

# **Puijila Plays in the Mirrored Morning**

**Just Intonation Duet  
for 2 voices, cello, & fretless guitar**

**B e n H j e r t m a n n**

**K l w h n a a P u b l i s h i n g**



**B e n H j e r t m a n n**



# **Puijila Plays in the Mirrored Morning**

**written for**

**Emmalee Hunnicutt & Ben Hjertmann**

**composed**

**February – August 2020**

**recorded**

**Earhead Studios, Asheville, NC  
July-October 2020**

**duration**

**7'30"**

**Pitch Materials for *Puijila Plays in the Mirrored Morning***

*Puijila Plays in the Mirrored Morning* uses an 11-Limit tuning with a base pitch of E.

The lattice to the right shows all the pitches used. It is similar to the lattice for *Vulture*. The roots of chords are shown in black circles and other chord tones are shown in gray. The roots are 1-3-7-9-11's built on C, G, A, and E.

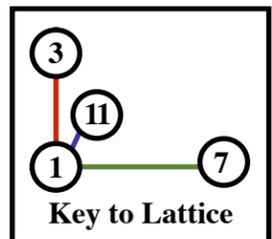
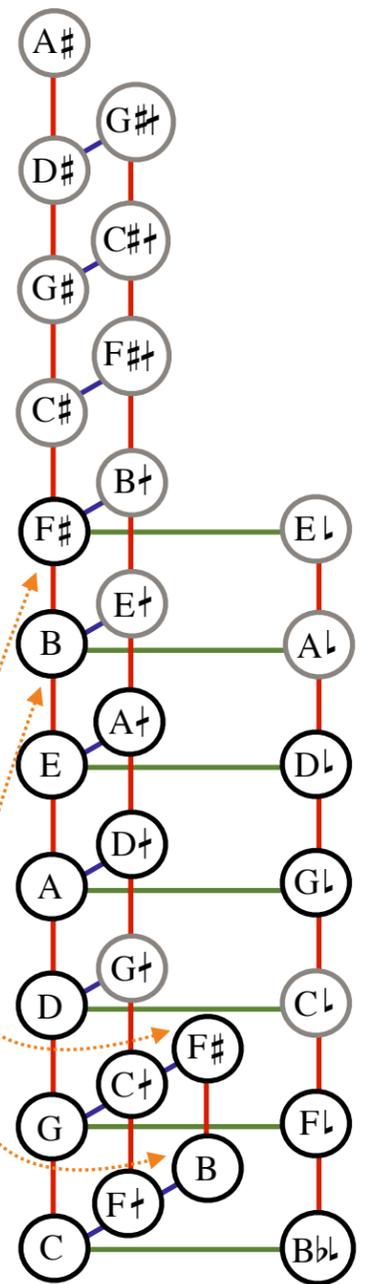
Similarly, the harmonic progressions use common tones of 3, 9, 7, & 11, as shown in the formal diagram below. Other chord tones such as 27 & 81 appear as added tones, but are not as essential and not used as common tones for progression. The final section's progression of E-G-D-A-C-E is an exception, leaping across the original form (see inverted pentagram below).

Occasionally, some non-chord tones occur, which can be explained as suspensions/anticipations, belonging to the chord before or after. The most prominent example creates a kind of augmented sonority (1/1-81/64-14/9).

Harmonic 5 is absent in this song, as it is in a few of the others in the collection. Unlike the others, this song does use thirds and triadic constructions regularly. However, because the thirds of chords (81) are not used in the construction of the lattice, the form, or the harmonic progressions as common tones, they are not treated as essential tuning elements. Furthermore, the open strings of both instruments can be used over a variety of roots if they can occur as 1, 3, 9, 27, 81, and in one case, 11. Additionally, the song has a rich palette of pitches & chords achieved with only two non-standard accidentals, whereas using harmonic 5 would greatly multiply the total pitches in use.

The two pairs of pitches connected with orange arrows on the lattice show the tempering of what I've called the Undecimal Square Comma (243:242, 7 cents). The two lower pitches occurring, the 121st harmonics of C & G, are rounded up by only 7 cents to be equal to the pitches five 3:2's above. Technically, this is leaping on the lattice to unrelated pitches, but if untempered the comma would be the smallest distinction in any of the songs, and change only 0.07 frets on the guitar.

**Puijila Lattice**



**Guitar Tablature**

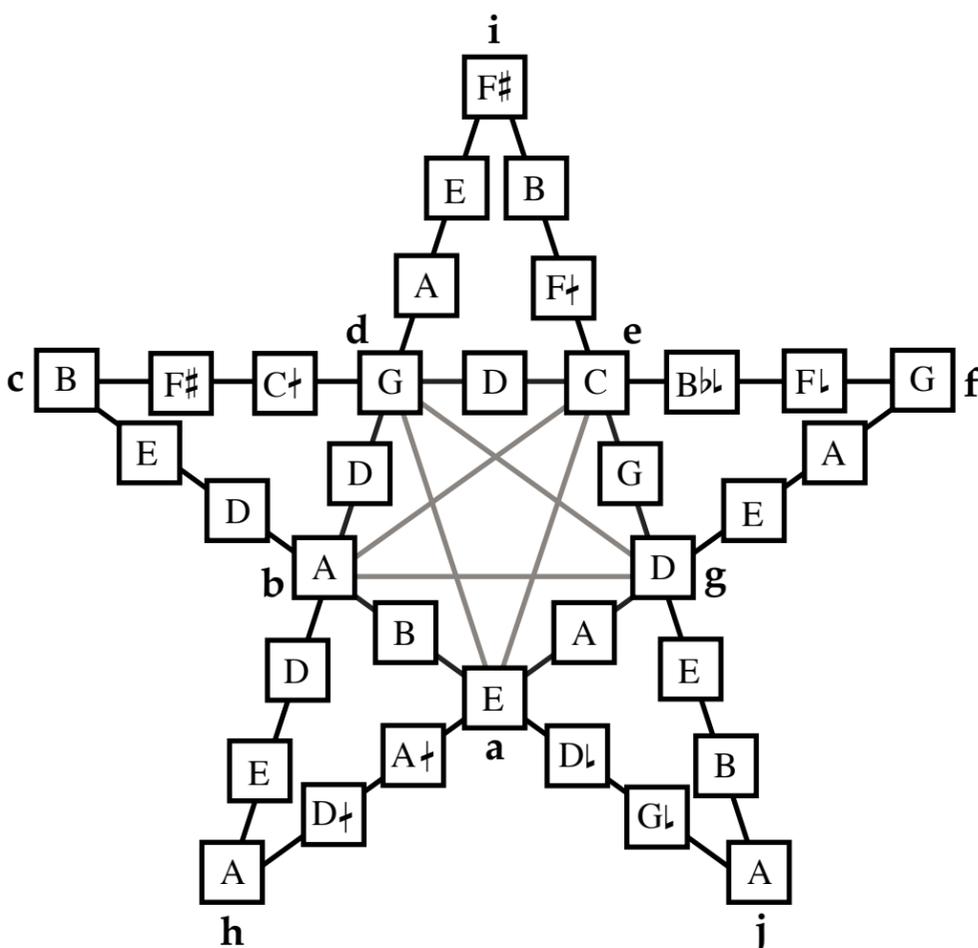
The fretless guitar is in standard tuning for this song. The tablature includes decimal finger positions of just pitches rounded to the nearest 10th of a fret (10 cents). As with the Helmholtz-Ellis accidentals used here, the 3-Limit offsets are not reflected in the decimal number, but because of the rounding, the resulting fret is identical in nearly if not all cases.

**Pentagram Form**

The pentagram to the left is a formal diagram for the harmonic progression and lyrical structure of the song. The pitches in the boxes are the roots of chords used. The ten key points are marked with letters in the order they appear.

The five inner key points (a, b, d, e, g) contain the same lyrics and harmony each time, while the others do not. The five points recur in different harmonic and lyric contexts as they are reached along multiple paths.

The full form is a triangle (a-c-f-a, specifically a-b-c-d-e-f-g); then two full stars (a-c-f-h-i-j, specifically a-b-c-d-e-f-g-a-h-b-d-i-e-g-j, twice); then the central pentagon (a-b-d-e-g-a); then the embedded pentagram (a-d-g-b-e-a following inner gray lines). The result is a collapsing form with the repetitions of the five inner key points (a, b, d, e, g) occurring in four different contexts and occurring increasing often as it approaches the end until only the key points are heard, in a new order.



# Puijila Plays in the Mirrored Morning

Ben Hjertmann

Tenor

Electric Guitar

Cello

Let all strings ring, throughout, where possible

(slide) (hammer-on) h/o h/o *sim.*

dynamics: ad lib. together, restrained and mysterious

pizz. sempre

dynamics: ad lib. together, restrained and mysterious

**A** Rhythms can be altered slightly in repeats for prosody, ad lib.

T

E Gtr

Vc.

I watched the sun burn \_\_\_\_\_  
I watched the sun \_\_\_\_\_  
I watched some-one jump \_\_\_\_\_

in - to those \_\_\_\_\_  
fros - ting the \_\_\_\_\_  
in - to those \_\_\_\_\_

crag - last \_\_\_\_\_  
tide - night \_\_\_\_\_  
waves a - gain \_\_\_\_\_

and the \_\_\_\_\_  
and I \_\_\_\_\_  
some- \_\_\_\_\_

*r i p*

(pizz.-slurs are hammer-ons)

T

E Gtr

Vc.

green au - ra hung \_\_\_\_\_ au - ro - ra high \_\_\_\_\_  
saw a pup swim-ming o - ver to me \_\_\_\_\_  
one who shares some - thing of my ways \_\_\_\_\_

T 13  
 I re - mem - ber what I tried to give up the sand,  
 or re - mem - ber - ing my mutt far a - way the dream  
 I re - mem - ber how you tried to give up the sand,  
 pulloff p/o p/o p/o

E Gtr 13  
 7 6 0 4 4.7 0 4 2 4 5 0 2 2 2 0 9 9 12 12 0 9 9 0 11 11 14 14

Vc. 13

T 16  
 snow, and sea-weed be - low me As I wan - der back there  
 of the fos - sils, be - low me where hot - blood - ed fish - ers  
 for the sea, here, be - low me And yet wan - dered back there

E Gtr 16  
 7 6 5 0 0 3 4/5.5 5.5 0 0 0 7 7 5 3 5 4 0 7 5.5 4 2 2 3 0

Vc. 16

T 20  
 where the drone si - ren wove an i - de - a swam at the stove and the I - rish hou - rs be -  
 and the drone si - ren wove may still be here trol - ling this cove in the mir - rored mor - ning I  
 where the drone si - ren wove to puz - zle me o - ver then dove as if you'd ne'er seen us be -

E Gtr 20  
 3 2 0 2 2 3.5 2.7 0 1.7 2.7 2.7 1.7 2.7 1.7 2.7 0 2 0 2.7 0

Vc. 20

T 24  
 fore I sang to the Char - coal Is - lands where the gol - den time - piece hung  
 know they land on the Char - coal Is - lands where I lan - ded once  
 fore a - mong the Char - coal Is - lands where you might be home

E Gtr 24  
 p/o h/o  
 0 2 4 0 2 0 2 2 4 4.7 0 0 0 9 9.7 11 9 0 0

Vc. 24

Repeat to A (1st time only)

**B**

T  
8  
I watched the sun burn and by mor-ning it sung, "I'm  
I watched Sun-day burn and by Mon-day I'm gone I

E Gtr  
27  
r m i  
0 7 9 0 7.5 0 6.7 0 0 0 0 7.5 6.7 11 11 6.7 0 0 7.5 11.7 11.7 7.5 9 4.5 6.5 4.5 6.5 4.5 4.5 4.5 6.5 4.5 6.5 5.5 5.5

Vc.  
27

T  
8  
sor-ry the win-ter was long and it asked me to  
knew that I could-n't stay long thick skinned

E Gtr  
30  
r i p i m  
6.5 7.5 6.5 6.5 4.5 7.5 7.5 0 0 7.5 7.5 0 0 7.5 0 0 12 12 9 11 9 14 9 9 11 9 14 9

Vc.  
30

T  
8  
come back to now and I re-mem-ber what's still swim-ming be-low me  
flat foot-ed I re-mem-ber you ris-ing from be-low me

E Gtr  
33  
7 7 7 9 7 2 2 0 0 2 0 2 3 0 3 0 0 5.5 0 5 0  
7 9 7 2 7 9 7 2 4 4.7 2 2 2 0 2 0 3 5 0 5.5 0 5 0

Vc.  
33

T  
8  
Old, gray mer-maid: Is this where you rove?  
Ho-ly Des-ti-ny: Is this where I'll go?

E Gtr  
37  
h/o  
7 3/5 3/5 0 0 0 0 4.7 4.7 2 0 4 4.7 0 3 0 0 7 0 7 0 7 8.5 7.5 0 7

Vc.  
37

42

T

8

where the drone si - ren wove? Do you go to the Char-coal Is - lands? ...where you swam right up to me,  
 where the drone si - ren wove? Should I go to the Char-coal Is - lands? Would I steal you as a sign?

E Gtr

42

h/o

Vc.

46

T

8

rose up to my height, where and you asked me, "Who?" or  
 Go where I'm un-known? and you asked me, "When?" or "Why?"  
 "How?"

E Gtr

46

Vc.

C

50

T

8

I watched the sun burn out the sky last night and

E Gtr

50

Vc.

54

T

8

I re - mem - ber what I spied be - low me

E Gtr

54

p/o p/o p/o

Vc.

58

T  
8 And I wan-der back there where the drone si-ren wove I go \_\_\_\_\_ to the Char-coal Is-lands? ...where the

E Gtr  
58 p/o 3 p/o h/o

Vc.  
58

**D** Slower

62

T  
8 Gol-den Hou-rs \_\_\_\_\_ hung I watched the sun burn, \_\_\_\_\_ here, be-low me, \_\_\_\_\_ there,

E Gtr  
62

Vc.  
62

66

T  
8 \_\_\_\_\_ on the Char-coal Is-lands, I re-mem-ber it now, where the drone si-ren wove

E Gtr  
66

Vc.  
66

69

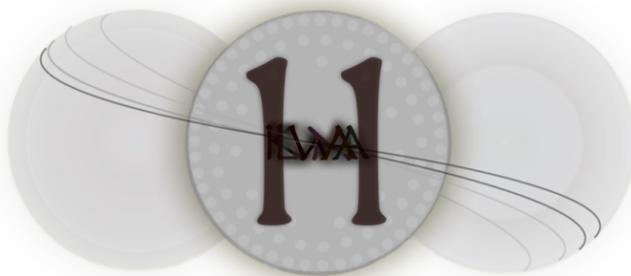
T  
8 I watched the sun \_\_\_\_\_ I watched the sun \_\_\_\_\_

E Gtr  
69

Vc.  
69



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