

Ink, Colour and Gold on Paper

A quintet by Joe Bates

Performance Notes

Instrumentation

Flute

Horn

14-course theorbo

Violin

Cello

Duration c. 10'

Accidentals

This piece is notated with an adapted version of Helmholtz-Ellis Just Intonation (HEJI), with 3-limit and 11-limit accidentals tempered to 24-tone equal temperament (24TET). Accidentals last for the whole bar.

\flat \natural \sharp Standard accidentals indicate 12-tone equal temperament.

$\flat\flat$ $\natural\sharp$ $\sharp\sharp$ Quartertone accidentals indicate either 24TET subdivisions, or the eleventh harmonic of the note three octaves and a fourth lower.

Other accidentals indicate different Just tunings against equal temperament. The piece primarily uses 5-, 7-limit and 13-limit accidentals:

$\flat\sharp$ A 5-limit note, i.e. a $5/4$ ratio against the 12tet note a major third lower, or the fifth harmonic of the note two octaves and a third lower. 14¢ lower than 12TET.

$\sharp\flat$ An inverted 5-limit note, i.e. a $5/4$ ratio against the 12tet note a major third higher. 16¢ higher than 12TET.

$\sharp\flat\sharp$ A double inverted 5-limit note, i.e. a $5/4$ ratio against the 5-limit note a major third higher. 36¢ higher than 12TET.

$\flat\flat\sharp$ A 7-limit note, i.e. a $7/4$ ratio against the 12TET note a minor seventh lower, or the fifth harmonic of the note two octaves and a minor seventh lower. 31¢ lower than 12TET.

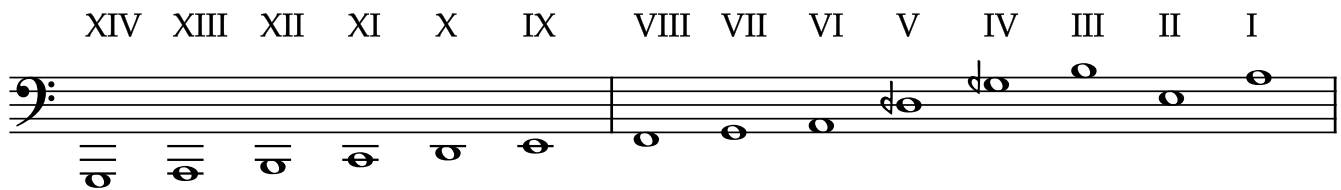
$\flat\sharp\sharp$ A 13-limit note, i.e. a $13/8$ ratio against the 12TET note a major sixth lower, or the thirteenth harmonic of the note three octaves and a major sixth lower. 60¢ lower than 12TET.

N.B. All 5-limit notes are part of a Justly tuned major or minor triad. Inverted 5-limit notes will almost always be part of a minor triad.

Tuning

Theorbo

The theorbo is tuned as follows:



Strings I-XIII are on the petit jeu. If only the first six strings are on the petit jeu, the low F#s and A#s may be transposed up an octave.

Flute

The uneven timbre of alternative microtonal fingerings is welcome in this context.

In faster passages from b81-105, the precise tuning of the microtonal accidentals is less important. They are written so as not to clash with the string instruments, but quartertone approximations will normally suffice.

Horn

All microtonal accidentals are intended as harmonics of the expected fundamental, with the exception of the up-arrow notes, which must be altered by hand to be in tune with the strings.

Figure O to the end, Theorbo

The theorbist improvises the final passage, playing harmonics freely on strings I-VII, in the given rhythm, changing partial as indicated in the lines above the staff.

Ink, Colour and Gold on Paper

Joe Bates

♩ = 112

Flute

Horn in F

Theorbo

Violin

Violoncello

mp

mp

mp

pp sempre

pp sempre

p sempre

l.v. sempre

5

Fl.

Hn

Theo.

Vln

Vc.

10

Fl.

Hn.

Theo.

Vln.

Vc.

14

Fl.

Hn.

Theo.

Vln.

Vc.

18 **A**

Fl. *tr* *mp*

Hn. *tr* *mp*

Theo. *mp*

Vln. *mp* *p*

Vc. *mp* *p*

21

Fl. *tr* *p*

Hn. *tr* *p*

Theo. *mp* *p*

Vln. *mp* *p* *mp* *p*

Vc. *mp* *p* *mp*

24

Fl. *tr* *p*

Hn. *tr* *p*

Theo. *mp* *p*

Vln. *mp*

Vc. *mp* *p*

28

Fl. *tr* *p*

Hn. *tr* *p*

Theo. *mp* *mf* *p*

Vln. *mp*

Vc. *mp* *p*

B

32

Fl. *tr* *p*

Hn. *tr* *p*

Theo. *mf*

Vln. *mf*

Vc. *mf*

36

Fl. *f*

Hn. *f*

Theo. *ff* *mp* *ff* *mp*

Vln. *f* *mp* *f* *mp*

Vc. *f* *mp* *f* *mp*

38

Fl.

Hn.

Theo.

Vln.

Vc.

ff *mp* *f* *mp*

f *mp* *mf* *mp*

f *mp* *f* *mp*

40

Fl.

Hn.

Theo.

Vln.

Vc.

p *f*

p *f*

mf *ff* *mf* *f* *mp*

f *mp*

f *mp*

42

Fl.

Hn.

Theo.

Vln.

Vc.

ff *mp* *ff* *mp* *ff* *ff* *ff* *mf* *ff* *mf* *ff*

45

Fl.

Hn.

Theo.

Vln.

Vc.

mp *p* *mp* *p* *mp* *p* *mp* *p*

49

Fl. *mp* *p* *pp*

Hn. *mp* *p*

Theo. *mp* *p* *pp*

Vln. *mp* *p* *pp*

Vc. *mp* *p* *pp*

C Poco meno mosso ($\text{♩} = \text{c. } 68$)

54

Fl. *mp* *mf* *mp* *mf*

Hn. *mf* *f* *mf* *f* *mp*

Theo. *mp* *mf* *mp* *mf*

Vln. *mp* *mf* *mp* *mf*

Vc. *mp* *mf* *mp* *mf*

58

Fl. *mp* < *f*

Hn *f* < *ff* *f* < *ff* *mp*

Theo. *mp* < *f*

Vln *mp* < *f*

Vc. *mp* < *f*

Detailed description: This system contains measures 58 through 61. The Flute (Fl.) part starts with a half note G4, followed by a half note A4, and then a half note B4. The Horn (Hn) part begins with a half note G2, followed by a half note A2, and then a half note B2. The Trombone (Theo.) part starts with a half note G2, followed by a half note A2, and then a half note B2. The Violin (Vln) part begins with a half note G4, followed by a half note A4, and then a half note B4. The Violoncello (Vc.) part starts with a half note G2, followed by a half note A2, and then a half note B2. Dynamics include *mp*, *f*, *ff*, and *mp*. There are crescendo and decrescendo hairpins throughout the system.

62

Fl. *mp* *p* *mp* < *mf*

Hn *f*

Theo. *mp* *p* *mp* < *mf*

Vln *mp* *p* *mp* < *mf*

Vc. *mp* *p* *mp* < *mf*

Detailed description: This system contains measures 62 through 65. The Flute (Fl.) part starts with a half note G4, followed by a half note A4, and then a half note B4. The Horn (Hn) part begins with a half note G4, followed by a half note A4, and then a half note B4. The Trombone (Theo.) part starts with a half note G2, followed by a half note A2, and then a half note B2. The Violin (Vln) part begins with a half note G4, followed by a half note A4, and then a half note B4. The Violoncello (Vc.) part starts with a half note G2, followed by a half note A2, and then a half note B2. Dynamics include *mp*, *p*, *f*, and *mp* < *mf*. There are crescendo and decrescendo hairpins throughout the system.

66

Fl. *f* *ff*

Hn. *mf* *ff* *f*

Theo. *ff*

Vln. *ff*

Vc. *ff*

70

Fl. *mp* *mf*

Hn. *mp*

Theo. *mp* *mf* *pp*

Vln. *mp* *mf*

Vc. *mp* *mf*

♩. = ♪

72 **D**

Fl. *pp*

Hn *pp sempre*

Theo. *p sempre*

Vln *p*

Vc. *p*

75

Fl. *p*

Hn

Theo.

Vln

Vc.

79

Fl. *mp* *p*

Hn

Theo.

Vln

Vc.

81 **E**

Fl. *mf* *p*

Hn

Theo. *mf* *p*

Vln *mp* *mf*

Vc. *mp* *mf*

83

Fl. *mp* *p*

Hn

Theo. *mf* *p* *mf* *p*

Vln. *mp* *mf* *f* *mp*

Vc. *mp* *mf* *f* *mp*

Detailed description: This system of music covers measures 83 and 84. It features five staves: Flute (Fl.), Horn (Hn.), Theorbo (Theo.), Violin (Vln.), and Viola (Vc.). The Flute part begins with a melodic line in measure 83, marked *mp*, which then softens to *p* in measure 84. The Horn part has a sustained note in measure 83 and a melodic line in measure 84. The Theorbo part has a rhythmic pattern of eighth notes in measure 83, which continues in measure 84 with dynamic markings *mf* and *p*. The Violin part has a sustained chord in measure 83, followed by a melodic line in measure 84 with dynamics *mp*, *mf*, *f*, and *mp*. The Viola part has a sustained chord in measure 83, followed by a melodic line in measure 84 with dynamics *mp*, *mf*, *f*, and *mp*.

85

Fl. *mf* *p*

Hn

Theo. *mf* *p* *mf* *p*

Vln. *mf* *mp* *p*

Vc. *mf* *mp* *p*

Detailed description: This system of music covers measures 85 and 86. It features the same five staves as the previous system. The Flute part has a melodic line in measure 85, marked *mf*, which then softens to *p* in measure 86. The Horn part has a sustained note in measure 85 and a melodic line in measure 86. The Theorbo part has a rhythmic pattern of eighth notes in measure 85, which continues in measure 86 with dynamic markings *mf* and *p*. The Violin part has a sustained chord in measure 85, followed by a melodic line in measure 86 with dynamics *mf*, *mp*, and *p*. The Viola part has a sustained chord in measure 85, followed by a melodic line in measure 86 with dynamics *mf*, *mp*, and *p*.

87

Fl. *cresc. poco a poco*

Hn *cresc. poco a poco*

Theo. *mf p mf p*

Vln *mf*

Vc. *mf*

89

Fl. *mf*

Hn *mf*

Theo. *f*

Vln *f mp f*

Vc. *f mp f*

93

Fl. *pp* *p*

Hn. *pp* *p*

Theo. *pp*

Vln. *mp* *p*

Vc. *mp* *p*

96

F

Fl. *mp* *mp*

Hn. *mp sempre*

Theo. *mp sempre*

Vc. *mp sempre* pizz.

98

Fl. *mf*

Hn

Theo.

Vln

Vc.

100

Fl. *mp* *mf*

Hn

Theo.

Vln

Vc.

Freely arpeggiated, quazi fantasia

mf *f*

102

Fl. *mp* *mf* *mp* *p*

Hn

Theo.

Vln *p* *mf* *f*

Vc.

Detailed description: This system covers measures 102 and 103. The Flute part features a melodic line with dynamic markings of *mp*, *mf*, *mp*, and *p*. The Horn part has a sustained note in measure 102 and a melodic phrase in measure 103. The Theorbo part provides harmonic support with dotted rhythms. The Violin part has a *p* dynamic in measure 102 and a crescendo to *f* in measure 103. The Violoncello part has a steady bass line with dotted rhythms.

104

Fl. *f* *mp*

Hn

Theo.

Vln *mp* *mf*

Vc.

Detailed description: This system covers measures 104 and 105. The Flute part has a melodic line with dynamics of *f* and *mp*. The Horn part has a sustained note in measure 104 and a melodic phrase in measure 105. The Theorbo part has a melodic line with chromatic movement. The Violin part has a sustained chordal texture with dynamics of *mp* and *mf*. The Violoncello part has a steady bass line with dotted rhythms.

106

Fl.

Hn. *mp* *mf* *mp*

Theo.

Vln.

Vc.

Detailed description: This system contains measures 106 and 107. The Flute part (Fl.) has a melodic line with a long slur across both measures. The Horn part (Hn.) features a rhythmic pattern of eighth notes with slurs and accents, marked with dynamics *mp*, *mf*, and *mp*. The Theorbo (Theo.) part has a simple melodic line. The Violin (Vln.) part plays sustained chords with slurs. The Violoncello (Vc.) part has a bass line with slurs and accents.

108

Fl.

Hn. On B flat, tuned 16¢ sharp

Theo.

Vln.

Vc.

Detailed description: This system contains measures 108, 109, and 110. The Flute part (Fl.) has a melodic line with a slur. The Horn part (Hn.) has a rhythmic pattern of eighth notes with slurs and accents, with a specific instruction: "On B flat, tuned 16¢ sharp". The Theorbo (Theo.) part has a melodic line with slurs. The Violin (Vln.) part plays sustained chords with slurs. The Violoncello (Vc.) part has a bass line with slurs and accents.

G

$\text{♩} = \text{♩}$. ($\text{♩} = \text{c. } 68$)

111

Fl.

Hn.

Theo.

Vln.

Vc.

Freely arpeggiated

mp — *ff*

Freely arpeggiated

mp — *ff*

arco

mp — *ff*

116

Fl.

Hn.

Theo.

Vln.

Vc.

fff

fff

p — *ff* — *mp* — *fff*

p — *ff* — *mp* — *fff*

p — *ff* — *mp* — *fff*

121

Fl. *mp ff mf f mf*

Hn. *mp ff mf f mf fff*

Theo. *mf ff mf f mf ff*

Vln. *mf ff mf f mf ff*

Vc. *mf ff mf f mf ff*

125

Fl. *fff > f < fff > mf f < fff > mf*

Hn. *f < fff > mf f < fff > mf*

Theo. *mp ff fff > mf < fff > mf*

Vln. *mp ff fff > mf < fff > mf*

Vc. *mp ff fff > mf < fff > mf*

129

Fl.

fff > *mf*

Horn in D

fff > *mf*

Theo.

fff > *mf* > *fff*

Vln.

fff > *mf* > *fff*

Vc.

fff > *mf* > *fff*

133 **H**

Fl.

fff > *f* > *fff*

Hn.

fff > *f* > *fff*

Theo.

mf > *fff* > *f* > *fff*

Vln.

mf > *fff* > *f* > *fff*

Vc.

mf > *fff* > *f* > *fff*

137

Fl. *f* *mf* *ff* *mf*

Hn. *f* *mf* *ff* *mf*

Theo. *f* *ff* *f* *mf*

Vln. *f* *ff* *f* *mf*

Vc. *f* *ff* *f* *mf*

Horn in D

141

Fl. *mp* *mp*

Hn. *mp* *mp*

Theo. *mp*

Vln. *mf* *p*

Vc. *mf* *p*

non arp.

144 **I** Poco meno mosso (♩ = c. 60)

Fl. *mp*

Hn. *mp*

Theo.

Vln. *mf* *p* *mp* *p* *mp* *p* *mp*

Vc. *mf* *p* *mp* *p* *mp* *p* *mp*

sul tasto

149

Fl. *mf* *mp*

Hn. *mf* *mp*

Theo. *mf* *mp* *mf* *mp* *mf* *mp* *mf* *mp*

Vln. *pp*

Vc. *pp* *nat.* *mp* *mf* *mp*

154 **J**

Fl. *mp*

Hn. *mp*
with freedom

Theo. *mp* *mf*

Vln. nat. *mp*

Vc. *mp*

156

Fl. *mp*

Hn. *mf* *mp*

Theo. *f* *mf* *f* *mp*

Vln. *mp*

Vc. *mf* *mp*

158

Fl. *mp*

Hn. *mf* *f* *mf*

Theo. *f* *mp* *f* *mp* *f* *mf*

Vln. *mp*

Vc. *mf* *f* *mf*

161

Fl. *mp* *mp*

Hn. *f* *mp*

Theo. *f* *ff*

Vln. *mp* *mp*

Vc. *f* *mp*

K

163

Musical score for measures 163-165. The score is for five instruments: Flute (Fl.), Horn (Hn.), Theorbo (Theo.), Violin (Vln.), and Violoncello (Vc.).

- Fl.:** Treble clef, key signature of one sharp (F#). Starts with a whole note chord (F#4, C5) marked *f*. A hairpin crescendo leads to a half note chord (F#4, C5) marked *mf* at the end of the measure.
- Hn.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3) marked *f*. A hairpin crescendo leads to a half note chord (F#2, C3) marked *mf* at the end of the measure.
- Theo.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3) marked *f*. A melodic line begins in the second measure, moving up stepwise. A hairpin crescendo leads to a half note chord (F#2, C3) marked *mp* at the end of the measure.
- Vln.:** Treble clef, key signature of one sharp (F#). Starts with a whole note chord (F#4, C5) marked *f*. A hairpin crescendo leads to a half note chord (F#4, C5) marked *mf* at the end of the measure.
- Vc.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3) marked *f*. A hairpin crescendo leads to a half note chord (F#2, C3) marked *mf* at the end of the measure.

166

Musical score for measures 166-169. The score is for five instruments: Flute (Fl.), Horn (Hn.), Theorbo (Theo.), Violin (Vln.), and Violoncello (Vc.).

- Fl.:** Treble clef, key signature of one sharp (F#). Remains silent throughout the four measures.
- Hn.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3). A hairpin crescendo leads to a half note chord (F#2, C3) marked *f* in the second measure. A hairpin crescendo continues to a half note chord (F#2, C3) marked *mp* at the end of the measure.
- Theo.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3) marked *f*. A hairpin crescendo leads to a half note chord (F#2, C3) marked *mp* at the end of the measure.
- Vln.:** Treble clef, key signature of one sharp (F#). Remains silent until the third measure, where it plays a half note chord (F#4, C5) marked *f sempre*. A hairpin crescendo leads to a half note chord (F#4, C5) marked *pizz.* at the end of the measure.
- Vc.:** Bass clef, key signature of one sharp (F#). Starts with a whole note chord (F#2, C3) marked *f*. A hairpin crescendo leads to a half note chord (F#2, C3) marked *mp* at the end of the measure.

170

Fl.

Hn.

Theo.

Vln.

Vc.

mp *f*

f

f

f

173

Fl.

Hn.

Theo.

Vln.

Vc.

mp

mp *f*

mp *f*

mp *f*

176 **L**

Fl. *mp* *f* *mp* <

Hn. *mp*

Theo. *mp*

Vln. *mp* *p* *mf* arco, espress.

Vc. *mp*

178

Fl. *mf* *ff*

Hn. *mf* *mp*

Theo. *mf* *mp*

Vln. *mp* *mf*

Vc. *mf* *mp*

180

Fl. *mp* *f*

Hn *mf*

Theo. *mf*

Vln *f* *mf* *f* *mp*

Vc. *f* *mp*

Detailed description: This system covers measures 180 and 181. The Flute (Fl.) part features a melodic line with a crescendo from *mp* to *f*. The Horn (Hn) part has a sustained note with a *mf* dynamic. The Theorbo (Theo.) part provides harmonic support with chords and moving lines. The Violin (Vln) part has a complex texture with dynamics ranging from *f* to *mp*. The Violoncello (Vc.) part has a bass line with dynamics from *f* to *mp*.

182

Fl. *ff*

Hn *f* *mp*

Theo. *f* *mp*

Vln *f* *mp* *mf* *mp* *mf*

Vc. *f* *mp*

Detailed description: This system covers measures 182, 183, and 184. The Flute (Fl.) part has a melodic line with a *ff* dynamic. The Horn (Hn) part has a sustained note with dynamics from *f* to *mp*. The Theorbo (Theo.) part has a complex texture with dynamics from *f* to *mp*. The Violin (Vln) part has a complex texture with dynamics from *f* to *mp*. The Violoncello (Vc.) part has a bass line with dynamics from *f* to *mp*.

poco rit......

185

Fl. *mf* *f*

Hn. *f* *mf*

Theo. *f* *mf*

Vln. *f* *mp*

Vc. *f* *mf*

187

$\text{♩} = 56$

$\text{♩} = \text{♩}$

M

Fl. *ff* *p*

Hn. *f* *p*

Theo. *f* *mp* *p*

Vln. *f* *norm.* *p*

Vc. *f* *p*

190

Fl.

Hn.

Theo.

Vln.

Vc.

mp *p* *mp*

194

Fl.

Hn.

Theo.

Vln.

Vc.

pp *pp* *mf* *p* *pp* *pp*

N

198

Fl.

Hn.

Theo.

Vln.

Vc.

mf

tr

mf

mf

tr

mf

201

Fl.

Hn.

Theo.

Vln.

Vc.

p *pp* *mf* *p* *pp* *mf* *p*

p *pp* *mf* *p* *pp* *mf* *p*

p *pp* *mf* *p* *pp* *mf* *p*

p *pp* *mf* *p* *pp* *mf* *p*

p *pp* *mf* *p* *pp* *mf* *p*

204

Fl. *pp* *mp* *pp*

Hn. *pp* *mp* *pp*

Theo. *pp* *mp* *pp*

Vln. *pp*

Vc. *pp* *mp* *pp*

208

Fl. *p* *mp* *p* *mp* *pp*

Hn. *p* *mp* *p* *mp* *pp*

Theo. *p* *mp* *p* *mp* *pp*

Vln. *p* *mp* *p* *mp* *pp*

Vc. *p* *mp* *p* *mp* *pp*

212

Fl. *mp* *f* *mp*

Hn. *mp* *f* *mp*

Theo. *mp* *f* *mp*

Vln. *mp* *f* *mp*

Vc. *mp* *f* *mp*

215

O

Fl. *pp* *p*

Hn. *pp* *p*

Theo. *pp* *p*

Vln. *pp* *p*

Vc. *pp* *p*

pp *sempre*

-2°
Freely play harmonics at the indicated partial, in the given rhythm, on strings I-VII.

219

Fl.

pp sempre
Horn in A until end

Hn.

pp sempre

Theo.

Vln.

pp sempre

Vc.

223

Fl.

Hn.

Theo.

Vln.

Vc.

pp sempre

228

Fl.

Hn.

Theo.

Vln.

Vc.

Detailed description: This system of musical notation covers measures 228 to 232. It features five staves: Flute (Fl.), Horn (Hn.), Trombone (Theo.), Violin (Vln.), and Violoncello (Vc.). The Flute and Horn parts have melodic lines with slurs and accents. The Trombone part consists of a steady eighth-note accompaniment. The Violin and Violoncello parts play sustained chords with long, horizontal lines indicating sustained notes.

233

P

Fl.

Hn.

Theo.

Vln.

Vc.

Detailed description: This system of musical notation covers measures 233 to 237. It features the same five staves as the previous system. A dynamic marking of **P** (Piano) is placed above the Flute staff at the beginning of measure 233. The Flute and Horn parts continue with their melodic lines. The Trombone part continues with its eighth-note accompaniment. The Violin and Violoncello parts continue with their sustained chords.

238

Fl.

Hn.

Theo.

Vln.

Vc.

242

Fl.

Hn.

Theo.

Vln.

Vc.

246

Fl.

Hn

Theo.

Vln

Vc.

-11°

(8)

Detailed description: This page of a musical score, numbered 246, features five staves. The Flute (Fl.) staff is in treble clef and contains a melodic line with eighth and quarter notes, some beamed together, and a long slur. The Horn (Hn) staff is also in treble clef, with a similar melodic line and a long slur. The Theorbo (Theo.) staff is in treble clef and shows a complex texture with many small notes, a circled '8' at the beginning, and a '-11°' marking above a dashed line. The Violin (Vln) and Violoncello (Vc.) staves are in treble and bass clefs respectively, and both feature long, sustained notes with slurs. The page concludes with a double bar line.