tacoma narrows

for solo viola and tape

heinrich taube (2007)

Program Notes:

The original Tacoma Narrows bridge opened for traffic on July 1, 1940 and collapsed in a spectacular manner into the Puget Sound on Nov. 7, 1940 just six short months after it had opened. Unbeknownst to the bridge's engineers, the thin wide roadway they designed would act as a giant airfoil and cause the bridge to oscillate up and down in the face of strong winds blowing in from the ocean. Indeed, the up-and-down motion of the roadway was quickly noticed by the driving public and the bridge became known as Galloping Gertie almost as soon as it had opened. On the day of its collapse, a strong steady 40 mph crosswind began to move the bridge in a new torsional mode of vibration (.2 Hz) and the entire structure began to twist and buckle in addition to its more typical up and down motion. The resonance of this .2 Hz destructive vibration mode eventually built up enough amplitude that the roadway began to fracture and the bridge collapsed into the deep waters below. A famous film shot by Barney Elliot captures the last moments of this beautiful and graceful structure as it literally shook itself apart. The spectacular twisting and fracturing motion of the bridge's last gallop provides the inspiration for the melodic material that is continually developed throughout this piece. The main source for the composition is an untempered pentatonic scale made from partials 17, 19, 23, 27 and 31 of the harmonic series (roughly C# D# F# A# B#) that is "fractured" in two different ways to create all the pitch material in the work. In the first type of fracturing, foreign tones (the partials 2, 3 and 5) are sequentially added to the pentatonic collection to build increasingly dissonant microtonal scales of 6, 7 and 8 tones. The microtonal clash of these new tones with the original pentatonic set are then featured in different musical ways over the course of the work. In another sort of fracturing, the tape sounds are generated by superimposing many copies of the fiddling music but each shifted and stretched in time by prime numbers so that a non-periodic harmonic smearing takes place. Finally, the .2 Hz destructive mode that produced the fatal twisting vibration in the bridge provides an incessant, steady fiddling pulse that underlies the entire work.

Tacoma Narrows was composed entirely in the Common Music software package with audio produced by Common Lisp Music, developed by William Schottstaedt at CCRMA, Stanford. The performance score was generated using the FOMUS music notation package developed by David Psenicka at University of Illinois. Tacoma Narrows was commissioned by, and is dedicated to, Melia Watras of the University of Washington. Funding support for commission and CD recording (Fleur de Lis Records) was granted by The University of Washington Royalty Research Fund. A recording of Tacoma Narrows appears on the forthcoming CD by by Melia Watras by Fleur de Son Classics, Ltd.

tacoma narrows

for Melia Watras

H. Taube

Viola

♩ = 72

click track on

Joyous and resonant (♩ = 144)

♪ = ♩

mp *mf* *attacca* *f*

7

14

new groove

f

21

(con vibrato)

28

mf *mp* *p*

34

f

lighter

41

short

47

52

stay

57

mp

62

f

67

74

80

86

fierce

ff

91

shorter
(measured)

(non spiccato)

98

shorter

(non spiccato)

crescendo

103

(gliss.)

fierce

sfpp

ff

110

115

120

125

f

mf

mp

Bluesy - with a slightly angular but light rhythmic stumble.

131 II. I. II.

mf

136

141

mf

147

151

157

162

mf

167 dirty

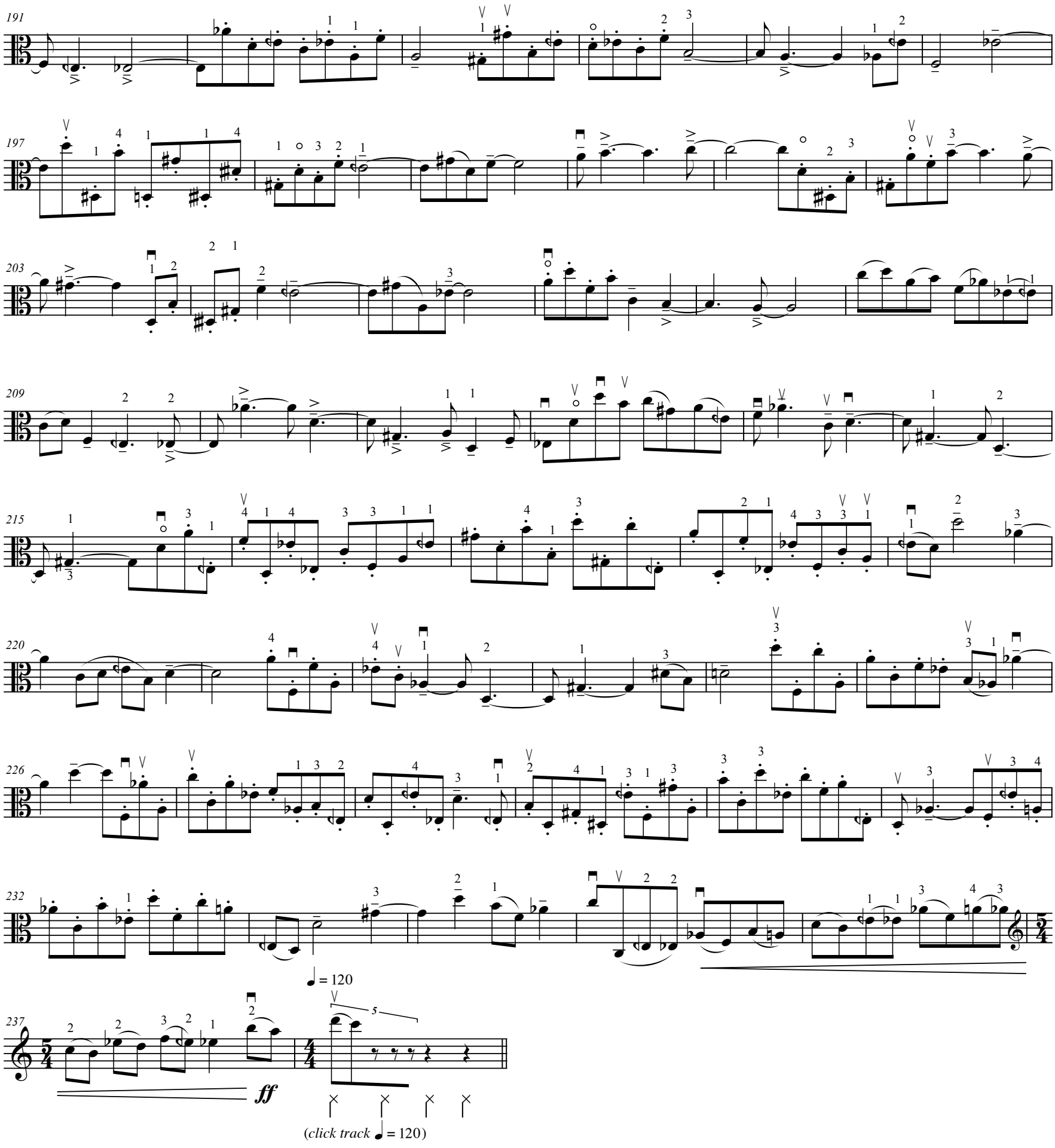
173

178 unison with electronics

mp *mf*

184

(1 2)



Turn Page...

Joyous ♩ = 120

239 *mf* pizz. arco pizz. arco pizz. arco

243 pizz. arco

247 pizz. arco pizz. arco pizz. arco

251 pizz. arco pizz. arco

255 pizz. arco pizz. arco

259 II. II. pizz. arco

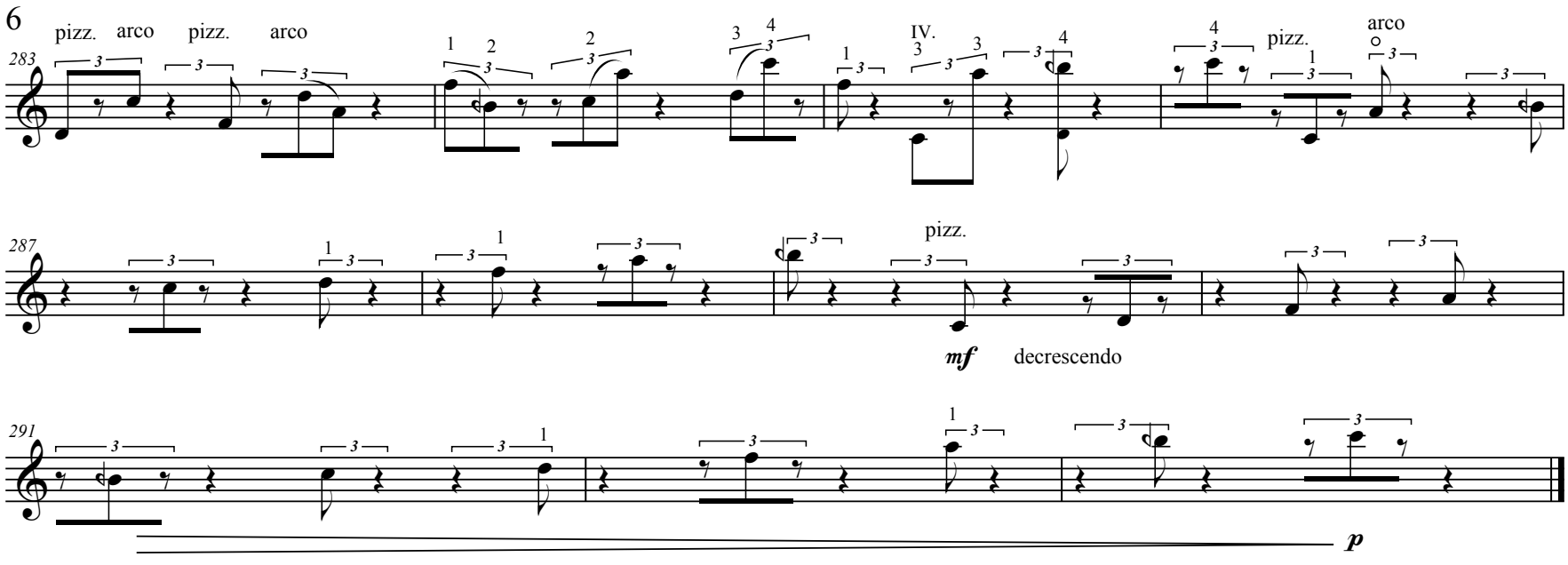
263 II. I. III. II. pizz. arco

267 II. IV. III.

271 II. IV.

275 III. II. II.

279 pizz. arco pizz. arco pizz. arco


pizz.
arco
pizz.
arco
283
IV.
pizz.
arco
287
pizz.
mf
decrescendo
291
p