

FRACTURE

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Jeffrey Hass, Director of Thesis

FRACTURE

for wind ensemble and electronics

Samuel Morris Wells

8 minutes

2015

Program note

Hydraulic fracturing, also known as fracking, is a process employed to release subterranean natural gas trapped in shale rocks. A well is drilled and then pumped full of fracturing fluid, a slurry of water, sand, and dozens of toxic chemicals, to extreme pressures. The force from the fracturing fluid causes the rock to fracture. The trapped gasses escape through these fractures into the fracking fluid and are pumped back to the surface. Recently, fracking has seen an unprecedented boon as technological advances and high oil prices have made fracking cost effective. However, fracking is highly controversial due to the numerous ground water contaminations, induced earthquakes, and fresh water depletions that all result from hydraulic fracturing.

Fracture is a musical description of fracking for wind ensemble and electronics. The musical texture becomes analogous to fracturing fluid. The electronics initially provide the base of the sonic texture, as water and sand compose the base of fracturing fluid. Small disparate elements are introduced and packed into the texture. Once all of the components are present, pressure is relentlessly increased inducing the violent rupture of the music. From this release the inner harmonic structure of the work sweeps to the foreground in timbral waves, just as gas escapes from the fractured rock. The released gas is then separated from the fracking fluid as the music eventually settles back into disparate elements, but now, flattened and used, they blend into one another. *Fracture* concludes near to where it began, raising the question: Did the benefit justify the cost?



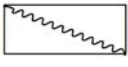


Technical note

The electronics that accompany the ensemble are series of triggered fixed stereo sound files. There will need to be a dedicated performer at the laptop to trigger the sound files via the space bar at the indicated time. This performer can either be onstage or in the hall, but it is essential the sound files are triggered precisely in time. It is strongly encouraged that a sound engineer in the hall be actively ensuring that the balance of the electronics and instrument is maintained. The conductor will need a monitor with a mix of the electronics.

A computer running Max 7 with a high quality external sound card is required. The audio output should be connected to two loudspeakers and subwoofer, placed behind the ensemble at as wide of a distance as possible.

A compressed archive of the individual sound files is available from the composer if it is impractical to obtain Max 7.

Percussion Key

Vib vibraphone	tam- tam	tom-toms	snare drum	bass drum	thunder sheet
Mar marimba					
Xyl xylophone					
Glsp glockenspiel					

Instrumentation

Piccolo
Flute 1.2.3
Oboe 1.2
English Horn
Bassoon 1.2
Clarinet in Bb 1.2.3
Bass Clarinet in Bb
Alto Saxophone in Eb 1.2
Tenor Saxophone in Bb
Baritone Saxophone in Eb
Trumpet in C 1.2.3
Horn in F 1.2.3.4
Trombone 1.2
Bass Trombone
Euphonium
Tuba
Timpani
Percussion 1: Snare drum, Vibraphone (with motor), tam-tam
Percussion 2: Bass drum, Marimba, snare drum, thunder sheet
Percussion 3: Glockenspiel, tam-tam, snare drum, bass drum
Percussion 4: Tom-toms, thunder sheet, bass drum, snare, drum, tam-tam
Piano
Electronics

TRANSPosed SCORE

Fracture (2015)

4/4 = 63

ca. 35" **A** pulsing

ca. 18" **B** clear

Piccolo

Flute 1

Flute 2 & 3

Oboe 1 & 2

English Horn

Bassoon 1 & 2

Clarinet in Bb 1

Bb Cl. 2 - Bb Cl. 3

Bass Clarinet in Bb

Alto Saxophone 1 & 2

Tenor Saxophone 1

Baritone Saxophone

C Trumpet 1

C Trumpet 2 & 3

F Horn 1 & 2

F Horn 3 & 4

Trombone 1 & 2

Bass Trombone

Euphonium

Tuba

Timpani

Percussion 1

Percussion 2

Percussion 3

Percussion 4

Piano

Electronics

Ob. 1

harmon stem in

undamped

let ring

Vib

arco

as electronics die away, horns enter

picc & glock enter after electronics finish upward glissando

2 3 4 5 6 7 8 9 10

ca. 6" **C** warm, moving forward

11 12 13 14 15 16 17 18 19

Picc. *mf* *p*

Fl. 1 *mp* *mf* *p*

Fl. 2 & 3

Ob. 1 *p* *mf* *mp*

Eng. Hn. *mf* *mf* *p*

Bsn. 1 & 2 *p* *mf* *p*

B♭ Cl. 1 *p < mf > p* *mf* *mf*

B♭ Cl. 2 & 3 *mf* *pp* Cl. 3 *pp*

B♭ B. Cl. *pp*

E♭ A. Sax. 1 & 2 *pp* *pp* *mp* *p*

B♭ T. Sax. *mp* *p*

E♭ Bari. Sax. *mf* *p*

ca. 6" **C** warm, moving forward

C Tpt. 1 *p* (open) *pp*

C Tpt. 2 & 3 *p* *mp* *p* Tpt. 2 fiber straight mute cup mute

F Hn. 1 & 2 *p < mf > p* *mp* *p* Hn. 1 *p* stopped Hn. 1 *p*

F Hn. 3 & 4

Tbn. 1 & 2 cup mute *pp* cup mute *pp* Tbn. 1 *mf* *p*

B. Tbn. cup mute *pp*

Euph. cup mute *pp* *mf* *p*

Tba. *pp*

ca. 6" **C** warm, moving forward

Timp.

Perc. 1 *mp* *mf* *fp* *p* *pp* *pp*

Perc. 2 *mp* *p* *fp* *p*

Perc. 3 *mp* *pp* *pp* *pp*

Perc. 4 *p* *pp* *pp* *pp*

Pno. *pp* *pp*

Elec. *pp* "horn" 1/2 step glissando

11 12 13 14 15 16 17 18 19

20 **3/4** *tr* 21 **4/4** *D still* 22 **3/4** 23 **4/4** 24

Picc. *tr*

Fl. 1 *tr*

Fl. 2 & 3 *tr* *pp*

Ob. 1 & 2 *tr* *pp*

Eng. Hn. *p* *f* *mf* *mf* *pp*

Bsn. 1 & 2 *mf* *mf*

B♭ Cl. 1 *f* *mf* *pp*

B♭ Cl. 2 & 3 *pp* *mf* *p* *pp*

B♭ B. Cl. *pp*

E♭ A. Sax. 1 & 2 *pp* *mf* *p* *pp*

B♭ T. Sax. *mf* *mp > pp*

E♭ Bari. Sax. *mp > pp*

C Tpt. 1 **3/4** *open* *tr* *mf* *open* *tr* **4/4** *D still* **3/4** *cup mute* **4/4**

C Tpt. 2 & 3 *mf* *pp* *pp*

F Hn. 1 & 2 *mp > pp*

F Hn. 3 & 4 *mp > pp*

Tbn. 1 & 2 *mf* *5* *mp > pp*

B. Tbn. *mp > pp*

Euph.

Tba.

Timp. **3/4** **4/4** *D still* **3/4** **4/4**

Perc. 1 *mp* *f* *motor on, fast* *p*

Perc. 2 *f*

Perc. 3 *mf* *5* *p* *Gisp* *ff let ring* *p*

Perc. 4 *mf* *> p* *mf*

Pno. *pp*

Elec. **4**

20 21 22 23 24

ca. 4'' **E** warm

ca. 4'' **E** warm

ca. 4'' **E** warm

[5] enter as electronics die away

low drone

25 26 27 28 29 30 31 32

F distant **with increasing pressure**

33 34 35 36 37 38 39 40

Picc. *p* *mf* *pp* 6

Fl. 1

Fl. 2 & 3 *p* *pp* *mf* Fl. 2

Ob. 1 & 2 *p* *mp*

Eng. Hn. *p*

Bsn. 1 & 2

B♭ Cl. 1

B♭ Cl. 2 & 3 *p* *pp* Cl. 3

B♭ B. Cl. *p*

E♭ A. Sax. 1 & 2 *p < f*

B♭ T. Sax.

E♭ Bari. Sax. *pp* *mp*

F distant **with increasing pressure**

C Tpt. 1

C Tpt. 2 & 3

F Hn. 1 & 2 *p* Hn. 1 *pp* *mp* *p*

F Hn. 3 & 4

Tbn. 1 & 2 *p* open

B. Tbn. *p* open

Euph. *mf* *p* open

Tba. *mf* *p*

F distant **with increasing pressure**

Timp. *pp* *mp* *p*

Perc. 1 *pp* arco ord.

Perc. 2 *mf* Mar *mf* *f* *p*

Perc. 3 *mf* Glsp *mf*

Perc. 4 *mp* *p* *pp*

Pno. *mf* *p* *mf* *p*

Elec. *mf*

33 34 35 36 37 38 39 40

41 42 43 44 45 46 47 48 49 50 51

Picc. *f* 3

Fl. 1 *f* 3

Fl. 2 & 3 *f* 3

Ob. 1 & 2 *f* 3

Eng. Hn. *f* 3

Bsn. 1 & 2 *p* Bsn. 2

B♭ Cl. 1 *mp*

B♭ Cl. 2 & 3 *p* *mp*

B♭ B. Cl. *p*

E♭ A. Sax. 1 & 2

B♭ T. Sax. *p*

E♭ Bari. Sax. *p*

C Tpt. 1

C Tpt. 2 & 3

F Hn. 1 & 2 *mp*

F Hn. 3 & 4 *p*

Tbn. 1 & 2 *p* open

B. Tbn. *p*

Euph. *p*

Tba. *p*

Timp. *mf*

Perc. 1 Vib *f* 3

Perc. 2 Mar *f* 3

Perc. 3 Glsp *f* 3

Perc. 4

Pno. *mf* *f* 3

Elec.

41 42 43 44 45 46 47 48 49 50 51

G overflowing

52 53 54 55 56 57 58 59

Picc. *fp* *f* *p* *ff* *pp* *p*

Fl. 1 *fp* *f* *p* *ff* *pp* *p*

Fl. 2 & 3 *fp* *f* *p* *ff* *pp* *p*

Ob. 1, 2 *fp* *f* *p* *ff* *pp* *p*

Eng. Hn. *fp* *f* *p* *ff* *pp* *p*

Bsn. 1 & 2 *f* *p* *ff* *pp* *p*

B♭ Cl. 1 *f* *p* *ff* *pp* *p*

B♭ Cl. 2 & 3 *f* *p* *ff* *pp* *p*

B♭ B. Cl. *f* *p* *ff* *pp* *p*

E♭ A. Sax. 1 & 2 *f* *ff* *p* *ff* *pp* *p*

B♭ T. Sax. *f* *ff* *p* *ff* *pp* *p*

E♭ Bari. Sax. *f* *ff* *p* *ff* *pp* *p*

G overflowing

C Tpt. 1 *p* *ff* *pp* *pp* *ff* *pp*

C Tpt. 2 & 3 *p* *ff* *pp* *pp* *ff* *pp*

F Hn. 1 & 2 *ff* *pp* *pp* *ff* *pp*

F Hn. 3 & 4 *ff* *pp* *pp* *ff* *pp*

Tbn. 1 & 2 *ff* *pp* *pp* *ff* *pp*

B. Tbn. *ff* *pp* *pp* *ff* *pp*

Euph. *ff* *pp* *pp* *ff* *pp*

Tba. *ff* *pp* *pp* *ff* *pp*

G overflowing

Timp. *ff* *pp* *ff* *pp*

Perc. 1 *ff* *pp*

Perc. 2 *pp* *ff* *pp*

Perc. 3 *ff* *pp* *ff* *pp*

Perc. 4 *pp* *ff* *pp*

Pno. *pp* *ff* *pp*

Elec. *pp* *ff* *pp*

52 53 54 55 56 57 58 59

ca. 45" **H** less intensity

60 61 62 63 64 65 66 67 68 69 70 71 72

Picc. *ff* *pp* *p* *ff* *pp*

Fl. 1 *ff* *pp* *p* *ff* *pp*

Fl. 2 & 3 *ff* *pp* *p* *ff* *pp*

Ob. 1 & 2 *ff* *pp* *p* *mp* *p*

Eng. Hn. *ff* *pp* *p* *mp* *p*

Bsn. 1 & 2 *ff* *pp* *p* *mp* *p*

B♭ Cl. 1 *ff* *pp* *p* *mp* *p*

B♭ Cl. 2 & 3 *ff* *pp* *p* *mp* *p*

B♭ B. Cl. *ff* *pp* *p* *mp* *p*

E♭ A. Sax. 1 & 2 *ff* *pp* *p* *mp* *p*

B♭ T. Sax. *ff* *pp* *p* *ff* *pp*

E♭ Bari. Sax. *ff* *pp* *p* *ff* *pp*

ca. 45" **H** less intensity

60 61 62 63 64 65 66 67 68 69 70 71 72

C Tpt. 1 *pp* *ff* *pp* *p* *mp* *p*

C Tpt. 2 & 3 *pp* *ff* *pp* *p* *mp* *p*

F Hn. 1 & 2 *pp* *ff* *pp* *p* *mp* *p*

F Hn. 3 & 4 *pp* *ff* *pp* *p* *mp* *p*

Tbn. 1 & 2 *pp* *ff* *pp* *pp*

B. Tbn. *pp* *ff* *pp* *pp*

Euph. *pp* *ff* *pp* *p* *mp* *p* *pp*

Tba. *pp* *ff* *pp* *pp*

ca. 45" **H** less intensity

60 61 62 63 64 65 66 67 68 69 70 71 72

Timp. *pp* *ff* *pp* *pp* *ff* *pp* *pp*

Perc. 1 *pp* *pp* *pp* *pp* *pp* *pp*

Perc. 2 *pp* *ff* *pp* *pp* *ff* *pp* *pp*

Perc. 3 *pp* *ff* *pp* *pp* *ff* *pp* *pp*

Perc. 4 *pp* *ff* *pp* *pp* *ff* *pp* *pp*

Pno. *pp* *ff* *pp* *pp* *ff* *pp*

Elec. *pp* *ff* *pp* *pp* *ff* *pp*

8 as electronics decay, cue bass drum

60 61 62 63 64 65 66 67 68 69 70 71 72

73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

Picc. *p* *f* *p* *p* *f* *p*

Fl. 1 *p* *f* *p* *p* *mp* *p* *p* *f* *p* *p* *f* *p*

Fl. 2 & 3 *a2* *p* *f* *p*

Ob. 1 & 2 *p* *mp* *p* *Ob. 1* *p* *f* *p* *Ob. 1* *p* *f* *p*

Eng. Hn. *p* *mp* *p* *p* *f* *p* *p* *f* *p* *p* *f* *p*

Bsn. 1 & 2 *p* *mp* *p* *Bsn. 1* *pp* *mf* *pp* *p* *f* *p*

B♭ Cl. 1 *p* *mp* *p*

B♭ Cl. 2 & 3 *Cl. 2* *Cl. 3* *p* *mp* *p* *pp* *mf* *pp*

B♭ B. Cl. *p* *mp* *p* *pp* *mf* *pp*

E♭ A. Sax. 1 & 2 *p* *A. Sax 2* *p* *f* *p* *p* *mp* *p*

B♭ T. Sax. *p* *f* *p* *p* *mp* *p*

E♭ Bari. Sax. *p* *mp* *p*

C Tpt. 1 *p* *f* *p* *harmon mute stem in* *p* *mp* *pp*

C Tpt. 2 & 3 *a2* *p* *f* *p* *harmon mute stem in* *p* *mp* *pp*

F Hn. 1 & 2 *a2* *p* *f* *p* *Hn. 1* *p* *f* *p* *p* *f* *p*

F Hn. 3 & 4 *p* *f* *p*

Tbn. 1 & 2 *ff* *pp* *p* *f* *p* *p* *f* *p*

B. Tbn. *ff* *pp* *p* *mp* *pp* *p* *f* *p*

Euph. *ff* *pp* *p* *mp* *pp* *p* *f* *p*

Tba. *p* *mp* *pp*

Timp. *ff* *pp* *pp* *mf* *p* *ppp*

Perc. 1 *Vib* *arco* *p* *arco* *p* *arco* *p* *arco* *p* *arco* *p*

Perc. 2 *ff* *pp* *ppp* *Mar* *pp*

Perc. 3 *Glsp*

Perc. 4 *mp*

Pno.

Elec. 9 10 11 12 13 14 15

73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89

99 100 101 102 103 104

Picc.

Fl. 1

Fl. 2 & 3

Ob. 1 & 2

Eng. Hn.

Bsn. 1 & 2

B♭ Cl. 1

B♭ Cl. 2 & 3

B♭ B. Cl.

E♭ A. Sax. 1 & 2

B♭ T. Sax.

E♭ Bari. Sax.

C Tpt. 1

C Tpt. 2 & 3

F Hn. 1 & 2

F Hn. 3 & 4

Tbn. 1 & 2

B. Tbn.

Euph.

Tba.

Timp.

Perc. 1

Perc. 2

Perc. 3

Perc. 4

Pno.

Elec.

99 100 101 102 103 104