section. Some instruments are sometimes tacit. The harmonies they are playing are given below the voice parts. The Pluck and Mallet instruments strum variations on the basic 9/4 pattern given at the top. These instruments are constantly accel. or rit.

Work begins in bar 2 with only high pitched plucks and register expands to include all harmonies notated below:

Dots between tempo markings means a steady accel or rit.

Rhythm pattern of bars #2. $\text{♩} = 30 \dots 40 \dots 35 \dots 45 \dots 40$

bar number ②

Name of harmony in 12 Tone equal temperament.

Name of tuning system (12 ET = 12 tone equal temperament)

Starting in bar 3, and continuing until 2'10" are 4 Cello, 4 Bassoon, 4 Clarinet, 4 Oboe playing notes of harmony. Each instrument playing a pfp articulation lasting about 4" on each note.

Duration of each tuning system.

The 12 ET name for each harmony is written. However each tuning system, (i.e. X1, X2, X3, Z1, Z2, Z3 etc.), changes the notes of the written harmony. This new harmony is written over a 4 octave range. The bass parts in octave 32 Hz to 54 Hz used the same pitch levels as the octave 65 Hz to 130 Hz (the lowest octave notated here). For the notes of the highest registers (above 1 kHz) consult charts at start of score.

$\text{♩} = 90$ (tempo of voices is always 90. Pluck and Mallet rit and accel.)

Sopranos

Boy Sopranos

Altos

Tenors

Bass

Choir singing Latin phrases

Harmony for Pluck and Mallet instruments.

Parts still in 9/4.

Double Bass and Timpani parts start using same harmonies. There are 3 Timpani (mallets = dark, medium and bright)

Double Bass sounding one octave lower than notation.

Yes, this is a microtonal blues !

Handwritten musical score for Soprano, Boy Soprano, Alto, Tenor, Bass, and Harmonies. The score includes various musical notations, accidentals, and fingerings. A tempo marking "Tempo of Mallet and Pluck" is present. The Harmonies section includes a table of chords and fingerings.

Harmonies	Chord	Fingering
(9) written	Horizontally	8 2 6 0 0 4 3 3 6 1 5 3 8
(4) Harmony for Mallet & Pluck	F9(24)	0 6 0 4 9 2 6
(9)		4 3 6 0 0 6 0 0
(4)		3 0 0 0 2 6 3 1 4

Accidentals apply only to note they precede, except in the case of repeated notes.

Handwritten musical score for Soprano, Boy Soprano, Alto, Tenor, Bass, and Pluck + Mallet Instruments. The score includes various musical notations, accidentals, and fingerings. A tempo marking "Tempo of Mallet and Pluck" is present. The Pluck + Mallet Instruments section includes a table of chords and fingerings.

Pluck + Mallet Instruments	Chord	Fingering
(9)	C9(x7)	1 3 5 7 9 11 13
(4)	C9(x7)	1 3 5 7 9 11 13
(9)	B9(x7)	1 3 5 7 9 11 13
(4)	D9(x7)	1 3 5 7 9 11 13
(9)	G9(x7)	1 3 5 7 9 11 13

← → = duration during which the pluck & mallet instruments are tacit.

X7

X6

1064

1054

③

Handwritten musical score for Soprano, Boy Soprano, Alto, Tenor, and Bass, with Pluck + Mallet instruments. The score includes various musical notations, including notes, rests, and dynamic markings. The Pluck + Mallet section includes a sequence of chords and a tempo marking.

Chords and Tempo:

- G7(x7) | G-7(x7) | F7(x7) | F-7(x6) | E^b7(x6) | D^b7(x6) | D^b-7(1064) | B7(1054) | B-7(1054)
- ♩ = 90 (tempo steady)
- p cresc poco a poco
- 1'35" | 1'48" | 75 | 65

Yes this is microtonal lounge music

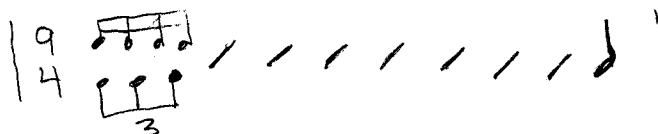
12ET

Handwritten musical score for Soprano, Boy Soprano, Alto, Tenor, and Bass, with Pluck + Mallet instruments. The score includes various musical notations, including notes, rests, and dynamic markings. The Pluck + Mallet section includes a sequence of chords and a tempo marking.

Chords and Tempo:

- B^{dim}(12ET) | A-7(12ET) | A^bdim(12ET) | G7(12ET)
- ♩ = 62
- 50
- 2'00" | 2'07"

Until the end of this section (4'49"), the Pluck and Mallet instruments are at the same tempo as the notated melody. Pluck and Mallet instruments continue with the same rhythmic pattern:



Single notes on Double Bass & 3 Timpani continue until 4'34"

Until 4'49" one octave tuning systems are used. In other words the pitch levels provided are the same in each octave. The three octave-based tuning system used are:

1) Just in G

Play

Sound

2) Archytas Octave

Play

Sound

3) Tridic Octave

Play

Sound

For each tuning system, the staff called "sound" is the actual note while the staff marked "play" is our closest 12 ET note. Please see beginning of the score for a fuller explanation.

Saxophones=Notation is for the 3 Alto Saxophones. Other saxophone parts are not notated but include: 3 Tenor Sax (one octave lower), and 3 Bass Sax (two octaves lower). Many quarter note values and longer durations have 1/4 tone bends.

21 SAXOPHONES

Harmony for Mallet & Pluck instruments

DBL Bass & Timpani

2'18" PP cresc poco a poco...

24 =60, Double Reed Solos

25 =70, Glass, Bowed Bells etc.

26 Brass Solos

Bar 24 only=Free Form Solos=Double Reeds. (2 Bassoons, 2 English Horns, Heckelphone, 2 Oboes, 2 Soprano Sarrusophones). Throughout this composition "Free Form Solos" are modern jazz style playing in which the performer followed the 12 ET chord progression. These solos were then pitch shifted to the correct tuning system.

Bar 25=Melody now played by Rubbed Glass. Octave higher than notation=Bowed Small bells and more Glass. Two Octaves higher=Bowed Chrotals.

Bar 26-27.Free Form Solos=Brass. 2 Tubas, 2 Trombones, 2 French Horns, 2 Trumpets, 2 Trumpets with mutes.

(♩=70) (Brass Solos continue)

27 (Archytas Octave) $\text{Ab}7\#11(\text{d.})$ $\text{A}7\#11(\text{d.})$ $\text{Bb}7\#11(\text{d.})$ $\text{B}7\#11(\text{d.})$ 28 $\text{B}7\#11(\text{Carlos Octave})$ $\text{B}7\#11(\text{Archytas})$ $\text{Bb}7\#11(\text{d.})$ C

(Duration of each chord) p p p p p p

3'09"

Bar 28= Free Form Solos. Saxophones. 2 Baritone Sax, 2 Tenor Sax, 2 Alto Sax, 2 Soprano Sax.

Bar 29 (3'25"-3'51"). Sax Solos continue without the Pluck & Mallet instruments. The same phrase structure is played at the following tempos: 60,55,50,45,40,35. During this ritard the solos are doubled on: Nylon Guitar, Ukelele, Bansure, Gyl, Banjo, Marimba, Violin and Cello.

This segment (3'25"-3'51") is based on the last harmony of bar 28, which is, $\text{Bflat}7\#11$ in Archytas Octave.

Saxophones=Notation is for 3 Alto Sax (3 on each note.).Octave lower=3 Tenor Sax.
Two octaves lower=3 Bass Sax
Brass=Notation is for 3 Trumpets with mute. Octave lower= 3 French Horns.
Two octaves lower= 3 Trombones with mute.
For Saxophones and Brass most note values greater than one beat have $\frac{1}{4}$ tone bends.
Plucked and Mallet instruments, Timapni & Bass start at 3'52"

30 $\text{♩}=50$ (Archytas)

Saxophones sf sf sf sf sf sf

Brass sf sf sf sf sf sf

Pluck & Mallet

Timpani & Bass sf sf sf sf sf sf

3'52" (Archytas Octave)

32 $\text{♩}=40$

Sax sf sf sf sf sf sf

Brass sf sf sf sf sf sf

Pluck + Mallet Bass + Timpani sf sf sf sf sf sf

4'07" 4'20"

decre poco a poco

34

$\text{A}7\#11(\text{d.})$ $\text{G}7\#11(\text{d.})$ $\text{A}7\#11(\text{d.})$ $\text{A}7\#11(\text{d.})$ $\text{G}7\#11(\text{d.})$ $\text{A}7\#11(\text{d.})$ C

4'34"-Only some Pluck & Mallet instruments.

4'47"-Ghost notes on Acoustic Guitar. Ghost notes=holding fingering of chord voicing, but not pressing finger down.

4'54"-way through bar finger scrape sounds

(Bar 1 of section 2)

4 Trumpet p

4 french horn p

4 Trombone p

2 Tuba p

decre poco a poco

Section 2

6

② $\text{♩} = 40$ Duration of tuning

RET(d) Z2(1024)(d) X2(984)(d) Z3(1034)(d.) Z3(o) X4(964)(d) X5(d.)

3 Tpt 3 Frn 3 Tromb 2 Tuba

Chords

5'01" p cresc poco a poco... 5'15" mf 8#0 (Strum rhythm starts)

Chord tremolo (8)

Duration of harmony

7#11(23 notated)(d, L)

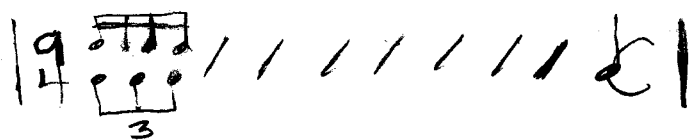
A7#11(X4 notated)

Most note values of 1 beat or greater in the Brass parts have $\frac{1}{4}$ tone bends.

Chords=pluck strings. Each instrument plays about 7 notes of the chord. Chord range is C1 (65Hz) to C5 (1kHz). Plucks=Nylon Acoustic Guitar, Steel string Acoustic Guitar, Guzheng, Harp, Kim, Mandolin, Oud, Santoor, Ukelele. In the range C4-C5 occasional use of Struck Glass and Wind Chimes. In the range C0 (or bass) Piano Harmonics playing only root and 5th of harmony.

Chords continue the rhythm pattern from Section one:

In Section two the tempo of the rhythm pattern of the chords stays at tempo $\text{♩} = 40$



In Section 2 the soft Brass melody parts at 5'01", 5'41", and 6'22" are at the foreground of the mix.

(♩=40)

⑤

⑦

12ET 22(1024) X2(984) Z3(1034)

④ X4 (♩) X5 (♩) X7 (♩) (♩) (♩) (♩) (♩)

Handwritten musical score for multiple staves. The score includes various musical notations such as notes, rests, and accidentals. The staves are labeled on the left: India 01, India 02, India 03, India 04, Syria 01, Syria 02, Syria 03, Syria 04. The score is divided into two sections by a vertical line. The first section contains staves 01-04, and the second section contains staves 01-04. The notation is dense and includes many accidentals and note values. A circled 'mf' is visible on the first staff of the first section.

In Section 2, the voice parts notation often is not aligned properly.

From bar 4 to 10, the harmony remains on Amaj7#11. However each new tuning system changes the sounding notes which are notated.

Handwritten musical score for multiple staves. The score includes various musical notations such as notes, rests, and accidentals. The staves are labeled on the left: X4, X5, X7. The score is divided into two sections by a vertical line. The first section contains staves 01-04, and the second section contains staves 01-04. The notation is dense and includes many accidentals and note values. A circled 'mf' is visible on the first staff of the first section.

5'28"

12ET 22(1024) X2(984) Z3(1034)
5'41" (Chords are tacit)

Voice Work=Four India and four Syrian Singers, improvising freely on the harmony Amaj7#11. No legato or expression marks notated. Each voice doubled with two instruments. (8va=doubling octave higher, 8ve=doubling octave lower). (non-octave tuning systems exact octaves do not occur. Use tables at beginning of score to figure out exact notes of doubling.)
India 1=Dizi flute (8va). Rang Dung brass (8ve). India 2= Yali tambur, bowed string (8ve), Shakuhachi(8va) India 3=Bass Flute(8ve) Erhu string(8va). India 4=Viola(8ve) Irish Whistle(8va). Syria 1=Bass Clarinet(8ve), Hardanger string(8va). Syria 2=Cello(8ve), Panpipe(8va). Syria3=Bassoon(8ve), Mideast violin(8va). Syria 4=Tenor Sax(8ve), Bansuri flute(8va).
During long note brass melody, the lower octave doubling was often left out.

23 X9 X10
 (6)(0) (J) (J J)

(8)

X9 X10 X11

India 01
 -49 28 33 33 #0 -44

India 02
 -49 28 44 28 33 4

India 03
 -44 28 4 37 33 1-42 33-9 33 33-9-22

India 04
 22 -44 28 9 33 33-9-9-9 33 16 16 16 16 9 22

Syria 01
 #0 -28 25 33 25 -16 33 33

Syria 02
 -28 33 49 -28 -44 -33 16 -16 -16 33 11

Syria 03
 33 22 -22 33 11 22 22

Syria 04
 34 33 16 22 33 #0 22 22 22

Brass

37 (Tpt)
 27 (Ft Hrn)
 27 (Trb)
 -45 (Tuba)

Chords

Chord tremolo (4 beats)

1 20 -1 30 47 -41
 #0 0 0 #0 0 #0 #0
 #0 0 0 #0 0 #0 #0
 -28 10 37 15 -44 33 49 9 #0
 39 -10 28 #0 1 -49 9 #0
 1 0 0 #0 0 0 0 0
 1 0 #0 -42 6 -15 1 0 0 #0 0
 25 7 -13 31 18 -32 -15

ppp
 X9
 (Strum rhythm starts again)
 6'01"

Same notes as previous bar -

p
 X9
 6'08"

X10

X11

33 44 44 44 23
 0 0 0 0 0 #0
 0 #0 #0 0 #0 11
 33 33 33 33 22
 #0 0 #0 0 0
 #0 #0 33 44

12ET 22-1024 X2984 23-1034 9 24 28 26 28

India 1
India 2
India 3
India 4
Syma 1
Syma 2
Syma 3
Syma 4
3 Tpt
3 Fr Hrn
3 Trb
2 Tuba
Chords

mp
6'22"

same notes as bar 5 on page 7 -

6'35.5" (24) (28) (26)

Tremolo on harp.

10 28 28 26 28

A7#11(d.) 49 G7#11(d.) 49 A7#11(d.) 49 A7#11(d.) 49 A7#11(d.) 49 A7#11(d.) 49

Chords

mf 6'48" 7'02" 7'16"

Section 3

(10)

Section 3, like section 2, is based on Amaj7#11. The choir holds the notes of the harmony with slowly changing vowels. The written melodies are played by a string orchestra. The strings have $\frac{1}{4}$ tone bends when the notes values are quarter note or longer values.

① X9 (ca 20") ② J=40

Violins

Violas

Cellos

Double Bass

Double Bass part written at sounding pitch

Choir

(Choir harmony continues)

p cresc poco a poco

7'34"11

(ca 2 beats)

③

Violin

Viola

Cello

Double Bass

Choir

7'48" (Choir harmony continues)

cresc

ff

X10 ④

Vln

Vla

Vc

D.B.

Choir

ms 8'00"

cresc poco a poco

⑤ Z4

(about 3 beats) →

Ula

Vla

Vc

Db

Choir

8'15"

⑥

Ula

accel poco a poco

continue simile

Staccato sempre

8'32"

Bars 6,7,8=no choir. Staccato strings doubled on: Gamelan and various scrap metal tuned and played softly. Scrap metal includes: Wheel Rims, Tongue Drum (metal round cylindrical with slats cut into it), Flange Poles (metal poles for raising tents that have an extra metal disc attached.)

mp cresc poco a poco

⑦ X10

⑧ Z4

⑩

Runs continue

Runs continue

same as bar 2

same as bar 3

Choir starts again.

Choir starts again.

8'44"

9'17"

Sustain Choir overlaps with next section (Section 4)

Section 4

(12)

① 24(E9) J=120

Bowed Metal

Chords

25

mp

9'47"

⑨ (J=120)

Bowed Metal ends

25(E9)

Bars 9-18 Tuned Tams tacit

mp

10'03"

Bowed Metal=Sustained notes played on: Bowed Cencerros, Bowed Chrotales, Bowed Small Bells, Waterphone & Bowed Glass. Lasts 8 bars only.

Chords=Sustained vowels in Choir. Pizzicato on Violin, Viola & Cello. Tuned Tams played very softly to get close to a harmonic series sound. Both pizz strings and Tuned Tams articulate a Rhumba-like rhythm.

Violins=3 types played very portamento and with wind doublings. #1=Sarangi (India) with Bansuri flute 8va higher. #2=Mid East Violin with Uilleannan pipe delayed ½ beat from notation. #3=Yali Tambur (India) with Irish Whistle one full beat from notation.

Dudeks. 3 types of Dudeks. #2 delayed ½ beat from notation. #3 delayed one full beat from notation.

Brass=3 types of Low Brass. #1=Rag Dung(Tibet) #2=Alp Horn and delayed ½ beat from notation. #3=Tuba and delayed one beat from notation.

The ½ beat and one beat delay in the Violins, Dudeks, and Brass parts continue throughout Section 4.

Violins

Dudeks

Brass

mf

When 3 notes in Brass, 30 -39 0-25 two lower notes=Tuba. Upper 2 note are Rag Dung & Alp Horn.

X5(E^b9)

(D9)

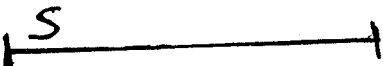
⑫

Chords


Violins

Dudeks

Brass

 =Free Form Solos.(see bottom of page 4). Rhumba rhythm.
Line shows duration of each phrase group. Solo instruments=
Piccolo, Flute, Oboe, Soprano Sax, English Horn and 2 Clarinets.

p subito *cresc poco a poco*

X7 (G7#11) 

Chords
Choir, Pizz
strings,
Tuned Tams,
Staccato Sempres

Melodic
Melodic=Dudeks, (Violins with 2 beat offset from notation and Brass with 1 beat offset from notation.)

10'21"

From Bar 18 to end of Section 4 the 3 Brass doubled as:
Rag Dung double on Double Bass pizz. Alp Horn doubled
on tuned Bass Drums and Tuba doubled on Timpani.

cresc

Chords
(B-9) (A-9) (D-9)

Melodic

10'31"

accel poco a poco

(27) La Monte D#

Chords

Melodic

10'39"

accel *♩=140 rit poco a poco* . . .

La Monte D# is La Monte Young's tuning system which is a
one octave tuning system starting on D#:

La Monte D#

Play

Sound

(31) (rit continues)

Chords: A7#11, D-6, D-6, C-6

Melodic: 10'47"

(35)

Chords: F#7, C7#11

Melodic: 10'55", 11'02"

Notes of chords have pitch bend up and down of 200 cents.

Tuned Tams played forte.

(45)

Chords: C7#11, F7#11, C9(=C,D,E,G), (C,D,G, notes)

Melody starts. Melody-free improvisation following harmonic changes Six India female singers. 5 Female Syrian singers. Similiar melodic ideas as notation on page 7 to 9

Chords=Sustain notes 3 types of Dudes. Two flute-like instruments (1=Irish Low Whistle 2=Bansuri of India). Three types of arco violin-like instruments. (1=Mid East Fiddle, 2=Erhu of India 3=Saranji of India). Each instrument plays about 7 notes of the sustained harmony. Each note of the chord has a bend up and down of about 200 cents.

These last 8 bars in 12 Tone Equal Temperament (12 ET)

Chords: C(=C,E,G)

Melody: 11'36"

La Monte C (starts bar 45)

Play: 0#0 0#0 0 0#0 0#0 0 b0 0

Sound: -23 4 40 29 43 -25 2 37 b0 41 0 -27

Section 5

15

Section 5 is based on Flamenco rhythms in 6/8. Some examples:



These types of rhythms are articulated by brass instruments, doubled with a Gamelan instrument on the left side of the stereo, and on the right side of the stereo: reed and Double Reed instruments doubled by a different type of Gamelan instrument. The Brass and Reed orchestras are often in different tempos as shown in the notation.

The feel or groove only seems Flamenco when the tempo is greater than $\text{♩} = 40$.

Each instrument (i.e. Trumpet or French Horn etc) is a 3-5 note chord. Each instrument consists of 3 to 5 recordings, with each recording a different note of the harmony is used. The lowest instruments (Tuba, Double Bass, Contra Bassoon and Electric Bass), are 2 to 3 note chords with wider voicings. In this section by "chord" we mean a fast arpeggio of the notes in the harmony which mimics the guitar strumming found in Flamenco music.

Section five starts with the lowest instruments and ascends in orchestration or register to include all instruments by bar 4.

Brass (Left side of stereo image)

Tuba & Double Bass pizz
Euphonium
French Horn
Trumpet (=Piccolo Trumpet)
Gamelan (=Gangsa, Jegog, Calung, Penyach)
The Gamelan doubles the Euphonium,
French Horn and Trumpet parts.

Reeds (right side of stereo image)

Contra Bassoon & 5 string Electric Bass
Bass Clarinet
English Horn
Clarinet
Gamelan doubles the English Horn
and Clarinet parts.

12 ET $\text{♩} = 30$ (CCEG) ①

Brass (left) 6 Double Bass 8 P only

Reeds (right) 6 Electric Bass only 11'55.5"

② Z1(1014) mp 12'05"

③ Z2(1024) mf 12'09"

④ Z3(1034)

Chords (=Brass + Reed)

④ Z3(1034) G(G,B,D) $\text{♩} = 25$

⑤ Z3(1074) $\text{♩} = 35$

Brass 6 mp

Reeds 6 $\text{♩} = 35$

Rhythm is like patterns at top of the page

⑥
G(28)
♩=120

M1,M2,M3,M4=Melody 1, Melody 2, etc. These four melodies are always at tempo ♩=120. Below these four melodies the Brass and Reed orchestras, (doubled on Gamelan), are constantly changing tempo. The rhythm for these orchestras is given at the top of page 15. Below these orchestras is the notation of the tuning system and harmony.

M1 Top voice=Soprano Sax & Bansuri
Bottom voice=Viola & Launeddas(reed)

M2 Top Voice=Alto Sax & Pan Flute
Bottom Voice=Cello & Uilleann Pipes

M3 Top Voice=Bass Flute & Blues Harp
Bottom Voice=Sitar & Hurdy Gurdy

M4 Top Voice=Bagpipe & Gadulka (string)
Bottom Voice=Baritone Sax & Bowed Piano

Brass ♩=30
Reeds ♩=30

The bar for the brass & reed orchestras that starts at 12'35" ends in the next musical system at 12'41". For this section tempo markings in brackets at the start of a musical system indicates a continuation of the bar started in the previous system.

♩=45
♩=35
12'35"

G(28) 4 3 0 -19
3 4 0 0 0
11 0 -36 22
-17 0 -29 0 -41
2 3 4 0 0 0
-38 0 0 0 0
49 37
12'29"

G7#11 0 0 0 0 0 0 0 0 0 0
26 22 39 4 7 -49 -19
#0 #0 #0 #0 0 0 0 0
29 41 -18 11 -36
-26 0 #0 18 17 29
0 0 0 0 0 0
-38 49 37 -10 42

The melodic writing and chords from 12'29" to 13'18" is almost identical as page 1 at 29" to the end of page 2.
Longer notes values in M1 to M4 often have 1/4 tone bends.

⑪ ♩=120

M1 C7#11 F7#11

M2

M3

M4

(♩=45) Brass

(♩=35) Reeds

12'41" ♩=45

Chords

C7#11 0 0 #0 0 #0
-18 39 4 7 21
0 #0 0 0 -36 28
0 -12 -18 11
42 6 40 18 17 -29
#0 0 0 #0 0 0
-38 0 0 0 -33 -39 -10
49 -21

F7#11 -18 10 33 -7 #21 0 9
0 #0 0 0 0 0
0 0 -30 -36 28
-12 -47
-29 0 0
#0 #0 0 0 0 0
-32 0 0 0 #0 #0
-9 49 -21 -33 31

M1 top voice=Soprano Sax & Bansuri. M1 bottom voice=Viola & Launeddas(reed)
M2 top voice=Alto Sax & Pan Flute. M2 bottom voice=Cello & Uilleann Pipes.
M3 top voice=Bass Flute & Blues harp. M3 bottom voice=Sitar & Hurdy Gurdy.
M4 top voice=Bagpipe & Gadulka (arco string). M4 bottom voice=Baritone Sax
& Bowed Piano.

17

16 ♩=120 (28)

Brass $\text{♩}=35$
Reeds $\text{♩}=45$
Brass tacit until next system
Reeds tacit until next system
12'47"

22 ♩=120 Z4 F9 (Microtonal Blues)

Brass $\text{♩}=40$
Reeds $\text{♩}=40$
Chords
12'54"

M1 top voice=Soprano Sax & Bansuri. M1 bottom voice=Viola & Launeddas.
M2 top voice=Alto Sax & Pan Flute. M2 bottom voice=Cello & Uilleann Pipes
M3 top voice=Bass Flute & Blues Harp. M3 bottom voice=Sitar & Hurdy Gurdy.
M4 top voice=Bagpipe & Gadulka M4 bottom voice=Baritone Sax & Bowed Piano.

From bar 64-75: the top voice of M1,M2,M3, & M4 plays the two upper notes of the notated four note chord and the bottom voice plays the two lower notes.

Handwritten musical score for measures 78-84. The score includes staves for M1, M2, M3, M4, Brass, Reed, and Chords. The tempo is marked as 120. The key signature is G major. The time signature is 4/4. The score includes dynamic markings such as *ppp* and *cresc poco a poco*. The measures are labeled with circled numbers 78, 81, 84, and 87. The chords are G-7(23 1074), F7(81), F-7(23 1064), E^b7(84), and (23 1054). The score includes various musical notations such as notes, rests, and accidentals.

Handwritten musical score for measures 85-89. The score includes staves for M1, M2, M3, M4, Brass, Reed, and Chords. The tempo is marked as 120. The key signature is G major. The time signature is 4/4. The score includes dynamic markings such as *cresc poco a poco*. The measures are labeled with circled numbers 85, 88, and 89. The chords are E^b-7(1054), D-7(1054), E-7(1054), and G7(1054). The score includes various musical notations such as notes, rests, and accidentals.

Handwritten musical score for four staves (M1, M2, M3, M4) and a Chords section. The score is marked with circled numbers 91 and 92. Chords indicated include F7(1054), F-7 23 1044, Eb7, and Db7. The Chords section contains a table of notes for each chord.

Chord	Notes
F7(1054)	45, 35, 25, 15, 5, 20, 25, 45
F-7(1044)	48, 36, 28, 16, 4, 16, 24, 36
Eb7(1044)	42, 30, 22, 10, 4, 12, 20, 32
Db7(1044)	48, 32, 20, 8, 4, 12, 20, 32

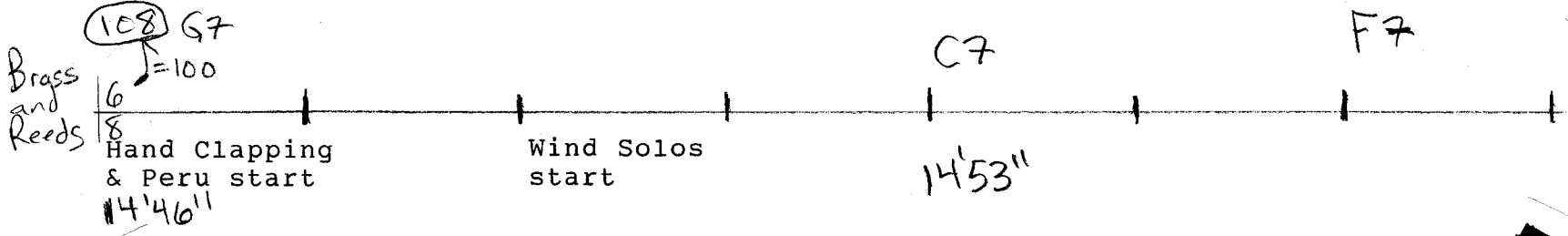
The melodic writing and chords from 14'16" to 14'40" is almost identical to the writing on page 3

Handwritten musical score for four staves (M1, M2, M3, M4) and a Brass and Reeds section. The score is marked with circled numbers 97 and 103. Chords indicated include C#7(1034), B7(1034), B-7(1024), Bb diminished(1014), and A-7(1014). The Brass and Reeds section is marked with a tempo of 70.

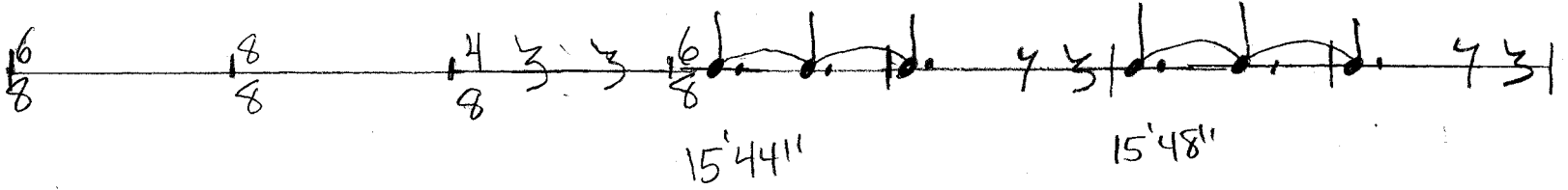
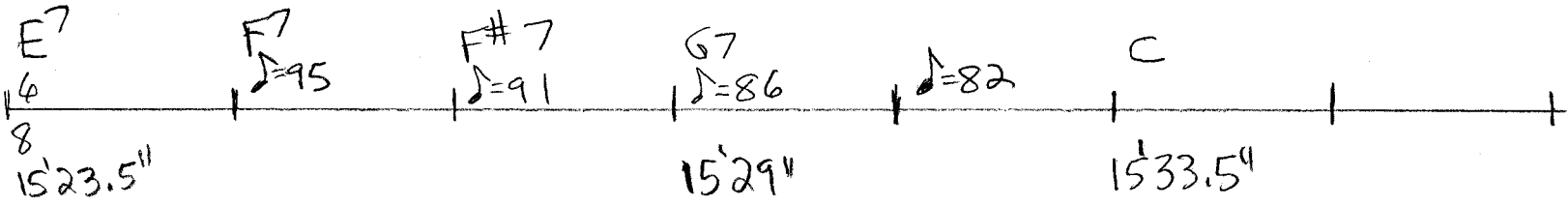
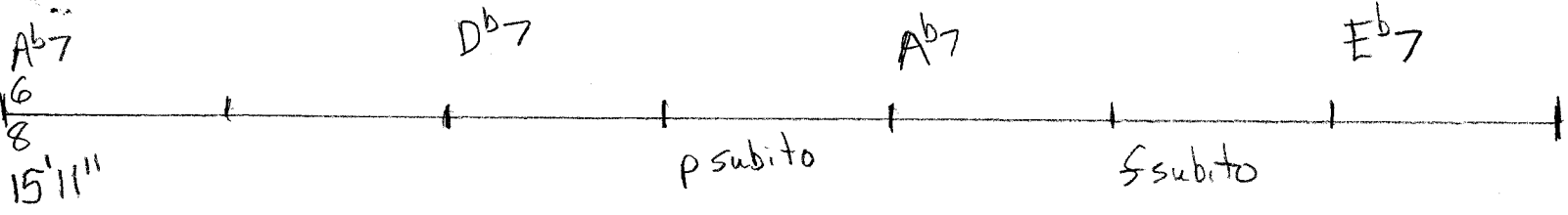
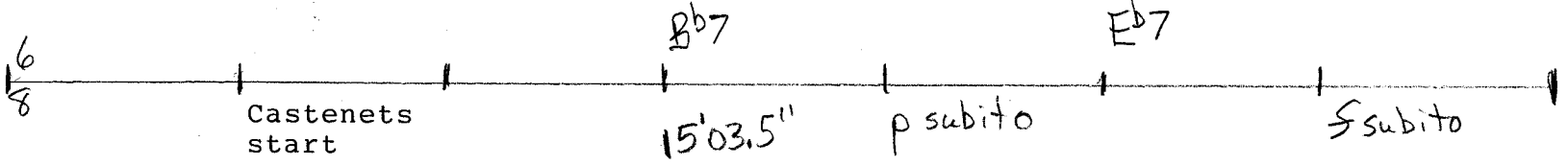
Handwritten musical score for four staves (M1, M2, M3, M4) and a Brass and Reeds section. The score is marked with circled numbers 103 and 104. Chords indicated include 12 ET, G# diminished(12 ET), and G7(12 ET). The Brass and Reeds section is marked with a tempo of 85, 90, 95, and 100.

The Brass and Reed orchestras continue in 12 ET.
Percussion= Castenets, Hand Clapping and Peru Deep.

- Free Form Wind Solos, each of which are then doubled on two instruments:
- 1) Piccolo doubled with Mandolin & Violin pizz.
 - 2) Soprano Sax doubled with Wind Chimes & Gamelan.
 - 3) Alto Recorder with Guzheng & Acoustic Guitar.
 - 4) Panpipes with Xylophone & Marimba
 - 5) Flute with Koto & Banjo.
 - 6) Soprano Sarrusophone with Gamelan & Struck Glass.
 - 7) Soprano Recorder with Violin pizz & Inside Piano Plucked.



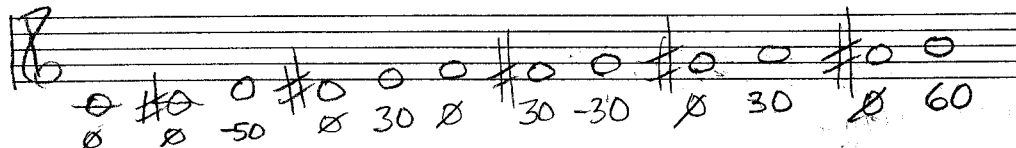
All parts in 12 ET



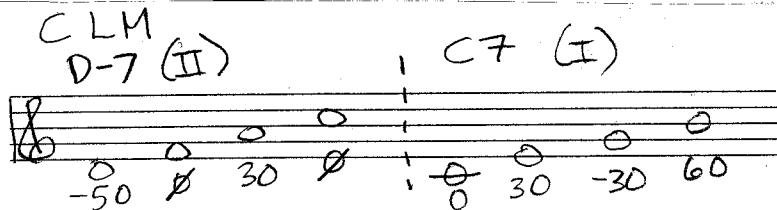
Section 6

23

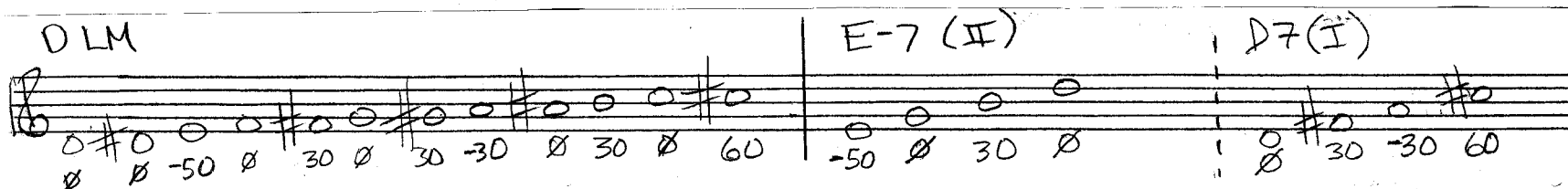
Section 6 is based on a tuning which repeats at the octave and is called Lydian Micro (LM). Here is C LM:



In terms of chord-scale relationships, C LM functions in the same manner as our current major scale, but only for C major. For example a two to one chord progression:

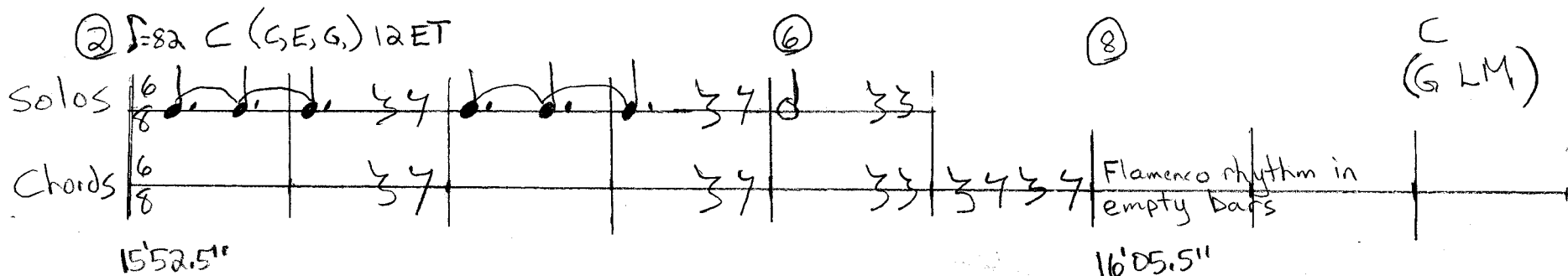


For all other eleven keys, the Lydian Micro Scale is transposed to that new key. For example D Lydian Micro (D LM) with the notes of a two to one chord progression:

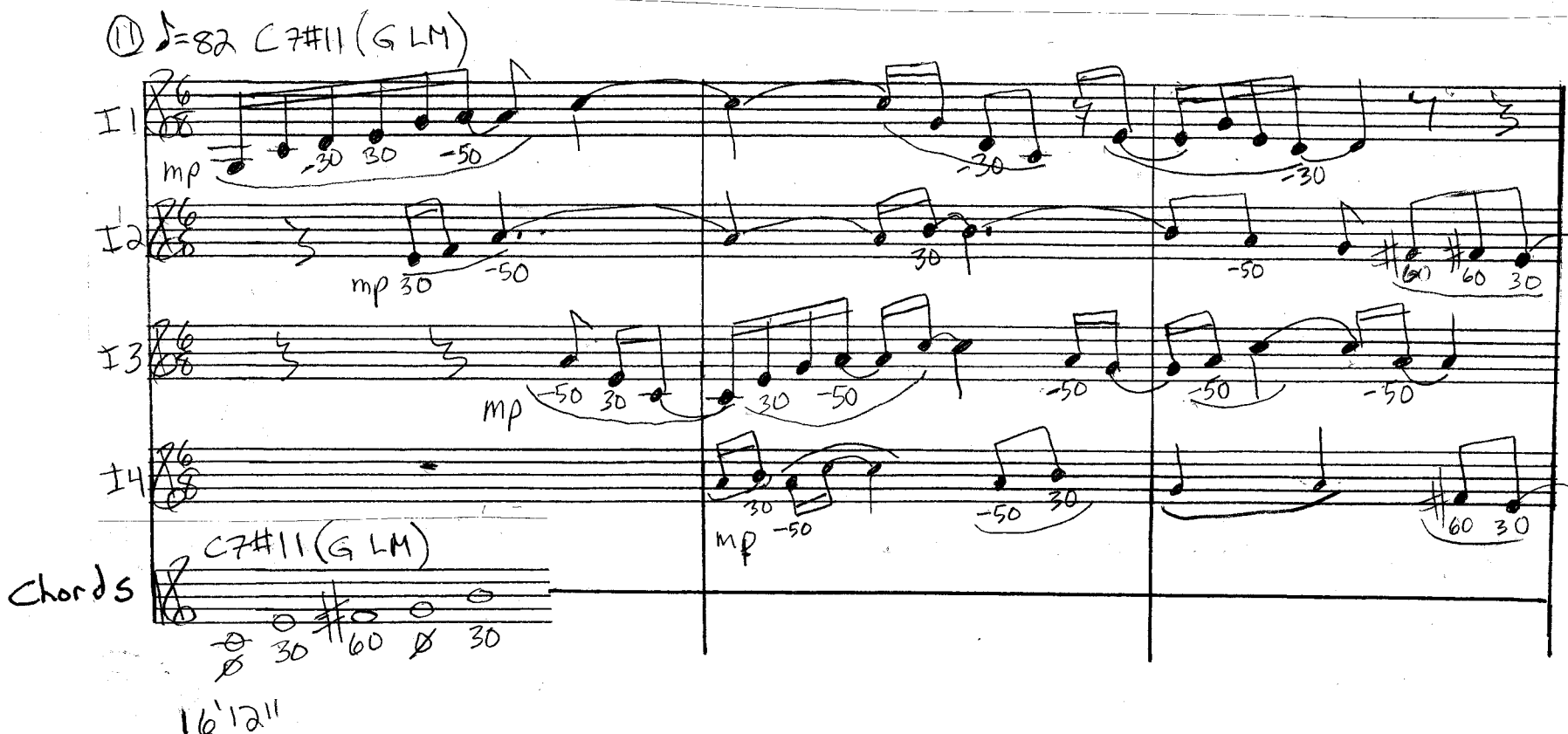


The exception to these rules is the maj7#11 harmony which occurs from bar 12 to 39. For the notes of this harmony the Lydian Micro scale a fourth lower is used. For example the notes of C7#11 come from G LM, whereas the notes of G7#11 come from D LM.

The 6/8 Flamenco feel of Section 5 is continued in the line marked Chords. (For typical Flamenco rhythms see the top of page 15). The chords consists of mallet strikes on: Glass from A2 to F5, Cencerros from D#2 to C5, Wind Chimes from F2 to C6 and music Boxes from B1 to C6. (The Music Boxes are only used in bars 1-15, 27-33, 43-62). The Solos are the free form Wind Solos from page 22, without their doublings. Note there is no bar one.



I1, I2, I3, I4=Indian Voice 1, Indian voice 2, Indian voice 3, Indian voice 4. Each improvised vocal line is doubled on two musical instruments. The first musical instrument is an octave lower (8ve), and the second instrument is two octaves lower (15ve) than the notation of the vocal part.
 Indian Voice 1=Bass Clarinet (8ve) & Bowed Piano (15ve).
 Indian Voice 2=Euphonium (8ve) & Tuba (15ve).
 Indian Voice 3=Bassoon (8ve) & Contra Bassoon (15ve).
 Indian Voice 4=Cello (8ve) & Double Bass (15ve).



$\text{♩} = 82$ (15) I1 to I4 continue with various improvisations. (19)

I1 to I4 6/8

Chords 6 C7#11 (G LM) C G (D LM)

When I1 to I4 shows larger note values, all the winds, brass & strings go to sustained 3-5 note chords. Voice is usually tacit.

M1=Melody one=Rubbed Glass, Bowed Small Bells, & Bowed Chrotals (chrotals octave higher than notation.)
M2=Melody two=Violin, Yali Tambur (Turkish arco string), Dizi (Chinese flute) & Bansuri (Indian flute). Bansuri often octave lower than notation. Instruments of M2 often have various types of pitch bends.

Ritard poco a poco (until bar 56)
G (D LM)

(21) $\text{♩} = 82$ $\text{♩} = 60$ 30 30 30 30 30 30

M1 $\text{♩} = 82$ $\text{♩} = 60$ 30 30 30 30 30 30

M2 $\text{♩} = 82$ $\text{♩} = 60$ 30 30 30 30 30 30

I1 to I4 6/8

Chords 6 C7#11 (G LM) 25 F7#11 (C LM)

16'34"

$\text{♩} = 73$ (Rit poco a poco)

(28) $\text{♩} = 73$ $\text{♩} = 60$ 30 30 30 30 30 30

M1 $\text{♩} = 73$ $\text{♩} = 60$ 30 30 30 30 30 30

M2 $\text{♩} = 73$ $\text{♩} = 60$ 30 30 30 30 30 30

I1 to I4 6/8

Chords 7 E7#11 (B LM)

No voices until bar 37

16'50"

$\text{♩} = 65$ Rit poco a poco

(34) $\text{♩} = 65$ $\text{♩} = 60$ 30 30 30 30 30 30

M1 $\text{♩} = 65$ $\text{♩} = 60$ 30 30 30 30 30 30

M2 $\text{♩} = 65$ $\text{♩} = 60$ 30 30 30 30 30 30

I1 to I4 6/8

Chords 7 E7#11 (B LM) 37 D7#11 (A LM)

17'06"

Handwritten musical score for guitar, bass, and drums. The score is divided into four systems, each with a 4-measure phrase. The tempo is marked as 172 bpm. The key signature is one flat (Bb).

System 1:

- Tempo: 172
- Chords: G7 (G LM), G7 (F LM), F7
- Drums: I1 to I4
- Guitar: MI, M2

System 2:

- Chords: F-7 (Eb LM), Eb7
- Drums: Voice starts again
- Guitar: MI, M2

System 3:

- Chords: Db7 (Db LM)
- Guitar: MI, M2

System 4:

- Chords: Db7 (Db LM)
- Guitar: MI, M2

The score includes various musical notations such as notes, rests, and accidentals. The guitar part features a complex rhythm with many beamed notes and rests. The bass part is simpler, consisting of a few notes and rests. The drums part is marked with 'I1 to I4' and 'Voice starts again'.

(♩=51) Rit (poco a poco)

(♩=51) Rit (poco a poco)

D^b-7 (BLM) B7 B-7 (ALM) B^bdim (12 ET) A-7

46

M1

M2

I 1 to I 4

Chords

17'43"

17'50"

($\Delta=46$) Rit poco a poco $\Delta=40$
 Abdim G7

Handwritten musical score for a piece titled "50" (circled). The score is written on four staves. The first two staves are labeled "M1" and "M2" on the left. The third staff is labeled "I1 to I4" on the left. The fourth staff is labeled "Chords" on the left. The notation includes notes, rests, and accidentals. The key signature is one flat (B-flat). The time signature is 4/4. The score is divided into four measures by vertical bar lines. The first measure contains a whole note chord in M1 and M2, and a half note in I1 to I4. The second measure contains a whole note chord in M1 and M2, and a half note in I1 to I4. The third measure contains a whole note chord in M1 and M2, and a half note in I1 to I4. The fourth measure contains a whole note chord in M1 and M2, and a half note in I1 to I4. The score is written in ink on a white background.

- End of composition -