

## **3 Cello Tunes**

**solo cello (or solo string instrument)**

- I. "Hop Up and Jump Up"**
- II. Twickenham Stomp**
- III. יתגדל (Yitgadal) (for Jim Horton)**

**Larry Polansky  
1998**

### 3 Cello Tunes

for solo cello

Although these pieces are specifically written for cello, they may be played by viola or possibly even violin (transposed to appropriate registers and keys). “Hop Up and Jump Up” is playable on any string instrument, since it uses no actual harmonics (but tunes to them). *Twickenham Stomp*, because of its use of high harmonics might be played on bass, and possibly viola, but not violin.

All three may be amplified in performance.

#### I. “Hop Up and Jump Up”

Play the tune four times, retuning the melody each time. Intonations are indicated below the melody in terms of the degrees of the harmonic series on G, B, and D. The fourth repeat of the melody returns to G. A suggested tempo is around 126 for the quarter. A slight pause might be taken between sections (different tunings). Playing is free, like a fiddle tune, and slides, inflections and other ornaments may be used, but should not be excessive

For each repeat, a different drone string is used in conjunction with the melody, as indicated in the score (string I for repeats 1 and 4; II for 2; III for 3). The drone is in the manner of fiddle-tune drone — a double-stop played freely, rhythmically, and with various bowings and expressions.

[Based on a pentatonic Shaker song, “Hop Up and Jump Up” continues a compositional idea I first used in the piece *Daughter of Piker* (part of a five movement work called *Piker*, for solo piccolo, 1997). The tune is “revoiced” three times, with each new melody translated to intonations from a new harmonic series. The three harmonic series are related as 1:5:3 (a just major triad). The tunings for each pitch are cognate pitches of the current harmonic series.]

#### *Tuning*

The tuning for the four strings is as follows:

- I tuned to G
- II tuned to the 5<sup>th</sup> harmonic (B) on the I (G) string (several octaves down)
- III tuned to the 3<sup>rd</sup> harmonic (D) on the I (G) string (several octaves down)
- IV Tuned down to G (optional, for resonance, and occasional plucked accent)

Intonations are as follows, in deviations from 12-tone equal:

**melody note:**        G     A     B     D     E

<b>on G:</b>	0	+4	-14	+2	-53
<b>on B:</b>	+39	-43	-14	+72	+37
<b>on D:</b>	+53	+4	-45	+2	+6

The harmonic series equivalents are (1 is the tonic, or first harmonic/partial):

<b>melody note:</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>D</b>	<b>E</b>	
<b>on G:</b>	1	9	5	3	13	
<b>on B (5/4):</b>	13	7	1	5	11	(*5)
<b>on D (3/2):</b>	11	3	13	1	9	(*3)

The cellist should learn the intonations for the three versions of the melody from the strings themselves. In other words, to learn the intonation for the “G” in the second repeat (harmonic series on B), listen the tuning of the 13<sup>th</sup> harmonic on the newly tuned B string (which will be almost a quarter-tone high of where it would be in equal temperament). To play the “A” in that melody, listen to the 7<sup>th</sup> harmonic on the B string (about a quarter-tone flat). To practice the piece, the performer should learn to play in tune with the three harmonic series (available for pedagogical purposes on the strings themselves).

## II. *Twickenham Stomp*

The tuning for *Twickenham Stomp* is also based on the harmonic series on G (as in “*Hop Up...*”). The cello is retuned to an “open” G tuning: the IV string to B (5<sup>th</sup> harmonic on the I or III string, G); the III string to G; the II string to D (3<sup>rd</sup> harmonic on G); and the I string to G.

The written pitches are gradually adjusted in pitch as the piece progresses through the three harmonic series (as in “*Hop Up...*”). Natural harmonics are used to initially sound the new intonations as they are introduced, and once introduced, stopped pitch classes are tuned to those harmonics. However, harmonics can also be used freely for any pitch when the tuning is appropriate (for example, a G = 1/1 can be played as an open string or one of its harmonic octaves as per the notated pitch). Measure numbers denote the harmonic introduced in that measure.

The piece is divided into four parts and a coda. Each part fills in a harmonic series with a new fundamental (on G, B, D, then G) up to the 13<sup>th</sup> harmonic. In the first part, harmonics enter from low to high (in the series, not necessarily in pitch). In parts 2–4, harmonics enter in the following order: 13, 11, 7, 5, 9, 3, 1 (a “prime order” similar to the one I’ve used in the *Psaltery* set of pieces).

New pitches are introduced by the actual natural harmonic, and subsequently, all cognate pitch classes (with a few exceptions, noted in the score) are tuned to that. The performer might immediately retune the cognates once the new tuning has sounded, or gradually change them over the course of the section, which will

sometimes result in the presence in the measure of multiple tunings of the same “note.” In this way, the player “learns” to hear the fingered pitches by listening to the intonation of the harmonics. For example, once the “F” is introduced as a natural harmonic in the measure labelled “7” (the 7<sup>th</sup> harmonic of the G series), it should be played in that intonation (about 31¢ flat) until it is changed (in a later part).

Note that 11<sup>th</sup> and 13<sup>th</sup> harmonics are approximately a quarter-tone different from their tempered neighbors (up and down arrows as a reminder). 11<sup>th</sup> and 13<sup>th</sup> harmonics are notated as augmented 4<sup>ths</sup> and m6<sup>ths</sup> of their fundamentals, respectively. 7<sup>th</sup> harmonics are about a 6<sup>th</sup>-tone flat of their tempered neighbors.

In each part, the new harmonics must be played on strings which are fundamentals of the new harmonic series. In other words, in Part 2, all harmonics come from the IV string (B), in Part 3, from the II string (D), and in Parts 1 and 4, from the III or I string (depending on octave: often there is a performer choice). Stopped notes may be played on any string (left up to the performer).

At most times in the piece, there are two harmonic series present: an old one leaving, and a new one entering. The performer must keep close track of the *current* intonation of each pitch. Once a pitch has been “retuned,” it stays retuned (and emphasizes the “target” harmonic series rather than the “source”).

As in the first piece, the cellist should learn to play the pitches by actually playing the natural harmonics, and matching their intonations with stopped notes.

(Thanks to Mike Frengel for assistance in copying this score, and to Mike Winter for assistance in editing it and recopying it some fifteen years later).

### III. יתגדל (Yitgadal) (for Jim Horton)

All pitches are natural harmonics, from 1-13, on the retuned strings (see the accompanying chart). Accidentals carry through the measure. The II string is retuned from F# (-49¢, 11<sup>th</sup> harmonic on C) up to G (3<sup>rd</sup> harmonic on C) between parts two and three. This should be done quickly and quietly.

Part one is played on strings I and II, part two on III and II, part three on III and II (III retuned to G), part four on III and IV, and part five on I thru IV.

Rhythmically, the piece is a free transcription of my own (and Sarah Meyers’) reading of the Hebrew mourner’s kaddish. Tempo is somewhat free, but should sound like a spoken, intoned, text. For playing purposes, the performer might listen to someone speaking this text, keeping in mind that each reader would have their own distinct rhythms and tempi.

Crayon or chalk marks may be used to mark the high harmonics on the strings.

(Thanks to Anne Perez for assistance in copying this score).

Thanks to Mike Winter and Bob Gilmore for their suggestions for various revisions of *3 Cello Tunes*; and William Raynovich for valuable suggestions before his first performance of "Twickenham Stomp" and "Hop Up and Jump Up.")

Larry Polansky

London, Lebanon, Spring/Summer

(rev. July, 2013; rev. August 10, 1999; August 13, 2013, D.C./NYC; Hanover, NH, 8/13/13)

# התגדל' cello tuning chart

Harmonics up to 13 on I-IV, showing intonational equalities.

The chart displays the following structure:

- Columns:** I, II, III, III, IV
- Rows (from top to bottom):**
  - 13th harmonic (notes for frets 1-13)
  - 7th harmonic (notes for frets 1-13)
  - 11th harmonic (notes for frets 1-13)
  - 3rd harmonic (notes for frets 1-13)
  - fundamental (note for fret 0)
- Labels:** "Sua" above the first column; "\*" above the 13th harmonic note on string I.

\* Note that for I (tuned to the 13th harmonic), the 13th harmonic on that string is notated as an Fb, in order to consistently notate all 13th harmonics as minor sixths. This pitch actually sounds much closer to an F-natural.

## I. "Hop Up and Jump Up"

# Hop Up and Jump Up

for cello (or any string instrument, any transposition)

(harmonic series numbers)

Fast and energetic, freely

Larry Polansky



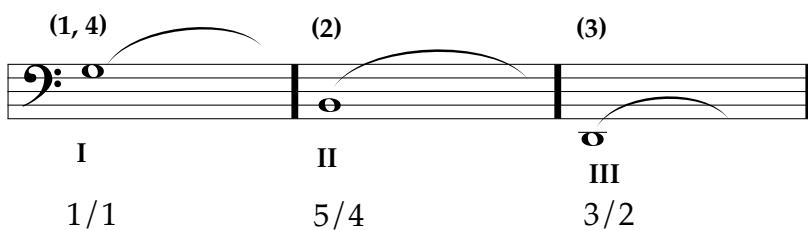
- (1, 4) G: 1 1 1 3 3 3 5 3 5 3 1 1 1 3 3 3 5 3 9 1  
 (2) B: 13 13 13 5 5 5 1 5 1 5 13 13 13 5 5 5 1 5 7 13  
 (3) D: 11 11 11 1 1 1 13 1 13 1 11 11 11 1 1 1 13 1 3 11

(Order of melody strings for four times through: II, I, II, II)



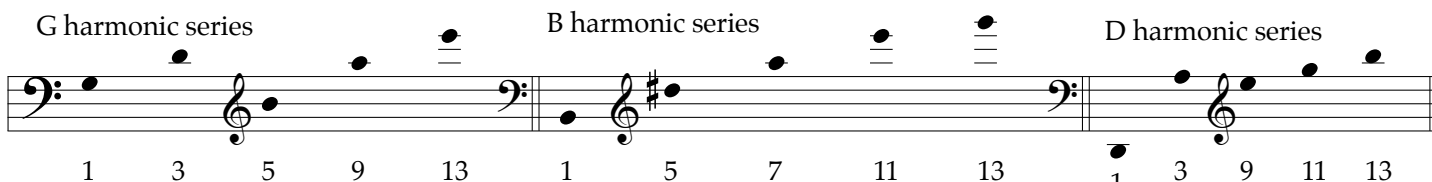
- G: 5 3 3 5 9 1 1 1 1 1 13 3 1 1 1 3 3 5 3 3 9 1  
 B: 1 5 5 1 7 13 13 13 13 13 11 5 13 13 13 5 5 1 5 5 7 13  
 D: 13 1 1 13 3 11 11 11 11 11 9 1 11 11 11 1 1 13 1 1 3 11

## Drone pitches (and tuning)



Tune the III string to the 3rd harmonic on G  
 Tune the II string to the 5th harmonic on G

## Harmonic series pitches used for the three pentatonics



(Harmonic numbers)



## **II. Twickenham Stomp**

# Twickenham Stomp

Larry Polansky

Part 1

Loud, fast, with abandon

(harmonics can be plucked if desired)

Cello

① I, II  
II  
(low G may be pizz.)  
(3-4 repeats, each measure)  
III, II  
③  
⑥ II, III  
⑫ II, I  
⑨ III, II  
⑤ IV  
⑩ IV, III  
⑦ III  
⑪ I  
⑬ I

(accidentals only affect the note they directly precede)

(low G's and B's may be held slightly longer)  
(and accented. all other durations strict time.)

**Part 2**

(no pause)

(all G's except low one B13 from this point)

⑬ (2-3 repeats each measure)

IV

IV

⑦

E#=B11

IV

⑤

A=B7

IV

⑨

D#=B5

IV

③

C#=B9

II, IV

①

F#=B3

I, III

(B, complete)

(repeat 3-5x)

**Part 3**

(no pause)

⑬ (2-3 repeats each measure)

II

⑪

Bb=D13

II

⑦

G#=D11

II

⑤

C=D7

II, IV

F#=D5(=B3) E=D9

A=D3 D=D1 last time ( )

(repeat 3-5x)

\* floating treble clefs apply only to the note that they directly precede

(no repeats)

Part 4

III (or I, 8va) III (or I, 8va)

(D9) (G) (G11) (sub p)

Eb=G13, C#=G11 III (or I, 8va) F=G7

III III

I,III (G5) B=G5 II,III (or I, 8va) A=G9(=D3)

III III (no change in tuning)

I,II,III (G3) D=G3(=D1) I (G1) (sub p)

(no change in tuning) III (sub p)

(lightly, quiet, freely, but rhythmically)

Coda

The main musical score for the Coda section consists of two staves: a treble clef staff and a bass clef staff. The treble staff contains a series of notes with various fingerings indicated by Roman numerals (I, II, III, IV) and natural harmonics (indicated by a circle over the note). The bass staff contains a series of notes, some with natural harmonics, and some with slurs. The piece concludes with a double bar line.

(all natural harmonics, open strings; roll dyads on non-adjacent strings if low notes prove awkward or difficult, they may occasionally be omitted)

A short musical fragment in the bass clef, showing specific fingerings and natural harmonics. It consists of six notes with fingerings IV, II, IV, II, III and natural harmonics indicated by circles over the notes.

lp, 2/16/17

### III. יתגדל (Yitgadal) (for Jim Horton)

# יתגדל for Jim Horton

Spoken tempo (♩ ≈ 96)

Larry Polansky

*Verse 1*

I, II for most of Verse 1

cello

8va

(8va)

3

(V)

V = slight accent

(I) (II) (8va)

(I) (II) (8va)

(8va)

(I) (II)

loc.

*Verse 2*

10

5

5

5

*Verse 3*

13

a little faster (Tune III to G = 3/2)

16

5

5

5

18

21

23

Verse 4

26

29

Verse 5

Gently flowing

a little softer

(N.B. the I Gb and the following II Gb should be the same pitch)

32

loc.

(slow down a bit)

(not too slow, steady)