The Final Hour
Article by the composer
July 2019

The composer
Having studied composition with Broadstock and Conyngham at the University of Melbourne, Stuart Greenbaum holds a position at the Melbourne Conservatorium of Music as Professor and Head of Composition. He is the author of over 200 works including 15 sonatas, 7 string quartets, 5 piano trios, 5 concertos, 4 symphonies and 2 operas.

Words and music
Stuart Greenbaum and Ross Baglin have been working together since 1985 when they met in Doncaster, Melbourne. It was night and raining heavily. Stuart auditioned to join Ross's band, The Front. They never performed live, but wrote a lot of pop songs. And two operas (*Nelson* and *The Parrot Factory*), a dozen choral works and numerous art songs. Their major choral works include *The Foundling*, commissioned by Cantori New York in 1997 and *From the Beginning* commissioned for the sesquicentenary of the Royal Melbourne Philharmonic in 2003.

Concept Albums
I have always been drawn to the idea of concept albums. Four that have been notably influential for me are Pink Floyd's *Dark Side of the Moon* (1973), Mike Oldfield's *Tubular Bells* (1973), Jean-Michel Jarre's *Oxygene* (1976) and Pat Metheny Group's *The Way Up* (2005). The overlapping tracks and unifying themes intensify the cumulative experience.

For many years I had this idea of making a 'concept album'. It's hard to use the term 'album' without also thinking 'vinyl'. But it wasn't 33 revolutions per–minute that that was playing on my mind. And neither necessarily was the term 'concept' – shouldn't that be a given for any work of art? Rightly or not, the concept album is a relatively specific genre. Aligned with progressive rock, concept albums tend to feature extended duration, are often largely instrumental and feature overlapping tracks (or segues), frequently changing or unusual time signatures and extended harmonies; all tied together by a unifying theme.

I taught Pink Floyd's *Dark Side of the Moon* (1973) for over 20 years in a 2nd year undergraduate subject (Electro-Acoustic Music) and enjoyed all the conversations with students about what is wonderful and/or flawed about it. I think what I love most about it is the intention. That pop/rock might be more than an incidental playlist. That it might aspire to grander structural design. For the same reason, I'm also very engaged by Mike Oldfield's *Tubular Bells* (same year, 1973). Granted, some of that album is arguably dated (strange voices, out of tune timpani, a second–half that runs out of ideas). But certain sections are highly memorable and Oldfield's aspiration towards something symphonic still seems a worthy quest. The 70's, in general, was a fertile decade for further exploration of The Beatles' *Sgt. Peppers Lonely Hearts Club Band* (1967) and beyond.

Before returning to my own music, I would also cite Miles Davis and Pelle Mikkelborg, *Aura* (1985), Steve Reich, *The Cave* (1993) and Pat Metheny and Lyle Mays, *The Way Up* (2005). They are also points of reference that may not exactly be concept albums in the 1970's prog-rock sense, but which have been influential in determining what I wanted my own to be. Perhaps most of all, the albums of Pink Floyd from the early 70's onward was what seemed most striking. And in particular, the brooding instrumental

interludes in minor keys with low-register minor 3rds, ostinato patterns and eerie sound design – such as *Sheep*, from *Animals* (1997).

This had all been brewing for some time in my aesthetic sense. For over two decades my music has been a fusion of pop, rock, jazz and minimalism with the canon of Western classic music. But this has mostly been presented in concert – as commissioned by soloists, ensembles and orchestras. It's indicative of the contemporary classical music industry that composers are generally commissioned to write works for performance (which may or may not be subsequently recorded).

Genesis

When the opportunity came about in the second half of 2013 to take study leave solely to write new music, it seemed a golden opportunity to throw myself headlong into the land of the concept album. In May 2012, I asked my longstanding collaborator, Ross Baglin, to write a poem (around 500 words) called *The Final Hour*. And also asked that the poem concluded with those three words. This process (from January 2013) took around 8 months and went through 24 drafts until we arrived at the text I wanted and Ross was happy with. Behind the 24 drafts lie many more emails, phone calls, Skype sessions and the occasionally luxury of working in the same room (Ross is Australian but lives in London).

I wanted to create a commentary about the perception of the passing of time in our modern new-millennial lives. *Of how we value it.* An hour of time (not just the final hour) and by extension, the duration of a life. I used the text Ross created as a structure for an instrumental studio orchestra with electronics and narration of the text. Combining the western classical tradition with jazz, pop, electronica, sonic arts and minimalism, *The Final Hour* is 60 minutes long (to the nanosecond) in 10 overlapping sections in an arch form proportioned around the Fibonacci series. There is a 2–second gap between the two half–hour parts as a nod towards flipping a vinyl record over to the B–side.

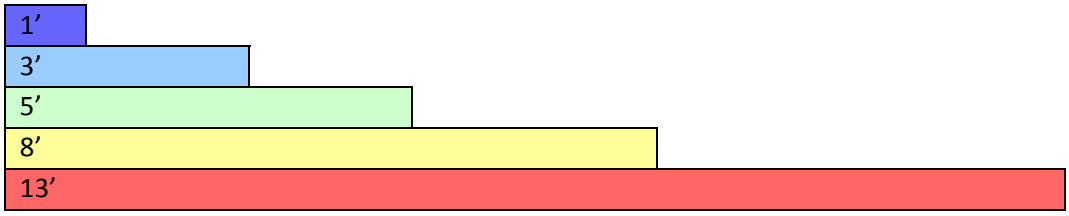
I wrote the short score on study leave in the second half of 2013 and orchestrated those lines that could be represented in notation (1,495 bars). Having made it this far, the idea of realizing it in sound seemed a bridge too far and I promptly put it aside for 2 years. But early in 2016 I caught up with Melbourne pianist and composer Luke Howard over lunch and afterwards showed him the score. It occurred to me that Luke would be the ideal person to push the recording project forward (not only as a musician but as a producer). And he was interested and available so work re-commenced, including Luke's suggestion to add a rhythm section (keys, bass and drum kit), orchestrating the string section, producing instrumental parts, setting up MIDI and audio technology and developing a strategy for recording. This involved rendering synth lines and recording each individual musician track–by–track, layer–by–layer. This continued on into 2017. And 2018. By 5 December 2018, the work was mastered.

Structural architecture

The two half–hour parts to the work further divide into ten sections:

section	title	**duration** (minutes)
1	*prelude*	1’
2	*pulse and presence*	3’
3	*memory jar*	5’
4	*speeding car and broken signal*	8’
5	*fate is where lost chances go*	13’
6	*city towers*	13’
7	*thistle seed*	8’
8	*stationary trains*	5’
9	*the atmosphere*	3’
10	*coda*	1’

This can be shown proportionally as a graph:



The expanding sections relate to the Fibonacci series quite closely, with one small alteration. A Fibonacci series technically shows the sum of the previous two numbers as follows:

1, 1, 2, 3, 5, 8, 13 etc.

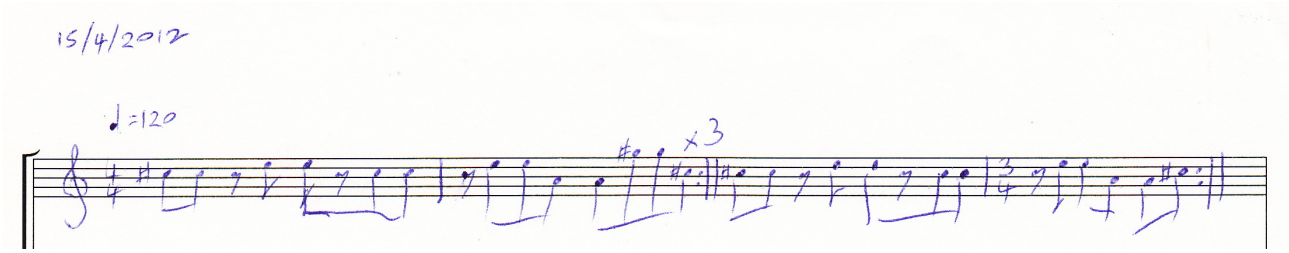
That would be fine, but adds up to 33 and I was seeking a series that would add up to 30 (half an hour which could be doubled to make an exact hour). So I went straight from 1 to 3 and then followed the sequence, making:

1, 3, 5, 8, 13 (=30)

This is then reversed (arch form) to make a structure of exactly 60 minutes. The presence of Fibonacci ratios at the ‘macro’ level is also woven into the middle and ‘micro’ levels as discussed below within the section analysis.

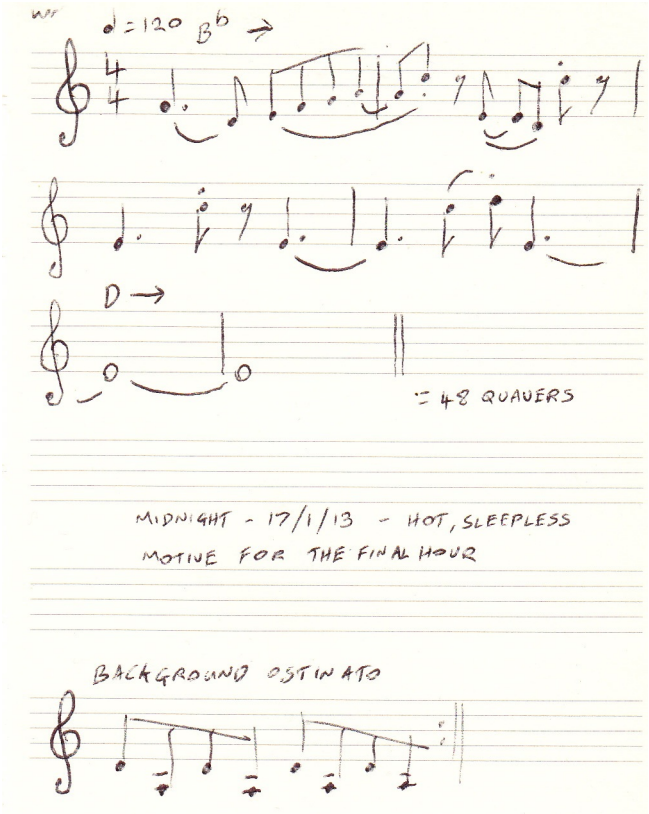
First musical sketches

With the 60–minute structural scaffolding in place, I wrote fragments of music (chord progressions, melody, ostinato, rhythmic cycles) as emotional and psychological responses to the text. But the very first material actually dates back to April 2012:



This sketch from 15 April 2012 sat in the drawer for over a year with a very general idea of 'The Final Hour' and only later was specifically aligned with Part 2 (*city towers*).

Probably the second musical idea to emerge was a theme written around midnight (a hot sleepless January night):

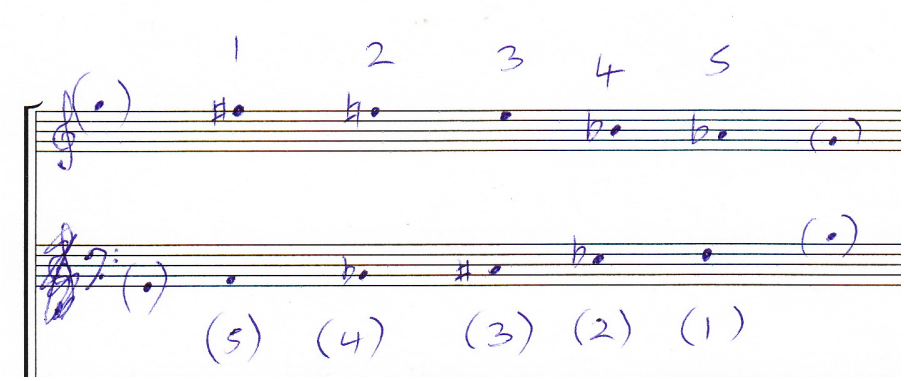


This theme is found in Part 1 (*speeding car*).

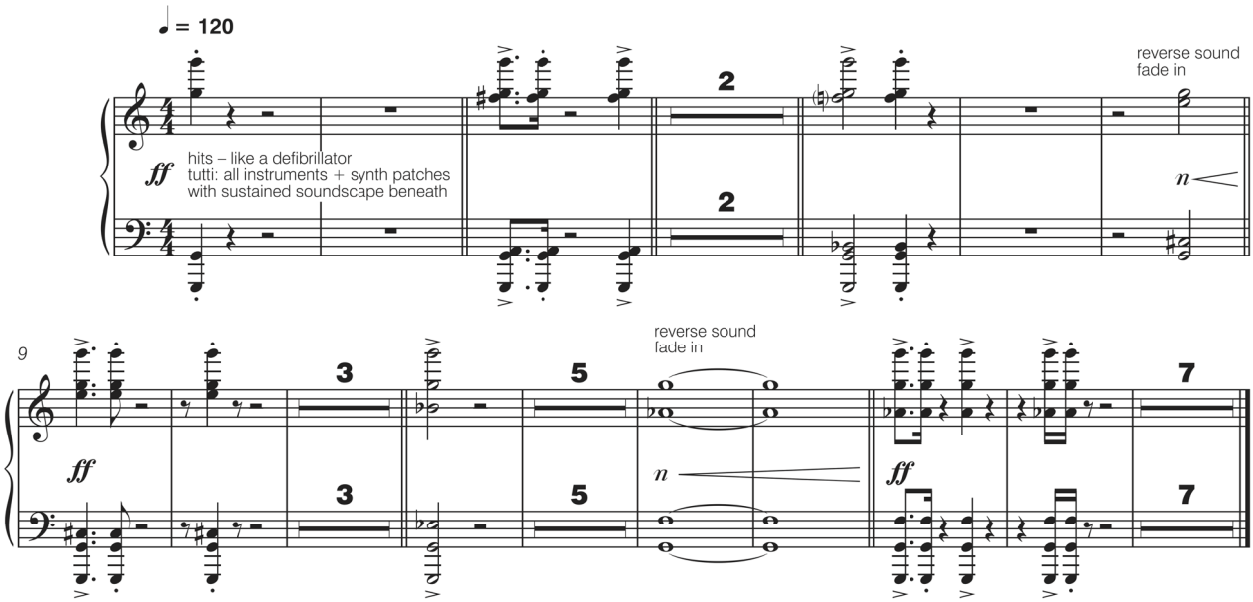
PART 1

1: prelude

This 60–second introduction has no text. It is a series of orchestral tutti ‘hits’ based on a harmonic sketch of two pitches collapsing inward in contrary motion:



It represents the idea of birth or re-birthing – metaphors of defibrillators or imploding stars were part of that concept. And the hits are spaced apart in bar sections of 2 – 3 – 3 – 5 – 8, which have Fibonacci proportions:



In between these hits are free drum kit fills (marked ‘ominous – like thunder’) along with environmental sounds of offices, trains, wine glasses, camera shutter clicks and such: literally a snapshot of sounds that will have a presence and meaning over the subsequent hour ahead.

2: pulse and presence

This is the first section to include text narration:

Pulse. Presence. This alone,
And then another.
Grafting darkness
Into resonance,
Then sense and period,
Fracturing to rhythm -
This. Then nothing. And another
And though the radial clock that struck
This final hour of your concealment's span
Has moulded worlds from circling hands
And long forgotten what the written sands
Inked into rock before your time began
It stops a moment now to twist the strands
Of pulse and presence into time's command

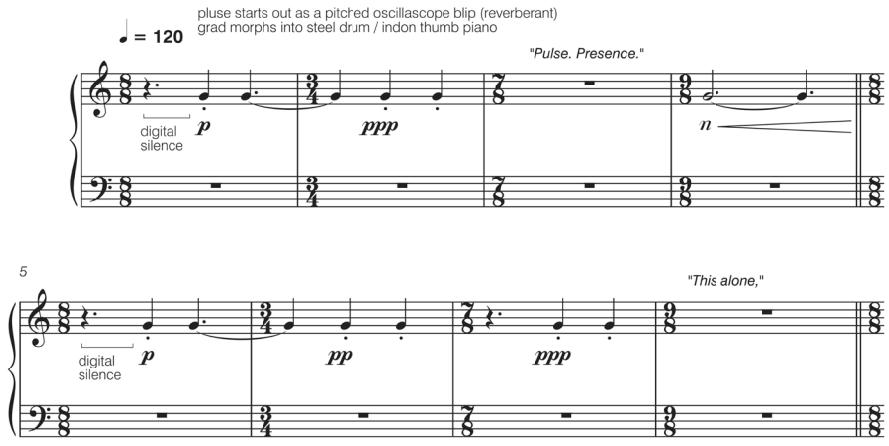
Baglin is describing the emergence of a human life in utero (in the womb). For this section, I created a rhythmic cycle of 30 quavers that would have energy and propulsion:

3+2+3 Δ | Δ
2+2+2 | | |
3+2+2 Δ | |
3+3+3 Δ Δ Δ

The use of this technique (found in many of my works) was notably influenced by two works from the 1980's – *Tehillim* (1981) by Steve Reich; and *The First Circle* (1984) by Pat Metheny and Lyle Mays. These cells represent the smallest or 'micro' level of Fibonacci relationships in the work. And this translated into a 4–bar metrical pattern:

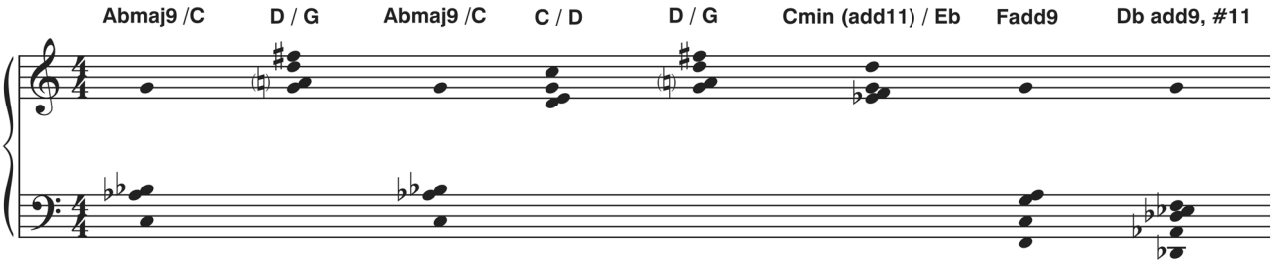
4/4 + 3/4 + 7/8 +9/8

At first, this 30–quaver, 4–bar pattern is fragmented, presenting an unstable oscilloscope–like blip, to represent the emergence of life:

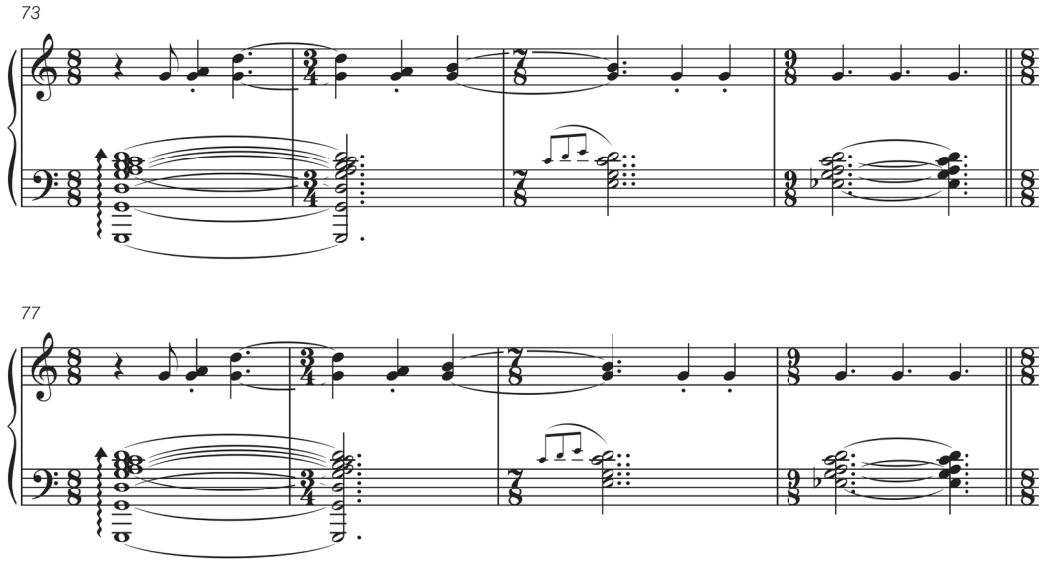


This in turn has harmony overlaid against the now more constant G (above middle C) with alternating shades of minor and major harmonies:

pulse and presence, harmonic reduction: bars 63 – 86



And that is followed by the beginnings of a melody that will later become the central melody for the entire work:



It is based around G major with modal alternation (E natural / Eb) and the emerging melody is anthemic, initially using just 4 notes (G–A–B–D) – a G major triad with the addition of the second degree of the scale.

The 30–quaver cycle as a rhythmic motive appears in sections 2, 4, 6, 9 +10. While notated as above, at times the drum kit is given license to play a fully crotchet–based metrical scheme against that:

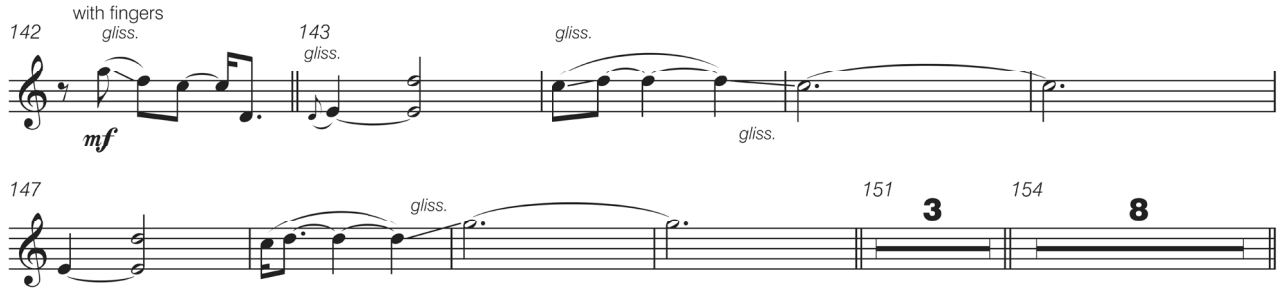
4/4 + 3/4 + 4/4 + 4/4

The quaver pulse is shared / locked–in either way; but this creates an ambiguity of metrical grouping. The latter is like 4 bars of 4/4 with a missing beat – and with notably offbeat quaver syncopation over the final two bars of 4/4. By contrast the written metre ending with 7/8 + 9/8 creates an (at first) unpredictable alternation of cells of either 2 or 3 quavers.

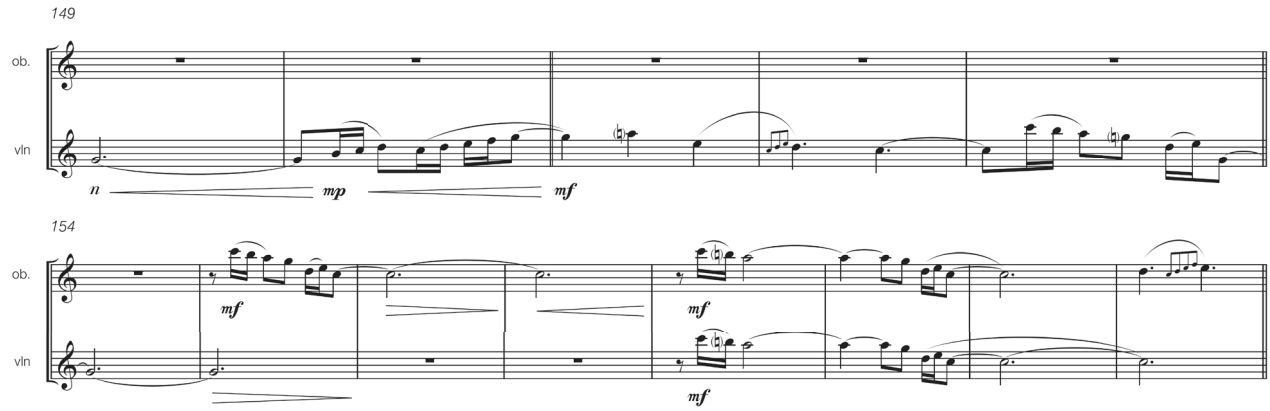
3: memory jar

Take out the glass you planted once
Below a sapling tree
And turn the lid – a lock
Of child's hair, (brown, your own) …
A desiccated chrysalis …
One Summer's ghost of thistledown …
A picture of your mother
Dancing with a man
You thought to be your father
Until their last proprieties
Broke open like the glass
Under the tall, memorial leaves
One morning like this
(Then nothing
Then another).

Memory Jar is aimed at portraying the beauty and sadness of nostalgia. It changes to a 3/4 metre for the first time in the work and exploits the hemiola relationships that come with that (3:2 + 4:3). It is loosely in a ternary form (ABA) with the longest section first and the shortest (return of A) last. It features the fretless electric bass as a front-line melodic instrument, presenting an 8–bar antecedent/consequent phrase:



The violin and oboe answer this in flowing counter–melodic style, first in call and answer, and then coming together:



The middle B section features flowing connected semiquavers in programmed (MIDI–triggered) synth lines that highlight different groupings:

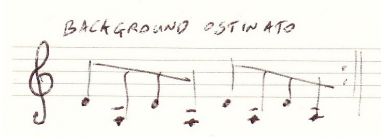
All nine pitches start out panned centre and then gradually fan out across the full stereo field. The effect is most apparent listening on headphones – somewhat akin to watching a 2–dimensional image gradually come to life in 3 dimensions.

4: speeding car and broken signal

This section describes the unpredictability of a road accident:

The hour holds what happened, how you walked
Into the camera's eye at 2 am, still unafraid
For what the hour ahead might hold
Was not yet what had happened next :
The liquid circles of the citric lights
Lit links of raindrops like electric jewels
Upon the windscreen as you turned the key ;
The car rode softly into rolls of light
And the odometer quickened over lines
Toward the signal flash, and then a speeding car
Flew like a bolt of colour through the rain -
And shop-lights
Diced to biscuit glass,
Were dancing on the tar,
Bright particles of circumstance.

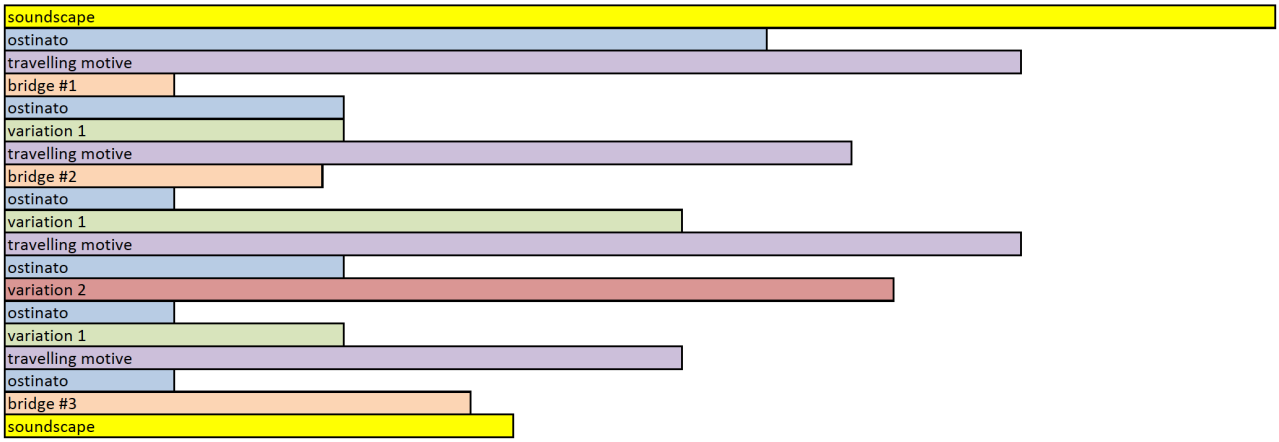
It is built over a simple quaver ostinato oscillating between two pitches a perfect 4th apart:



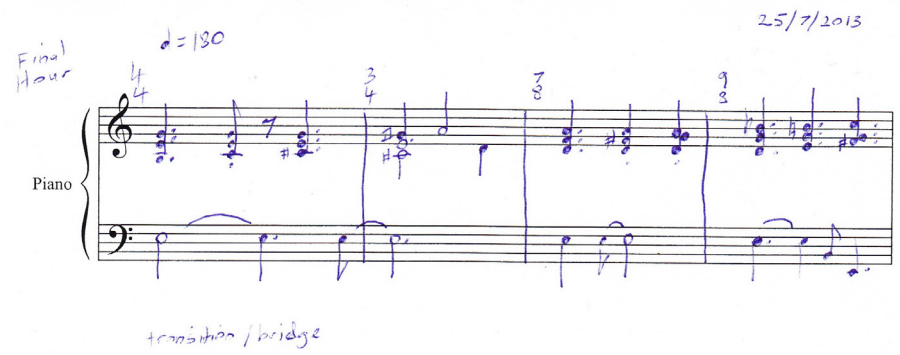
The 8–minute structural arc of this 4th section is made up of 5 elements:

- soundscape (pulseless)
- ostinato
- travelling motive
- bridge (accident / interruption)
- variations

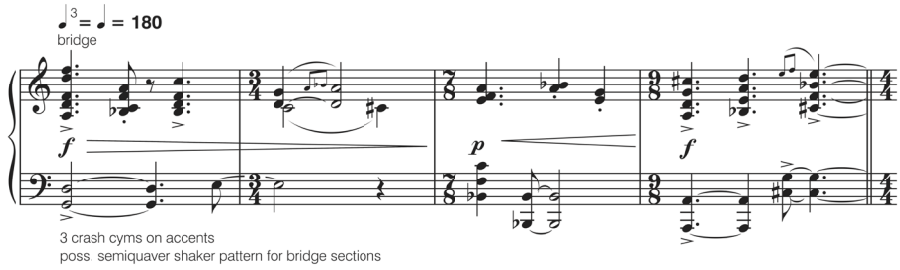
These 5 elements play out in changing order and variable length, as shown in the following diagram:



The travelling motive and variations are shared between fretless bass, distortion guitar and soprano saxophone. Of particular note are the three bridge sections that reference the earlier 30–quaver grouping – but at a much faster speed (crotchet = 180):



This early sketch from July 2013 was further refined melodically and harmonically:

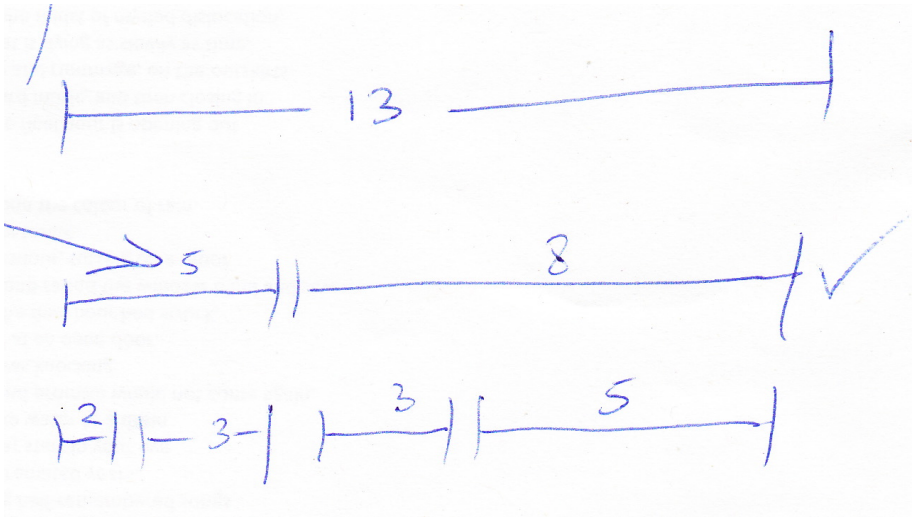


The bridge idea was intended not only for overall thematic connection (cross-pollination between sections), but also to convey a heightened 'accident alert' mode. It interrupts the steady driving feel of crotchet = 120 by metric modulation; and the higher tempo of the alternating groups of 2 and 3 quavers is here even harder to predict. The bridge section gets longer each time, leading to a final cascading of "*shop-lights Diced to biscuit glass…dancing on the tar*". This end–of–section climax includes a frenzied soprano saxophone solo together with sounds of a train crossing. Interestingly, the poet imagined a collision of two cars at an intersection. And I imagined a car colliding with a train at a signal crossing. Either way, it's a frightening scenario that stands as a metaphor for the fragility of human life.

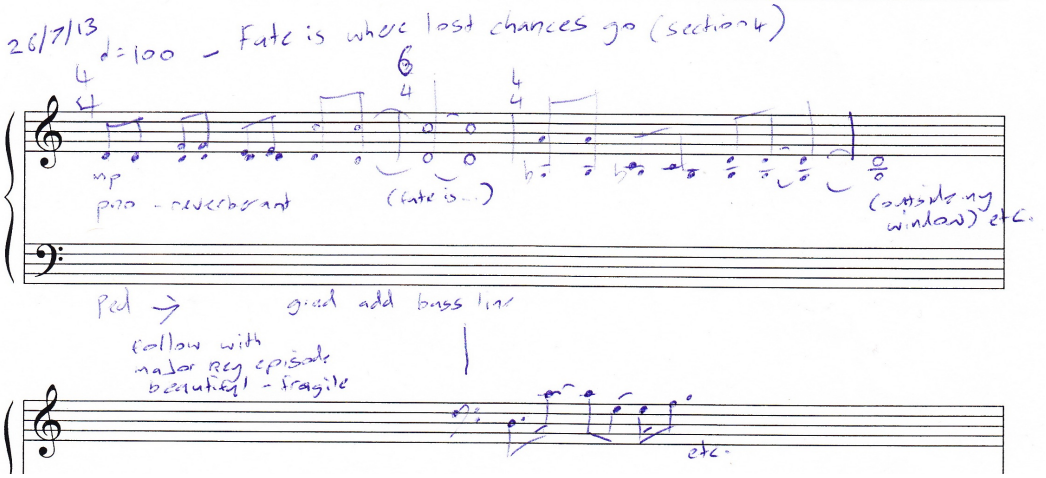
5: fate is where lost chances go

Fate is where
Lost chances go
Outside my window,
Snow is shaped
To the mask of the wind
That blows its cold forgetfulness
Over all that lies below

The final section of Part 1 is 13 minutes long. And as the hand sketch below shows, there was an intention to further subdivide this according to Fibonacci proportions. Certainly, the middle division of 5+8 minutes is marked by the start of the extended fretless electric bass solo against long string section chords. The further subdivision (bottom line) made sense on paper, but in reality the outer sections of '*fate*' utilize a number of metric modulations; and at crotchet = 50, that smallest structural division did not eventuate.

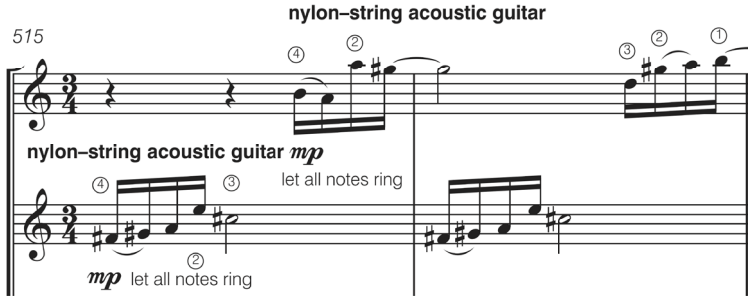


The opening motive for *fate* was written in July 2013 and at that time was seen as being section 4 (eventually section 5):

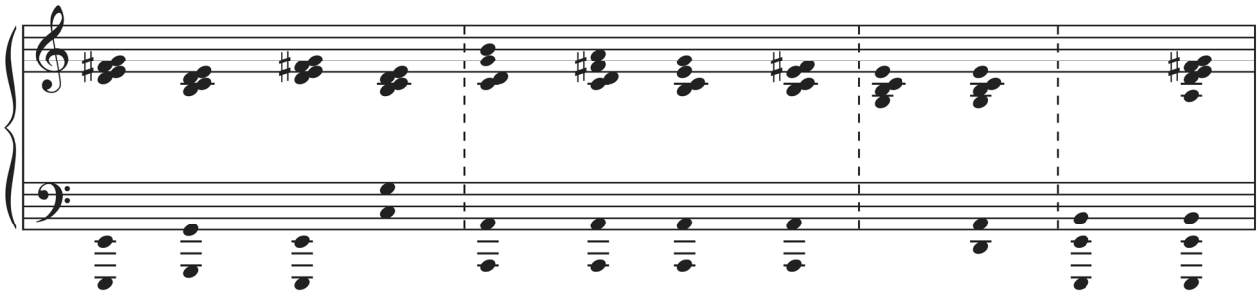


In addition to the somewhat minimalist piano motive which expands out to the minor 3rd, major 2nd and then minor 7th, the countermelody in the fretless bass presents that 4–note motive roughly in reverse (starting with the 7th).

After the opening 95 seconds of *fate*, the harmony shifts up a major 3rd to F#, with multiple guitars dovetailed in call and answer:



These patterns also notably make use of the interval of a 7th. Rhapsodic oboe melodies are overlaid leading to a metrical shift to a 12/16 metrical re-grouping, followed by a return to the guitar counterpoint in 3/4. This creates a small internal structural arch, referencing the larger global arch of the two parts. The fretless electric bass solo that commences 5 minutes into *fate* is full improvised over a two and a half–minute span, with the instruction: "SOLO: freely – lyrical, consoling, mystical. Make use of delay and/or overdubs (polyphony)." Additionally, the bass player is given jazz chord symbols (Emin9, G add 11, 13 etc.) that reflect the harmony in the strings underneath. A harmonic reduction of the strings shows the following E minor–based progression:



This is scored in 4/4, but the harmonic shifts are so slow that the music is almost beyond metrical time – or at least highly fluid. The bass player, however, has the advantage of click track on headphones in recording. So while they are free to go off–the–grid metrically, they can target the approach to each new chord (especially those with a changed bass note) in harmonically musical ways. In my mind this bass solo represents an oasis in the middle of a barren or frozen landscape.

After the fretless electric bass solo, the opening *fate* material returns – though with a number of motives either in retrograde or inversion. This overtly references the possibilities of arch form. And so there are arches (3/4 to 12/16 and back to 3/4), within arches (*fate*) within an overall arch structure for the entire work. This can be loosely considered like fractals: self–similarity on multiple levels or scales.

PART 2

6: city towers

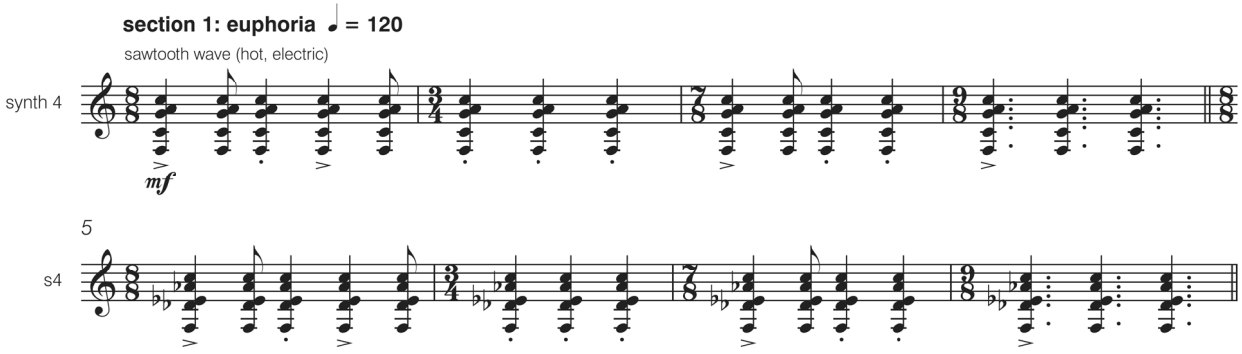
Like *fate* before it, *city towers* is 13 minutes long in 4 sections:

section	title	duration
1	*euphoria*	5'
2	*intrigue*	4'
3	*bleak*	3'
4	*despair*	1'

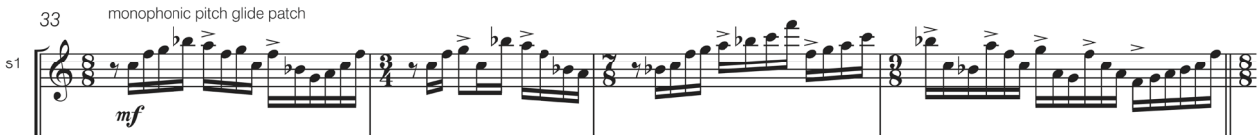
Night falls as logos crystallise
On city towers, whose abstracted lights
Cut vacant desk, and empty screen
That trafficked rumour through the day
Like streetlights spelling lost commands
To silent intersections, in the dead of night.
And yours is the last desk, there, to the right :
Your photos, and mug-ring, some property deeds,
And here, where the final hours are filed
The minutes of meetings in margins of power :

Part 2 of *The Final Hour* starts with pulsing energized synth chords outlining the 4–bar, 30–quaver motive first found in *pulse and presence*. The opening direction for *city towers* is 'saw-tooth wave – hot, electric'. I wanted a synth patch that would be like the sound of electricity. And so, on the advice of my co–producer Luke Howard, we took a laptop down to the Melbourne Electronic Sound Studio (MESS) in North Melbourne to access an original Prophet 10 synthesizer, retro-fitted with MIDI to allow it to be triggered by computer:

The analog equipment is not without its challenges – it took some time to get in tune; and to reliably voice chords of up to 9 notes (5 in the upper staff, up to 4 in the lower). But the sound quality is quite fat – arguably richer than a software emulation version of the same synth:

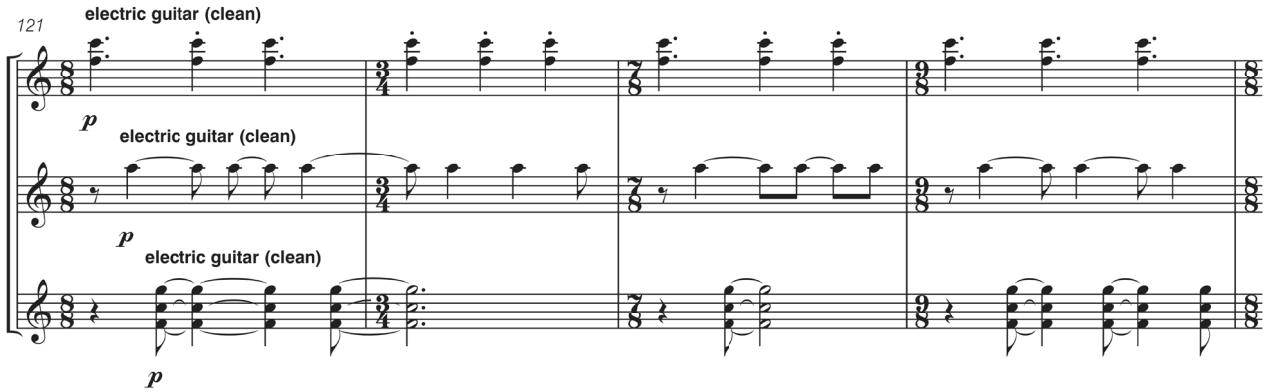


This 8–bar phrase harmonically shows modal alternation between F (add9) and Fmin7 (add b13). It is repeated again with a low bass entry. And then those 16 bars are themselves also repeated. After 32 bars, another element is added – a higher register semiquaver arpeggio figure:

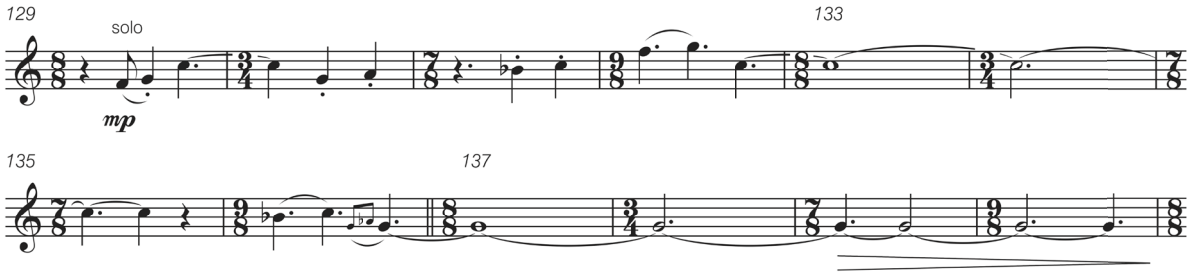


This line in turn is harmonized in 3rds. The synth patch for this line incorporates a monophonic pitch–glide effect that is more pronounced the wider the intervallic leap. This type of mono synth patch was notably popularized in the 1970's through groups like Emerson, Lake and Palmer on albums like *Brain Salad Surgery* (1973) – and to be precise, around 4'55 into *Karn Evil 9*. The mono patch used by Keith Emerson is a good reference point. The album credits list 'custom built Moog Synthesizers' as the likely sound source.

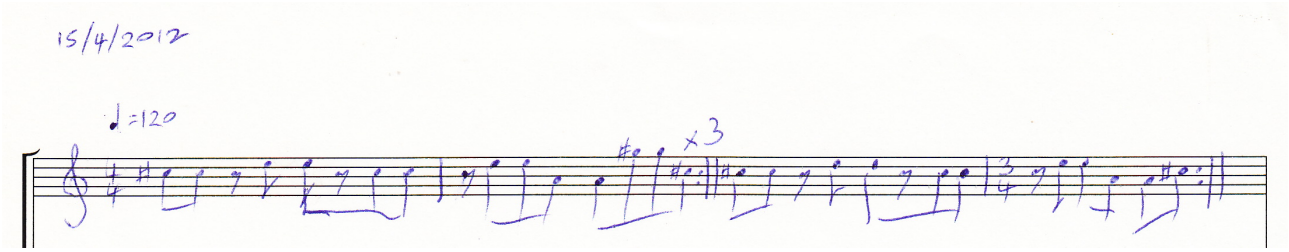
The opening material continues for 120 bars and then morphs into a hocket texture created by 3 electric guitars.



4 minutes in, the central anthem motive from *pulse and presence* appears is overlaid in the oboe – still not fully formed; but more so than in Part 1:

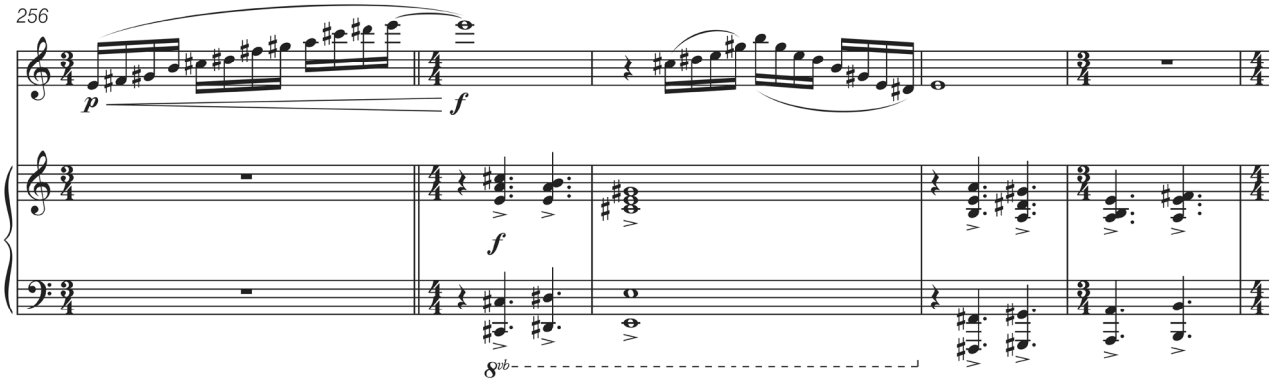


The two–bar antecedent is answered by the consequent in bars 3+4. In all, the material, sound and layering of elements are designed to conjure the euphoria of big cities lit up at night. But underneath the electric, neon surface lies darker, seedier realities and 'euphoria' then shifts to 'intrigue'. Electric guitars gradually weave a canonic web around the very first material composed for *The Final Hour*:



The internal repeat (shown here after two bars) was jettisoned in favour of using the full 4–bar phrase and allowing the subsequent canonic buildup to generate forward motion. This clearly references Steve Reich's technique of substituting beats for rests. I analysed his *New York Counterpoint* (1985) for my Honours thesis in 1988. It's not a technique I use on a regular basis in a formal way – but using it on this motive is perhaps as close as I have come to doing that.

This builds to an ensemble climax at the 8–minute mark of Part 2:



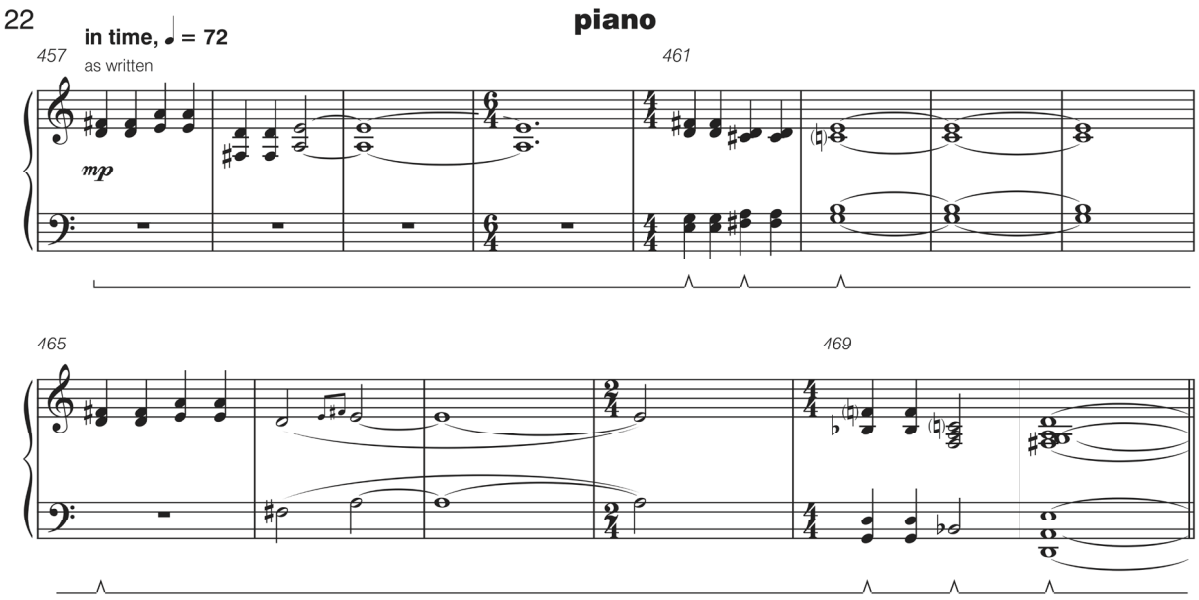
It's no accident that this 4–bar riff is in 4/4 with the final bar dropping a crotchet (3/4). It adds up to 30–quavers – referencing the main motive for the work. It is repeated 3 times before subsiding back to the muted guitar riff that the section is built over. And this in turn slides further into the 3rd '*bleak*' section. With this comes a reprise of the 4–bar, 30–quaver metrical structure; though now mostly in the very low register with just occasional harmony and colour woven over a very slow rate of change – almost nothing is happening. It could be interpreted therefore as '*the dead of night*'. Finally, for *city towers*, the last minute bottoms out into '*despair*'. Rhythmic energy dries up leaving mostly low sustained organ tones, low sustained strings and a fretless electric bass solo – a last glimmer of light hidden away in a deserted unseen laneway or basement.

7: thistle seed

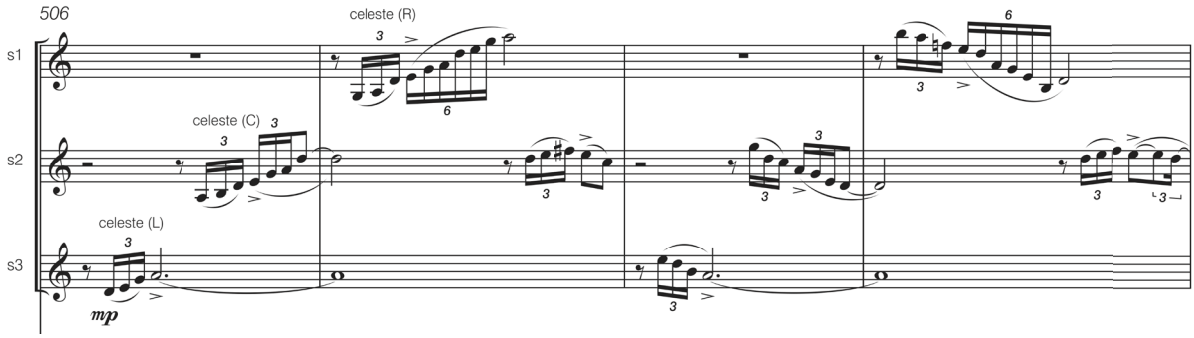
From the depths of despair arises a hopeful prayer:

"How heavy the wind treads over the reeds,
How numb the clock, alone with its hours;
Lord, float me like a thistle seed
And find my place to flower"

Despite the religious reference, it is essentially a secular prayer; a call to find place and purpose in a world measured by financial success. This is represented by the voice of a solo violin (marked 'moody, rhapsodic – intense, lyrical') over a glittering synth pedal note. And this leads to the introduction of a piano choral motive – adapted from the earlier chant–like figure from *fate*; but now transformed harmonically into the major:



Solo violin and piano continue to work around each other leading to a dance–like section built around triplet semiquavers in MIDI–programmed celeste synth lines:



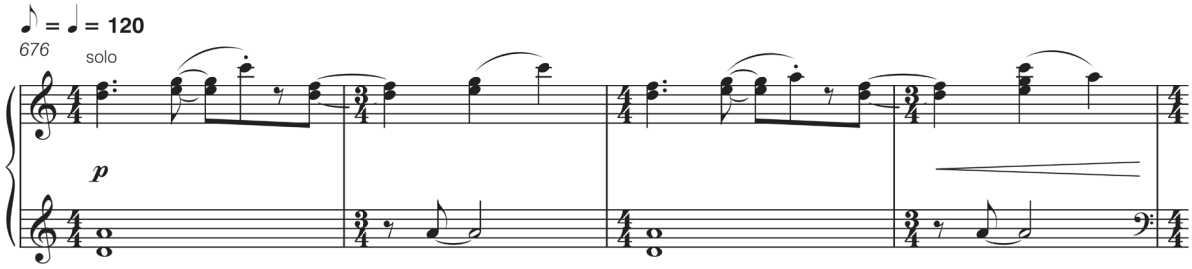
The polyphony continues to thicken and overlap with the addition of a shuffle feel in the live drum kit and a written–out solo for the fretless electric bass.

When the choral theme returns (again the influence of arch forms), the violin and piano now come together.

8: stationary trains

Somewhere in the final hour –
The square, illuminated faces,
Singing in the base of a glass,
Constructing half-remembered songs
From long-cremated years,
I saw the fear start in your eye
And twist like water to a drain ;
That hope and promise would not come again,
And dawn was knocking
Like a bailiff at a broken door.
Then, when the final hour had struck,
You turned and raised the window blind and saw
A thistle's armour, rusting on a moor
Of stationary trains
A moon the colour of winter rain.

This section recapitulates the material of *speeding car* to a high degree – though not necessarily in the same phrase length or order. It's now a 5–minute section (rather than 8) and further divides into 3' + 2'. After 3 minutes, we get one of the longest continuous speech narratives against semiquaver pattern flow. And then, toward the end, there is variation of the anthem material: a 7–crotchet phrase cast in 4/4 + 3/4 initially in the piano:

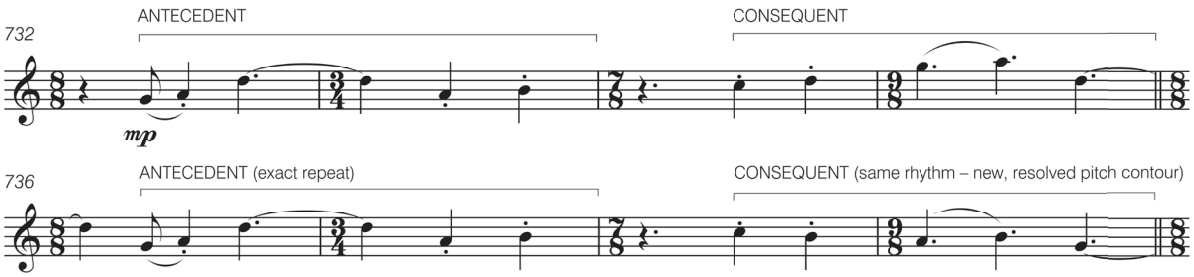


While this is a new metrical pattern, the first 3 notes of the upper line (scale degrees 1, 2 + 5) are, of course, the first 3 notes of the main anthemic motive for the entire work. So, while it creates a notable (if quiet) arrival, it is highly connected to the fabric of the work.

9: the atmosphere

And now the final hour is opening out
Like backward music, slow cadenza
Of the mitochondrion ; the teeming stars
Are ghosted on the dust and racing
Into realms of light, burning, dying
In the cauldron of the blast,
As we hurry, and rummage
On the outskirts of a mortal star
Make love in the midst of myriad dislocations,
And feel the orchestra of cells dissolve
At last to impersonal dissonance ;
The sun treads atoms into flame,
A lifetime shapes about your name,
And far above the atmosphere
Is vaulted with cold tomorrows
As the memory jar opens, the chrysalis flies
The thistledown seed escapes into flower,
And a spiral unwinds and twirls into light
And wakes in the pulse of a final hour.

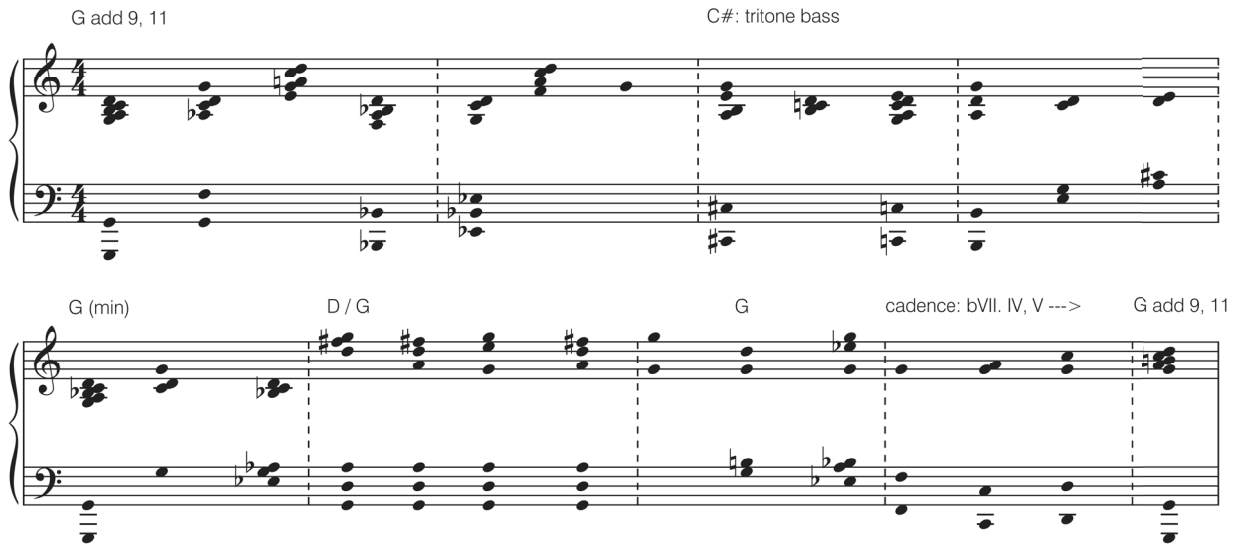
Section 9 features an even longer virtually continuous narrative over the 30–quaver cycle and repeated notes first presented in *pulse and presence* – harking back to the beginnings of the work (modal alternation of major and minor intervals against a fixed pitch of 'G'). That narration lasts 1 minute and leads to the first full statement of the work's main anthemic motive in the oboe:



This is subsequently followed by 8 bars without the anthem – but it then returns in six repetitions, each time with altered instrumentation, register or accompanying harmony. G as a tonic pedal continues throughout these repetitions, gradually also building tension through motoric quaver repetition until arriving at the *coda* for the final minute of the work.

10: coda

The *coda* contains no further narrative; it is a purely instrumental conclusion – though certainly intended to sum up the full drama of the work. It continues the rhythmic flow and tension built across the previous three minutes with a few notable differences. The last 60 seconds contains a faster rate of harmonic change than anywhere else in the work. It achieves this through chromatic alterations, modal alternation, alternative bass notes and metrical variation. The anthem melody is still in play, but not as full phrases – these are now deliberately fragmented into smaller units, often left suspended and un-resolved; or resolving melodically, but to unexpected harmonic change. Most of all, the harmonic progression is deliberately designed to delay resolution until the very end. Taken outside of its rhythmic, metrical context, a reduction of this harmonic progression can be seen here:



The central pitch of 'G' is often in play – but generally not as a bass note – and where it is, there is often modal, chromatic alteration above. This is designed to maximize the final cadence to G (albeit with added tones).

Instrumentation

The Final Hour deliberately sets out to combine classical and popular instruments, acoustic and electric, played and programmed sounds. To this end, the orchestral instruments utilized include oboe, soprano saxophone, grand piano, vibraphone, suspended cymbals, solo violin and a string section. The jazz and rock instruments include a rhythm section of electric keyboard, upright acoustic bass and drum kit; 4 synthesizers, 4 electric guitars (also including nylon-string acoustic and twelve-string guitars), electric fretless bass, shaker, triangle and other percussion. Of course, a number of these instruments exist in both worlds. And for this piece (and in my music in general) the instruments are deliberately ambiguous by sound, language and function. The sound world is not attempting to be overtly postmodern. What is attempted and intended is a synthesis, not a collision.

Narration

The narration is deliberately segmented and even fragmented across the full course of the hour–long structure. Sometimes just a word or a line is used, at others some more extended sections are presented. Echo delay is used as a deliberate technique (ie: *another, nother, other,* etc.). This was influenced by the use of this technique in Pink Floyd's *Dark Side of the Moon* (1973), where song vocals on *Us and Them* are given this treatment. Here, the words are only spoken (never sung) – but the influence is clear enough. The words are mostly front and centre in the mix (as they would be in cinematic narration). But at times the narration is filtered (as they are in *fate*) to give a sense of distance. And some syllables are exaggerated: "*fffff–fate is where lost chances go*". The 4–line poem for *thistle seed* is heard first by the main narrator, then heard again repeated in the voice of a young girl.

Additionally, while the text essentially is read from beginning to end, certain lines are repeated, sometimes in quite structuralist ways. In *city towers*, the first three lines:

Night falls as logos crystallise
On city towers, whose abstracted lights
Cut vacant desk, and empty screen

Unfold gradually thus:

Night falls

Night falls as logos crystallise

Night falls as logos crystallise
On city towers, whose abstracted lights
Cut vacant desk, and empty screen

vacant desk – empty screen

desk – screen – vacant

empty (echo delay)

This is an additive / reductive approach (in arch form) to using the text. While the poem would not be read on paper in this way, its function within the musical narrative is already altered; and as the music makes use of additive and reductive techniques, having the narration also affected in this way helps to synthesize the otherwise quite different artistic disciplines of words and music.

Setting narration against a musical backdrop is something that Ross Baglin and I have done before. Our first opera, *Nelson* (2005), has a narrator for some sections; they were played by an actor (not a singer) and we felt they worked effectively. The principle is similar here, except that it is at times additionally altered through editing and sound processing.

Environmental Sounds
In addition to the studio orchestra and narrator, *The Final Hour* makes use of environmental sounds ('foley' in cinematic terms). These sounds directly relate to the text and include the following:

Office sounds
filing cabinet shutting, scissors cutting, computer keyboard typing, phone ringing, writing on paper, scanner
Sounds of (or relating to) children
music box, young girl's voice, children playing in the backyard, breaking stick
Car sounds
car ignition start/stop, windscreen wipers, car door open/close, car handbrake, car seatbelt lock
Train sounds
train crossing, boom gate signal
Other miscellaneous sounds
camera shutter click, rummaging through box, ice cubes in glass of water, wine glasses rubbed and tapped

Sound Processing
As a concept album, the technological possibilities of sound manipulation were fully in play. Not all sonic transformations that were attempted were used or kept. Some audio processing was conceived as part of the compositional process – and marked in the score as such. But some aspects were considered and tried out as part of the post–compositional studio production process. Either way, a basic question was asked: does this enhance the listening experience or detract from it? The most common audio processing techniques used were:

• reversal
• pitch–shift (including slow–down glissandi)
• time expansion and compression
• distortion, grunge and lo–fi
• EQ filtering
• reverb
• delays
• panning and volume

A number of these were automated to allow for gradual change and morphing of sounds.

The recording process
The Final Hour was recorded at Ginger Studios, Melba Hall, Lukktone, Brian Brown Studio, Melbourne Electronic Sound Studio (MESS) and sundry domestic residences and on-site locations (2016 – 2018). Environmental sound recordings were made by the composer. All other audio was recorded in high definition at 96k/24b by Hadyn Buxton (recording and mixing engineer) with Luke Howard and Stuart Greenbaum. It was mastered at 96/32 by Lachlan Carrick at Moose Mastering in December 2018. The recording artists were:

Barry Cockcroft *soprano saxophone*
Celia Craig *oboe*
Daniel Farrugia *drum kit*
Leonard Grigoryan *guitars*
Luke Howard *piano and keyboards*
Craig Newman *fretless electric bass*
Alex Pertout *percussion*
Ben Robertson *acoustic bass*
Marianne Rothschild *solo violin*
Amy Valent Curlis *vibraphone*

The string section was organized by Matt Hoy from the Australian National Academy of Music comprising current and former ANAM musicians:

Zoe Freisberg *violin*
Mana Ohashi *violin*
Matthew Laing *viola*
Anna Pokorny *cello*
Matthew Hoy *cello*
Ben Hanlon *double bass*

The narration was recorded by Australian actor, John Stanton.

The Final Hour was realised as a studio album. It may also be performed live with samples/stems with a small or larger ensemble of players. The work has visual potential including dance and film. The full score is available through the Australian Music Centre and parts directly through the composer.