From Sight into Sound:
The Transliteration of Visual Artistic Practices into Music Composition

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Master of Arts by Research

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Arts and Creative Technologies

June 2022

ABSTRACT

This commentary and portfolio respond to Paul Klee's discussions on the interplay of music, art, simultaneity, and temporality. The central aim is to explore how the convergence of simultaneity and temporality enhances one's experience of art. Klee believed that paintings' sense of spatial temporality combined with their innate simultaneity enriched viewing art, prompting an exploration into whether music's innate temporality could similarly benefit from composed simultaneity. Instead of 'translation,' 'transliteration' conveys that music and visual art are different alphabets, leading to a direct adoption of painting methodologies into music composition. The reason for this approach lies in the belief that music composition can more effectively achieve simultaneity by drawing inspiration from painting, which inherently possesses this quality.

The commentary is structured around three fundamental components: *Composition as Illustration, Timbre as Medium,* and *Music that Looks How It Sounds.* The portfolio showcases three compositions - *blank slate, the sound of wooden dusk, and my piece for DECONSTRUCTED BASSOON* - each employing simultaneity within the inherent temporality of music. *Composition as Illustration* discusses music composition's potential to convey concepts and ideas beyond traditional musical communication. *Timbre as Medium* investigates how instrumental timbres influence illustrative communication similarly to visual art mediums. *Music that Looks How It Sounds* explores creating scores that visually represent the intended concept. Drawing inspiration from composers like Catherine Lamb, Chiyoko Szlavnics, and György Ligeti, known for their visual art influences, this portfolio and commentary examine their composition methodologies and take a departure from their mathematical approaches in favour of embracing a composition method that draws from emotion. The outcomes demonstrate the successful merging of temporality and simultaneity, enriching the process of absorbing illustrative concepts through sound, offering an enhanced listening experience.

I declare that this thesis is a presentation of original work and I am the sole author.

This work has not previously been presented for a degree or
other qualification at this University or elsewhere.

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In 1929, Paul Klee stated 'What already during the nineteenth century was done in music is still to be done in the field of the plastic'.[1] It was supposedly this dissatisfaction with art's quiescence that inspired him to take up painting as his life's profession: he believed that he could help expedite art's modernisation to catch up to music over the course of the twentieth century.[2] But what was the reasoning behind his disdain for the prevailing condition of art? In *In-between Painting and Music—or, Thinking with Paul Klee and Anton Webern* Marcia Sá Cavalcante Schuback suggests his reasons as being:

> Indeed, what music has accomplished, according to Klee, was to bring to form the coming to form as such, "the multidimensional simultaneity" of movement of the one differentiating itself, of time becoming space and space becoming time, of day becoming night and the vice versa, of music becoming painting and the contrary, which defines the core of the making visible, of the appearing as such.[3]

With this interpretation, it is possible to draw the conclusion that what Klee valued in music, and what he felt art had not yet accomplished, was the holding of time: temporality. To admire art, one did not have to lend minutes to hours of their time to absorb an entire picture as they did music. Perhaps it was Klee's dissatisfaction with – as he seems to have viewed it – arts' concise absorption time that inspired him to take his advanced musical skill, understanding, and appreciation, and apply it to painting. The musical practices involved in his paintings did not go unnoticed. Modernist art critic and friend Will Grohmann wrote in his account of Klee's life:

> Klee is the musician among the plastic artists of the 20th century – not in the sense of a transference of laws, which would not be possible, but in the sense of a reconstruction of painting from the spirit of its elements in order to achieve an extensive in dependent configuration of signs or symbols which occasionally approach reality but just as frequently approach a musical score.[4]

It seems to have been clear in Klee's mind, even over a decade before the 1929 quotation, that using methodology associated with music was a steadfast way for the practice of painting to

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[1] Paul Klee, 'Schriften, Rezensionen und Aufsätze', ed. Christian Geelhaar (Köln: Du Mont Buchverlarg, 1976), 130, quoted in Marcia Sá Cavalcante Schuback, 'In-between Painting and Music—or, Thinking with Paul Klee and Anton Webern', Research in Phenomenology 43, no. 3 (2013): 422.

[2] Richard Verdi, 'Musical Influences on the Art of Paul Klee.' Art Institute of Chicago Museum Studies 3 (1968): 82. https://doi.org/10.2307/4104301.

[3] Marcia Sá Cavalcante Schuback, 'In-between Painting and Music—or, Thinking with Paul Klee and Anton Webern', Brill, Jan 1, 2013

[4] Will Grohmann, 'Paul Klee', ed. Edith Karush, Chicago Review 8, no. 2 (1954): 78–87, https://doi.org/10.2307/25293046.

transcend music. In his diaries in 1918, he wrote 'Polyphonic painting is superior to music in so far as the temporal element has more of spatial quality. The sense of simultaneity emerges in an enriched form', implying that the ability to instantaneously absorb all aspects of polyphony through sight predominated the requirement of taking time to listen to a sequence of events before full understanding is gained in music.[5]

A further suggestion within this quotation is that, unlike music, where sound is placed within a temporal framework, visual art creates its temporality through the interplay of shapes and their relationships with each other and the viewer. In this context, painting appears to transcend music by synchronously embracing both temporality and simultaneity. When these two elements coexist within the same art, and as the outsider encounters the interplay of time and the immediate, the artistic experience is enriched. This led me to wonder whether one could achieve this in music composition as Klee felt he had in painting; whether the experience of listening to music with its innate temporality could be enhanced if it was composed with a deliberate and constant simultaneity.

The composition process I have employed in this portfolio has aimed to use visual artistic methods to create a music in which an entire image can be absorbed over a period of time while simultaneously holding the ability to display the entire image at any given moment. A music which possesses both temporality and simultaneity.

This process first involved deconstruction of how I had been taught to write music: linearly, from left to right; melodic lines first, accompaniments and decorations second to third. Indeed, this process would allow my music the temporality of time, but the simultaneity I was seeking was wanting: a listener could not grasp the image instantaneously at any given moment. To create a better intersection, I began to take note of the practices I had employed in – and kept limited to – my own drawing and painting. These practices included selecting concepts to illustrate; framing compelling points of reference; deciding the medium through which a concept could be effectively illustrated; and creating a meaningful colour palette that might emit the emotion behind the illustrated concept.

Then came the reconstruction of my method of composition. I instituted a holistic approach to scoring my works, a process which started with taking pen to paper and drawing the entire composition out. These drawings could be indicative of shape, structure, density, sparsity, or simply emotion. I then sought to mirror these sketches in the music. Rather than writing horizontally – from left to right – I began to "paint" my scores using the shapes and structures found in my sketches. Sometimes, these drawings would be literally mirrored in shape on the score. Others, even if the score looked distinctly different, the overall shape, structure, and emotion of the original sketch were still present. By employing this method, I found that my compositional process transformed from that of a horizontal one to a vertical one: I was more concerned with the overall sound of an individual moment than I was in shaping lengthy melodic lines for individual instruments; the simultaneity Klee valued in painting coming into fruition in my compositional practice

Though it did create an effective base-method of composition, the technique of 'painting' my scores did not only involve the mapping out of lines and shapes. In effort to fully implement painting practice into my composition, I chose two important factors of my painting practice and transliterated them into my composition practice, finally creating a coalescence of the two.

[5] Paul Klee, *The Diaries of Paul Klee, 1898-1918*, (California: University of California Press, Berkeley, 1964), 374.

This frames the research question that has formed the basis of this portfolio: can the transliteration of painting practices into music composition create enhanced illustrations of illustrated concepts, and thus enrich a listener's experience?

TRANSLATION OR TRANSLITERATION?

Translation is defined as taking text or speech from one language and replicating it in a different language in a way that is understandable. Transliteration, on the other hand, is the practice of taking something written in one alphabet and replicating it in a different alphabet in that the pronunciation remains the same but the meaning is not decipherable in the new alphabet.

木漏れ日 ➡ ***TRANSLATION*** ➡ Sunlight filtered through trees

木漏れ日 ➡ ***TRANSLITERATION*** ➡ Komorebi
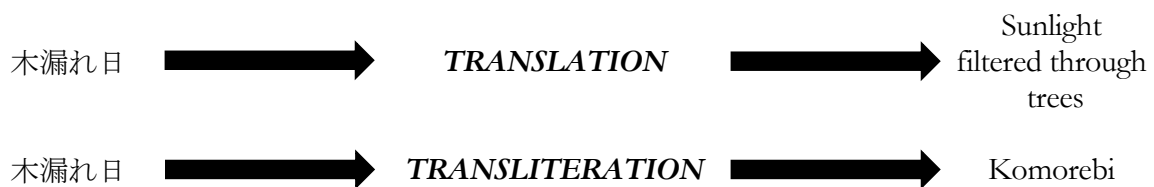
I have opted to use the term 'transliteration' over 'translation' for this technique of composition. While it could be said that music and painting are different artistic languages, I view them as two different alphabets using the same artistic voice. During my process of combining these two art forms, I was not simply choosing one painting practice, finding an equivalent practice in music, and then continuing to use said practice in the way I would if I were only writing music for music's sake. I was selecting painting practices, finding an equivalent in music, and then using this musical equivalent in the same fashion I would if I were painting. I decided to focus on two specific areas:

Composition as Illustration:

The process of using composition to illustrate concepts and ideas.

Timbre as Medium:

Using instrumental timbres to effectively paint my illustrations.

I then sought to bring the practices of painting and composition together entirely, with:

Music that Looks how it Sounds:

Scores that visually resemble the sound of my composition.

I have included three pieces in this portfolio to demonstrate how I have taken the practices of painting and transliterated them into the practice of composition.

blank slate

A set of six string-quartet miniatures inspired by a poem of the same name by Alejandra Pizarnik.

~

the sound of wooden dusk

A trio for soprano saxophone, oboe, and marimba

~

my piece for DECONSTRUCTED BASSOON

A solo work for a bassoon which is slowly put together over the course of the piece.

~

This commentary will begin with an introduction to each of these works with their programme notes, and then explain in detail how I utilised these painting practices in the process of composing them.

blank slate

cisterns in memory

rivers in memory

pools in memory

always water in memory

wind in memory

whispering in memory

Alejanda Pizarnik, Uncollected Poems (1962-1972)

The above poem was my initial inspiration for *blank slate*. The simple, serene atmosphere of the poem projected delicate images of water and air clouded by memory into my mind. Each miniature of *blank slate* illustrates a single line from this poem, depicting these images of water and air through a lens of fuzzy reminiscence.

To effectively convey the sense of memory through this composition, I engaged in discussions of personal relationships with memory while referencing neuropsychological literature. In particular, the fourth chapter of *Cognitive Behavioural Approaches to the Understanding and Treatment of Dissociation – The Brain and Memory*. This chapter discusses three types of memory in particular: 'Episodic memory: Conscious recollections of personal experiences – episodes in one's life often rich in contextual detail'; 'Semantic memory: Nuggets of pure information devoid of context.'; and 'Autobiographical: This is a personal memory, or personal narrative, which combines episodic and semantic recollections'.[6]

cisterns in memory

The first miniature is inspired by the Basilica Cistern in Istanbul. Constructed in the 6th century during the reign of Byzantine emperor Justinian I, it is a 9800 square metre underground construction that was used to store and distil rainwater for the Great Palace of Constantinople. Despite its practical purpose, it has an almost church-like quality. Inside its walls, it stores two Medusa heads and a column engraved with peacock feathers known as the 'Weeping Column'. The miniature's music is quiet with a timbral warp that occurs as the intervals' timbres decay as they are passed around the instruments, to evoke the sense of an ancient structure, distant from us in time and memory.

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[6] Kennerly and Kischka, 'The brain and memory', 56.

> [Autobiographical memory is] a personal memory, or personal narrative,
> which combines episodic and semantic recollections (Conway, 1996).
> Remembering your hospital visit last week requires activation of
> autobiographical-episodic memory, while recalling your date of birth and
> address calls on autobiographical-semantic memory. It is fundamental to our
> sense of self as it contains 'self-defining' knowledge ... The quality of
> autobiographical memory can range from precise to quite vague.[7]

This miniature illustrates the cognitive dissonance between our perceived and actual reality through the sound of a river. When I initially considered the sound of a river in my head, I heard a continuous, gentle, rushing sound. However, after focussed and concentrated listening, I found that the true sound was the opposite: clunky, disjointed, and rhythmic; the sounds of water molecules crashing against rocks and into each other. Taking memory into consideration, this movement juxtaposes my perceived gentle rushing river with my new understanding of their more angular sound.

pools in memory

Kennerly and Kischka refer to 'semantic memory' as 'nuggets of pure information devoid of context.' [8] Essentially, knowing a fact – such as that four-leaf clovers represent good luck – but not withholding the ability to remember where or how the information was learnt. Semantic memory seems to be to memory what pools are to water: pure and contextless by virtue of it being unchanging and unconnected. This miniature illustrates both this form of memory and a pool simultaneously.

always water in memory

> Each time we recall something we piece together a memory, rather like
> putting together a jigsaw puzzle made of memory fragments from different
> parts of the brain (association cortices and amygdala) where they have been
> stored according to function.[9]

My experience of memory is a deeply personal perception and interpretation of my life's experiences. It is not constant or orderly; it is jumbled and biased. My memories are constantly changing, influenced by new information, and new emotions. There is little sense of time, and the mundane is often skipped. Memories are also tiny, physical connections in our brains, easily and quickly created. Memories are deleted just as quickly as they are created. This miniature of the string quartet takes features from each preceding miniature and disarranges them, the end goal to create an image of water as a recollective essence rather than a literal depiction, ending suddenly without warning as a notion of our memory's fragility.

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[7] Kennerly and Kischka, 'The brain and memory', 56.

[8] Kennerly and Kischka, 'The brain and memory', 56.

[9] Kennerly and Kischka, 'The brain and memory', 59.

wind in memory aims to connect the character of wind with the human experience of memory, exploring how wind's temperament – its constantly changing movement, direction, pitch, and sound – may mirror our own emotions when recalling past events.

<div align="center">

whispering in memory

</div>

The final miniature emulates a hushed conversation between the string quartet: each player bows the body of their instrument toward the next player, and that phrase is then passed on to the next, and so on. The aim is to create a muted, meditative dialogue between the players, giving both the performers and listeners space and time to reflect on their own memorial experiences.

the sound of wooden dusk

For millennia wood has been tied to artistic creation. For every wooden flute, there has been a wooden sculpture; for every church panel painting, a reed has been constructed out of bamboo. Transcriptions of epic poems written on papyrus using wooden sticks with crafted tips dipped in ink; Japanese ukiyo-e artists carving their illustrations into wooden blocks to transfer the ink to paper.

In December 2020, I performed Rzewski's *Les Moutons de Panurge* with an ensemble consisting of saxophones, trumpet, trombone, piano, guitars, violin, and percussion. The open harmonic intervals combined with the overall sound of this ensemble created a jaunty, medieval-sounding atmosphere: the ensemble resembled a warped modern take on an early baroque orchestra. However, there was one pertinent sound that I could not get out of my head; one instrument that sung above the rest: the reedy, crumhorn-like timbre of the soprano saxophone.

I was instantly captivated: its glistening, golden construction perfectly amplified the one tiny instrumental piece I was interested in: the reed. I had never imagined an instrument made from brass with a single reed having such similar qualities to wooden instruments with double reeds. I found potential timbral kinship to explore through my own compositional style: matching the soprano saxophone with its double-reeded counterpart, the oboe. To flesh out the texture, and explore the timbral qualities of wood further, I added a marimba to the ensemble.

The resulting work is a deeply focused exploration of the timbres of these instruments. This includes not only the pure instrumental timbres, but the intricacies of multiphonics both in sound and tonality.

my piece for DECONSTRUCTED BASSOON

My childhood experience of education was often very binary. There was a 'correct' and 'incorrect' to practically everything: to hold a pencil; to write the alphabet. There was little room for individual thought and interpretation; we were taught the 'correct' analyses of poetry and literature, and if our interpretation, or analysis, did not match what was on the syllabus, we would not pass our exam.

Instrumentalists, too, learn their instruments under the guise that there is a 'correct' and an 'incorrect' technique. This varies from instrument to teacher, but universally when one learns violin they learn to rest the instrument on their shoulder and under their chin; when one learns piano they are told to keep their wrists in parallel with their forearms; when one learns a wind instrument they learn to construct and align the instrument in the 'correct' way.

I was told, as a child, how deeply proud my late grandfather would be of my picking up the bassoon. How thrilled he would be to see his granddaughter barely managing to hold such a huge, complex instrument. My grandfather, too, held a 'correct' music, and a 'correct' method of music-making: proper, with good tone and – importantly to him – no drums. Relatives would tell me stories, laughing, of my late grandfather storming out of rooms and slamming doors upon hearing the 'incorrect' music.

I had grown up with the knowledge of my father, also a bassoonist, taking on his father's passion, finding the heart and soul of his musical career in the South African jazz scene. His 'correct' education, his 'correct' technique, his 'correct' instrumental formulation suddenly appeared in the 'incorrect' setting: huge big bands, with saxophones, trumpets, trombones, keyboard, and drums. I now realise my father took the first step in the deconstruction of this instrument.

So here I stand, a young bassoonist living under a familial legacy that has shrouded my playing since my ten-year-old hands first wrapped their way around the instrument that I could barely hold. From teacher to teacher, my technique was critiqued and corrected: one 'correct' was not the other's 'correct'. My father, who had himself deconstructed my grandfather's 'correct', asserted his own 'correct' over my 'correct' instrumental technique: my tutor's 'correct' did not match his 'correct'. Then I enter university and change teachers, and suddenly both of their 'correct' is 'incorrect'.

Music is a continuously evolving art form and has been this way since the first drum was constructed out of a tree stump. Instrumental technology has changed throughout the millennia, and our methods of music-making have changed with it. My grandfather's 'correct' would have not been 'correct' by an 18th-century bassoonist's standards – and that bassoonist's 'correct', too, would be 'incorrect' if he took his technique back another hundred years. Truly, 'correct' is relative depending on your time, place, or standard setting.

This piece explores shifting intergenerational attitudes using an instrument with great significance in my life. I deconstruct the 'correct' of my instrumental education: I write and perform a piece of music that would cause my grandfather to 'turn in his grave'; I cause my father to mutter and chuckle in confused amusement. I put together a broken bassoon, and then walk away without it.

In an article entitled *What Is Illustration? A Look at Its Modern Beginnings to How It Is Used Today* Sara Barnes defines illustration as 'visual imagery that is best known for interpreting, depicting, explaining, and/or decorating the words in books, newspapers, and online media.'[10]

This definition resonated with how I had come to view illustration over the course of my life, in which had I viewed illustration almost exclusively as visual imagery accompanying storybooks. Formative illustrations that impacted my childhood reading, such as Quentin Blake's Roald Dahl illustrations, come to mind. Diagrams used for ease of understanding in school science textbooks might also have been placed in this category.

However, over the course of my research, my individual and personal practice of illustration has encompassed a far broader spectrum as to means of 'interpreting, depicting, and explaining'. The definition of illustration that has framed the works in this portfolio can be defined as being a representation of an idea or concept that can be absorbed by the senses. This interpretation of the practice has resulted in the assimilation of my idea of illustration into mediums outside of visual representation. Alessandro Michele said of Gucci's perfume *Bloom*, 'Bloom is about a stroll in a garden, and memory of what accompanies that walk.'[11] Could *Bloom*, then, be an illustration of a reminiscent garden walk using the medium of scent? In the context of food, when someone muses, while dining on an old family recipe, 'This tastes like home.', could one not consider this a reminiscent illustration of their past family suppers through taste?

Through this portfolio, I aimed to use music composition as a tool for audio-based illustrations of concepts and ideas.

TWO-DIMENSIONAL VS THREE-DIMENSIONAL ILLUSTRATION

When considering the process of visual illustration, and how it might translate into auditory formats, I found it important to consider the variety of methods in which concepts can be visually realised. I would place these methods into two distinct categories: two-dimensional and three-dimensional, two-dimensional illustrations typically realised on a flat surface (Quentin Blake's Roald Dahl illustrations; Botticelli's *La Primavera*), and three-dimensional illustrations either relieved or built up from physical material (relieved, such as Bernini's *The Ecstacy of St Teresa,* or built up, like Louise Borgouise's *Maman*).

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[10] Sara Barnes, 'What is Illustration? A Look at Its Modern Beginnings to How It Is Used Today', My Modern Met, March 7, 2020, accessed May 18, 2020, https://mymodernmet.com/illustration-definition/.

[11] 'Gucci Bloom', Gucci, n.d., accessed June 26th, 2022, https://www.gucci.com/uk/en_gb/st/capsule/gucci-bloom.

Figure 1 Boticelli, La Primavera, late 1470s or early 1480s.[12]

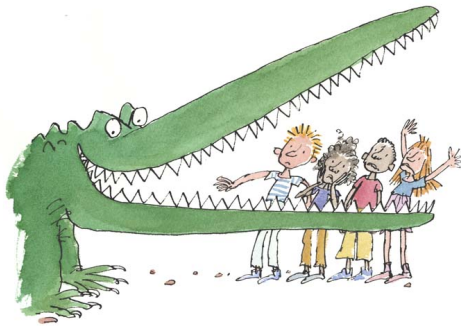Figure 2 Lorzeno Bernini, The Ecstasy of St Teresa, 1647-52.[13]

Figure 3 Quentin Blake, The Enormous Crocodile, 1978.[14]

Figure 4 Louise Bourgeois, Maman, 1999-02.[15]

This dimensional difference plays a key role in the onlooker's experience as to how the illustration is absorbed. While three-dimensional illustration often requires the viewer to walk around and experience from all angles, two-dimensional illustration presents all information simultaneously directly in front of the viewer – though it is important to note that this direct presentation does not negate complexity in information or detail. Recalling Paul Klee's quotation 'Polyphonic painting is superior to music in so far as the temporal element has more of a spatial quality. The sense of simultaneity emerges in an enriched form'[16] implied he found the immediate ability to see every aspect of a painting at once superior to other forms of art. Indeed, this was in

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[12] Gian Lorenzo Bernini, Ecstasy of Saint Teresa, 1652 1647, marble, 3.5m x 2.79m x 2.06m, Santa Maria della Vittoria, Rome. https://en.wikipedia.org/wiki/Ecstasy_of_Saint_Teresa.

[13] Sandro Botticelli, La Primavera, 1477-1482, tempera on panel, 2.03m x 3.14m, Uffizi Gallery, Florence. https://en.wikipedia.org/wiki/Primavera_(Botticelli).

[14] Louise Bourgeois, Maman, 1999, stainless steel, bronze, and marble, 9271 x 8915 x 10236 mm, National Gallery of Canada, Ottowa. https://en.wikipedia.org/wiki/Maman_(sculpture).

[15] Quentin Blake, The Enormous Crocodile, 1978. https://www.quentinblake.com/gallery/the-enormous-crocodile-front-cover-artwork.

[16] Klee, *The Diaries of Paul Klee, 1898-1918*, Illustrated edition (Berkeley: University of California Press, 1992).

reference to the superiority of art over music, but I found it was also interpretable within the conversation of the fundamental differences between two-dimensional and three-dimensional art.

Figure 5 Gian Lorenzo Bernini, *The Rape of Proserpina,* 1621-22.[17] From one angle the viewer can observe the intense muscular strength of Hades.

Figure 6 Gian Lorenzo Bernini, *The Rape of Proserpina,* 1621-22.[18] From another angle the viewer has a more dramatic point of reference: Proserpina's terrified expression; Hades' massive hands penetrating her soft delicate skin; the movement.

Simon Knighton's 'Sound Sculptures'

Simon Knighton's series *Sound Sculptures* is a collection of three-dimensional works, described by Knighton as three-dimensionally sculpted both through the composition process and the audience's listening experience through using electroacoustic composition and performance practice.[19] In a composer spotlight interview with the organisation *nonclassical*, Knighton describes how the initial focus on the 'sculptured' sound was to create a makeshift three-dimensional listening experience: speakers placed around the performance hall, often with performers in different locations, and on occasion (space permitting) allowing the audience to move around the space to hear the performance from different angles.[20] This performance practice seems to be

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[17] Gian Lorenzo Bernini, *The Rape of Proserpina*, 1621, Carrara marble, 225cm, Galleria Borghese, Rome. https://www.flickr.com/photos/rafa2010/45492810992.

[18] Gian Lorenzo Bernini, *The Rape of Proserpina*, 1621, Carrara marble, 225cm, Galleria Borghese, Rome. https://artincontext.org/the-rape-of-proserpina/.

[19] 'Since lockdown though, the term SOUND SCULPTURE has come to describe the methods behind the compositions as much as the presentation of the pieces themselves' 'Spotlight: Simon Knighton — Nonclassical', accessed 20 March 2023 https://www.nonclassical.co.uk/engage-1/2021/12/13/spotlight-simon-knighton.

[20] 'Simon Knighton Curates: Dynamical Systems and Natural Environments — Nonclassical', accessed 20 March 2023 https://www.nonclassical.co.uk/events/2022/7/18/simon-knighton-curates-dynamical-systems-and-natural-environments.

intended to give the audience the same auditory experience as they would receive viewing a visual sculpture: the ability to gain different perspectives from multiple points of reference.

Examining Knighton's works and his detailing of his composition methods was an initial guide in my composing with a similar visually-artistic approach, particularly in the case of his outlining how some works within the series were 'sculpted' from performers' recordings of his graphic scores.[21] This mirrored the approach to composition I was taking in this portfolio, emphasizing a perspective that centred on utilising visual artistic methods to create music with an emphasis on sound. However, though his method of composition aligned with my own ideals, the auditory experience for the listener was different. The heavy emphasis of space created a listening environment in which simultaneity was difficult to achieve, particularly so if the listener was required to travel around to gage the entire work, enhancing certain auditory moments while missing others. Through this I realised that cultivating a simultaneous listening environment held the same importance as composing with a visual artistic mindset.

If Knighton's pieces offer a three-dimensional listening experience, my compositions' listening experience is two-dimensional. Like most music performances, the audience sits in front of the performers and the concept's realisation is laid out directly before them. I opted for this two-dimensional realisation as I believed the simultaneity I was seeking through my composition would be more effectively achieved in this way, as opposed to a listener being necessitated to take the time to move around a space so as to fully absorb the illustration.

CONSIDERING SPECTRAL ANALYSIS

When considering an effective method of how I might illustrate using sound, spectral analysis was an option contemplated for some time. It was an obvious route to take in terms of illustrating with music: what better way to create an image from sound than by tonally constructing it *from* the frequencies of its physical form? I also loved the *sound* of spectral music, the harmonic and tonal atmospheres created by composers such as Horaţiu Rădulescu and Catherine Lamb. Lamb I particularly looked to, as her interest in colour and tone resonated with my desire to write music with a visual artistic mindset.

Catherine Lamb, the Colour Spectrum, and the Tonal Spectrum

Catherine Lamb describes her compositions as 'exploring the interaction of tone, summations of shapes and shadows, phenomenological expansions, the architecture of the liminal (states in between outside/inside), and the long introduction form.'[22] In a similar fashion to my composition methods, Lamb also 'transliterates' the terminology of visual art methods into terms that apply to music. In a conversation with Jeremy May for The Phillips Collection, May asks '...do you look to visual inspiration in direct or indirect ways?' to which Lamb responded:

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[21] 'Spotlight: Simon Knighton — Nonclassical'.
[22] Catherine Lamb, 'bio', Sacred Realism, n.d., accessed March 14, 2023, https://www.sacredrealism.org/artists/catherine-lamb/bio/.

> I am often utilizing terminologies that are used amongst visual artists. Terms like saturation, intensity, vibrancy, opacity, transparency, additive, subtractive are in my list of common words when describing how to approach musical concepts. I took Alber's term the interaction of color, for instance, and replaced color with tone.[23]

The term Lamb mentions here – 'the interaction of color' – is in reference to a book written by Josef Albers by the same name. This book was intended as a studying and teaching the use of colour in visual art. This book teaches colour from the perspective of colour's relationships to each other. Rather than specific scientific ratios of hues and wavelengths – something the book rejects in its introduction– it speaks more of colour theory and the interactions of colours within the colour spectrum. [24] It makes sense that Lamb would be influenced by this; she rejects the term 'just intonation' in reference to her work, preferring to describe her music as 'pure ratio relationships, harmonic space, or interacting spectra'.[25]

Albers writes:

> In musical compositions,
> so long as we here merely single tones, we do not hear music.
> Hearing music depends on the recognition of the in-between of the tones,
> of their placing and of their spacing.
>
> ...
>
> Equally, a factual identification of colors within a given painting
> has nothing to do with a sensitive seeing
> nor with an understanding of the color action within the painting.[26]

There is a contestable statement within the first few pages in this book in which Albers states: 'We are able to hear a single tone. But we almost never (that is, without special devices) see a single color unconnected and unrelated to other colors. Colors present themselves in continuous flux, constantly related to changing neighbors and changing conditions.'[27] The actuality is that it is impossible to hear a single tone in the same sense that it is impossible to see a single colour: any tone, pitch, or abstract sound is made up of an innumerable number of frequencies coalescing to create what we hear as individual notes.

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[23] Jeremy Nay, 'Interactions of Color and Tone: A Conversation with Composer Catherine Lamb', The Phillips Collection, January 27, 2022, accessed March 16, 2023, https://blog.phillipscollection.org/2022/01/27/interactions-of-color-and-tone-a-conversation-with-composer-catherine-lamb/.

[24] 'Also, the book does not begin with optics and physioligy Josef Albers, *Interaction of Color: 50th Anniversary Edition* (Yale University Press, 2013), 5.

[25] Nate Wooley, 'Interacting Spectra: A Conversation with Catherine Lamb'. Sound American, n.d., accessed March 16, 2023, https://soundamerican.org/issues/just-intonation/interacting-spectra-conversation-cat-lamb.

[26] Albers, *Interaction of Color*, 5.

[27] Josef Albers. *Interaction of Color.*

It may be this, perhaps, oversimplicity of tonal theory that leads Catherine Lamb to place this artistic alphabet – physical colour – and transliterate it into tonality. In effect, only the *word* colour has changed; the theoretical practices remain the same. This kinship between colour's function in painting and tone's function in music is evident in Lamb's compositions, as many of her titles reflect: *color residua (2016)*; *overlays transparent/opaque (2013)*; *in/gradient (2012)*; and *pulse/shade (2014)*, for example.[28] In the score for *color residua*, when outlining the scordatura of strings, she refers to it as a 'tonal palette, exactly how an artist would refer to a colour palette.

I did not so much think of colour, nor tone, nor the spectrum.

Initially, colour seemed an obvious route to follow when considering visual artistic methods that would work effectively when applied to music, since I have witnessed 'colour' referenced frequently in discussions of both visual art and music. However, when it came into practice, I found it difficult to effectively use colour, as I would visually, audibly. The way that I understand tone and colour is far less technical than the theories suggested by Albers and Lamb. Moreover, though any one person might see colour a different way, there is still a societal understanding that grass is green, London buses are red, and Van Gogh's *Sunflowers* uses a great deal of yellow. *Hearing* colour, on the other hand, is purely subjective, and entirely depends on an individual listener's individual perspective of colour, colours' emotions or meaning, and which tones relate to which colours.

My personal relationship with tone and colour involves a vague synaesthesia: I put tones, pitches, scales, keys, and even instrumental timbres into categories of colour in my mind: the pitch of G, for example, is bright green. F#, on the other hand, emits a soft lavender. Pieces written in D# minor are shrouded by shades of terracotta and burnt umber, and a piercing improvised jazz solo on the alto saxophone brings forth a similarly piercing, blazing red. My relationship with colour and tone is so deeply personal and individual to me, I knew that if I were to compose an illustration with the colours I would if I were painting, only *I* would be hearing the illustration as I saw it, when my real desire was to create sound illustrations that any listener could make personal sense of when presented with the illustrated concept.

In addition to this, I found the intensely theoretical explanation of colour and tonal theory by Lamb, though incredibly effective in her compositional style, detracted from my illustrative goals. Rather than focusing on colours within colours and tones within tones while composing, I drew inspiration from a more abstract understanding of art and illustration; art theory; the conveyance of the message behind the colourful or tonal relationships. I focused on how painters *used* colour to convey and illustrate specific ideas and concepts and wrote my music following those uses in the alphabet of music. When attempting to compose using spectral analysis I felt the concept I was attempting to illustrate became lost in the concept's materiality.

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[28] Catherine Lamb, 'Sr/Cl::Works', accessed 21 March 2023 https://www.sacredrealism.org/artists/catherine-lamb/works/.

The direct imagery of the different states of water and air listed in Pizarnik's poem provided a brilliantly literal canvas upon which I could depict brilliantly literal images of water, and spectralism was the route I first took. I searched the internet for recordings of rivers and wind with the intention of using spectral analysis to construct this piece. I found a recording of a river I enjoyed and began the spectral analytical process, by which at the end I had amassed an extensive list of microtonal pitches, no compositional ideas, and a very thorough knowledge of the abstract sound of a river.

I decided that attempting photographic illustration would limit the artistic potential of this composition, particularly as I began to focus my attention towards the one prevailing feature of the poem; a feature for which spectral analysis would be impossible: memory.

Spectralism transformed into speculation. Speculation into how such an abstract subject is experienced; how those experiences differ from my mind to others'; and how memory as a neurological science related to anecdotal accounts of a human experience. It was through these emotive routes that I constructed the water miniatures.

cisterns in memory

This miniature's illustrative intention was to use instrumental dialogue to draw feelings of indecipherable reminiscence. Its subject is a mourning for lost memory and lost life. Of the Basilica Cistern, no living memories remain; first-hand stories lost to millennia. All we have is hypotheses through archaeological evidence.

I had read accounts of the so-called 'Column of Tears', a particular column decorated with peacock's feathers. Aptly named, the column always appears wet. There are theories of it being erected in memoriam of the hundreds of slaves that died during the cistern's construction; some believe that touching it gives good luck.[29] Wilfully ignorant of the more likely narrative of the cistern's massiveness requiring the reuse of building materials (columns of the exact same design can be found in Beyazit Square and belonged to the Great Teodosios Triumphal Arc)[30] I focussed my intention on the emotional urban legend surrounding the so-called 'Weeping Column'.

Sustained pitches are passed from instrument to instrument, but the pitch's timbre gradually becomes slightly more warped and distant as it is passed: Violin I plays a whole, ordinary tone (a first-hand memory); Violin II follows this playing the same tone, but now *sul tasto* (the memory has been passed on, but still has connection to life) the viola continues, playing the same pitch as a harmonic (the memory has now lost its original life-connection, but still exists, though contextless, in the minds of living people); and finally, the cello, playing the same harmonic *sul ponticello* (the sound is fragile, like the memory dying in the minds of the last people who hold it).

[29] WTSDN, 'Undercover in Turkey – The Basilica Cistern in Istanbul', *What The Saints Did Next*, 4 September 2017, accessed 25 March 2023 https://whatthesaintsdidnext.com/undercover-turkey-basilica-cistern-in-istanbul/.

[30] Nilay YILMAZ Emre, 'Byzantium Period Water Architecture and a Masterpiece in Istanbul: The Big Basilica Cistern', *Turk Neurosurg* 24, no. 6 (2014): 284.

Figure 7 *blank slate, cisterns in memory,* bar 1.

The miniature ends with the following graphic notation:

Figure 8 *blank slate, cisterns in memory,* bars 12-finish.

    The instruction for this notation is to, in a sporadic manner, use the left hand to stop notes on the fingerboard and then instantly lift the finger back up to allow the note to ring slightly. The intended sound is to mirror the sound of water droplets falling from the ceiling due to condensation. It is also intended to signify the faded memory of the hundreds of slaves who supposedly died during construction: for them we have no names or stories; all we have is a Column of Tears.

This miniature contains two areas of critical illustrative focus: my initial perception of the sound of a river and a more literal illustration of its sound. Using my personal perception as a point of reference, I initially imagined the sound of a river to be a continuous, rushing sonance. Then, after the close and concentrated listening I underwent during my spectral analysis, I found the river's sound to be rhythmic and disjointed. By combining these two illustrations of the river's sound (perception vs reality), I aimed to conceptualise the cognitive dissonance in how one may perceive memories.

The violins replicate the continuous rushing sound I previously associated with a river:

Figure 9 *blank slate, rivers in memory,* violins I and II bars 1-3

Meanwhile, the viola and cello illustrate the sound in its more literal rhythmicity:

Figure 10 *blank slate, rivers in memory,* viola and cello, bars 1-3

I initially considered using the pitches gathered through my spectral analysis as a melodic basis for these rhythmic patterns. However, I eventually opted against this. When I deconstructed my new understanding of a river's sound, I did not hear an abundance of hyper-specific frequencies; I heard clunky rhythms with random pitches. When composing these lines, I selected pitches that I felt reflected the shapes and patterns I heard in the recordings: I took away the science and put speculation in its place.

Furthermore, I felt that representing the river through spectral analysis of a river's sound would turn this more literal depiction of the river photographic, which was not the intention. The viola and cello are not acting as a photograph of a river; rather, they are a representation of what it is to *look at* and *perceive* a photograph. The cognitive dissonance represented in this miniature can be compared to remembering a perceived sequence of events while confronting physical evidence that contradicts said perception.

pools in memory

This miniature allowed me the opportunity to illustrate a body of water and a specific classification of memory simultaneously. Unlike the previous two miniatures, *pools in memory* does not illustrate water through the lens of memory; nor does it illustrate memory through water. The intention is that this miniature can be heard as an illustration of semantic memory (memories within a repository of pure knowledge devoid of specific connections, encompassing facts, concepts, and meanings), an illustration of a pool of water, or a simultaneous illustration of both.

pools in memory is composed as simplistically as possible, using a 'pool' of only six notes (Ab, Bb, E, Eb, F, and Gb). The musicians are instructed to use no vibrato and keep their bow movement steady to remove any possible movement from the performance, thus retaining the sound's 'purity' to as high a degree as possible. This illustrates both the purity of semantic memory and the motionless state of the water in a simultaneous fashion, and, just as a pool is a contextless, unmoving body of water, and a semantic memory is contextless information , the musical material in this miniature does not change or develop; it is entirely stagnant.

Figure 11 *blank slate, pools in memory*, bars 1-3.

always water in memory

This miniature differs from *cisterns in memory* and *rivers in memory* in that, rather than illustrating water through the lens of memory, *always water in memory* illustrates memory through the catalyst of water. Using my experiences as a point of reference, I found memory to be comprised of three core factors: bias, disorganisation, and fragility. I sought to use these three factors as a framework for a composition process that involved the deconstruction and reconstruction of the previous three miniatures.

Bias is illustrated here by means of drawing the material that this miniature is comprised of entirely and exclusively from pre-composed material in the miniatures thus far. No external frames of reference, further analysis of water or memory exist in this miniature: it is biased in that the illustration of water and memory is based only on what has already been perceived. This is made clear from the beginning of the miniature, as the first bar takes a notable aspect from each of the past three miniatures: Violin I plays a held harmony from *pools in memory*; Violin II and Viola recreate a reduced version of the material heard in *rivers in memory*, and the cello performs the water-droplet graphic notation from *cisterns in memory*.

Figure 12 *blank slate, always water in memory,* bar 1.

Disorganisation is a more easily decipherable aspect of this miniature, as it is easily heard that previous material is being replicated on the wrong instrument: bars 5 and 6, for example, in which the rhythmic material seen in *rivers in memory* is now played by the first violin, who has swapped material with the viola who now plays the 'rushing river' sound:

Figure 13 *blank slate, always water in memory*, bars 5-6.

Finally, fragility. From my personal experience of epileptic seizures deleting precious memories from my brain, the movement stops suddenly, with no warning. Thus, memory's frangibility is illustrated:

Figure 14 *blank slate, always water in memory,* bars 11-13.

Simultaneity of Illustration in *blank slate*

These four miniatures of *blank slate* achieve simultaneous illustration by way of being both illustrations of water and illustrations of memory at once. Even if a miniature is more representative of one than the other (*always water of memory*, for example, is more of an illustration of memory than it is water), it is still undeniable that both water and memory are being simultaneously illustrated in these four miniatures. Alongside this, due to their brief nature, and relatively simple conceptual framework, there is no significant development of material. This characteristic serves as a criterion for immediate understanding of the illustration. I firmly believe that a listener could hear any one random bar of each of these miniatures and gain an understanding of each miniature's illustrative intention. Simultaneity achieved in a temporal art form allows for an enriched experience for the listener.

Figure 15 *blank slate, cisterns in memory*, bar 7.

Figure 16 *blank slate, rivers in memory,* bar 4.
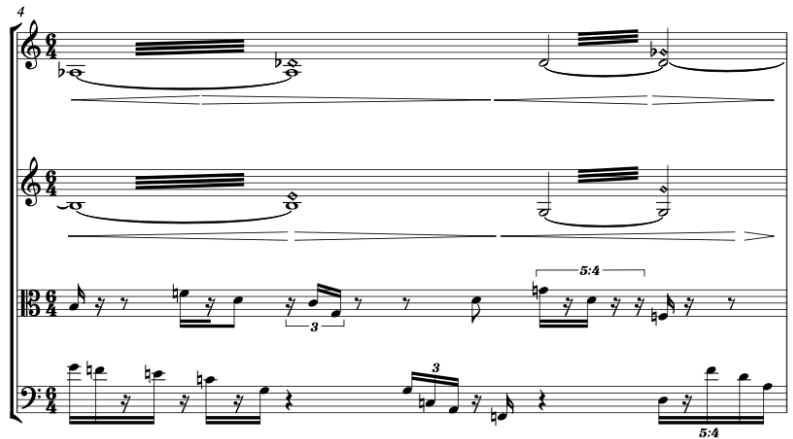

Figure 17 *blank slate, pools in memory,* bar 9.

Figure 18 *blank slate, always water in memory,* bar 5.

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While visual artists may elect to depict wood through painting its colours, lines, and various forms (trees, furniture, paper), I wrote *the sound of wooden dusk* with the intention of illustrating wood through the demonstration of its timbre. Though wood is medium that can artistically function in both a two-dimensional and three-dimensional form, my intention of illustrating it specifically *through* timbre required a two-dimensional setting. For the listeners to be able to gain full appreciation for wood, the individual instrumental timbres needed to be set and performed directly in front of the audience.

The timbre of wood in this piece is illustrated through a deliberate selection of wooden instruments and nuanced techniques. By prioritizing the pure, unaltered sounds of the soprano saxophone, oboe, and marimba, and maintaining a simplicity of musical material, the composition focuses the listener's attention on the distinct timbral qualities of wood: the single reed; the double reed and wooden instrument; how wood sounds when it is struck; and how these timbres blend, interact with, and contrast to each other in space.

Maintaining simultaneity was both an integral and difficult feature of this piece's construction. Developing material that would maintain the listener's interest without distracting from the primary objective proved challenging: I did not want this composition to cause the listener to focus on a melodic passage or harmonic framework. Rather, the intended listening experience was to hear the pure, unaltered sounds of these instruments. To achieve this, I determined to keep the musical material as melodically simple as possible: for the first third of the piece, F# is the only pitch that is played, decorated with timbral trills, microtonal inflexions, and multiphonics that are brought out of the note.

Figure 19 *the sound of wooden dusk*, bars 4-8.

Unlike *blank slate*, I was not averse to using microtonal language in this piece's construction. However, this did not route from spectra or just intonation. I chose the microtonal language

through using the harmonic structure of the multiphonics I had written into the piece. This, I felt, achieved the sense of homogeny I was seeking: the benefit of material development and harmonic interest whilst retaining a fairly rigid harmonic and structural framework. Alongside this, passages with more melodic material are very slow-moving so as to prevent any potential distraction from the piece's core illustrative focus: the listener should focus purely on the *sound* of the piece rather than the material within it.

Figure 20 *the sound of wooden dusk,* bars 28-30.

MY PIECE FOR DECONSTRUCTED BASSOON

Perhaps, *my piece for DECONSTRUCTED BASSOON,* could be considered to border the line between two-dimensional and three-dimensional composition; I believe it is not entirely either. Though maintaining their conceptuality, most illustrations I have created through this portfolio have retained some level of literalism: you can associate some form of visual imagery with states of water or wood. However, the concept that *my piece for DECONSTRUCTED BASSOON* attempts to illustrate situates itself much further into the abstract.

I split the piece into six movements. The first four of those movements explore each part of the instrument separately, the next two explore the instrument put together in halves (the long-joint attached to the bell, and the wing-joint attached to the boot-joint). Each movement invites the performer to explore each part of the instrument. This detailed, rhythmic exploration a

Figure 21 *my piece for DECONSTRUCTED BASSOON,* wing joint, first line.

representation of technical methods employed around one's internal and external worth being in the hands of correct technical capabilities.

In the final moment of the piece, the bassoonist is invited to improvise on the previous material of the piece, continuing to explore until a sense of satisfaction has been gained. Once satisfied, the performer puts the two halves together, examines the fully constructed instrument, then places it on the floor and leaves the stage. I composed the material within this piece to allow much room for performance interpretation: there are no tempo markings and very few performance directions.

Figure 22 *my piece for DECONSTRUCTED BASSOON, wing and boot joint,* final line.

The illustration in this composition is both within the composed material and the art of the performance: just as the piece is composed as an illustration of the de- and re-construction of a bassoon, the audience see this illustration laid out directly before them.

Within visual art, the term 'medium' refers to a substance from which art is created. This is often in reference to physical materials: acrylic on canvas; oil on wood; sculpted from stone; melded through metal. Canonical artists and artistic periods throughout history have been defined by medium. Christian sculpture from the Baroque and Renaissance periods used pure, white marble as whiteness was revered as a symbol of purity, a highly valued personal attribute during the said era.[31] In stark contrast, for *Guernica*, Picasso had an ultra-matte house paint specifically formulated at his request, which as art historian John Richardson states, assisted in creating a sense of photographic immediacy, perhaps assisting to establish a sense of reality in a painting that otherwise is entirely separated from our dimension due to its modernist style.[32]
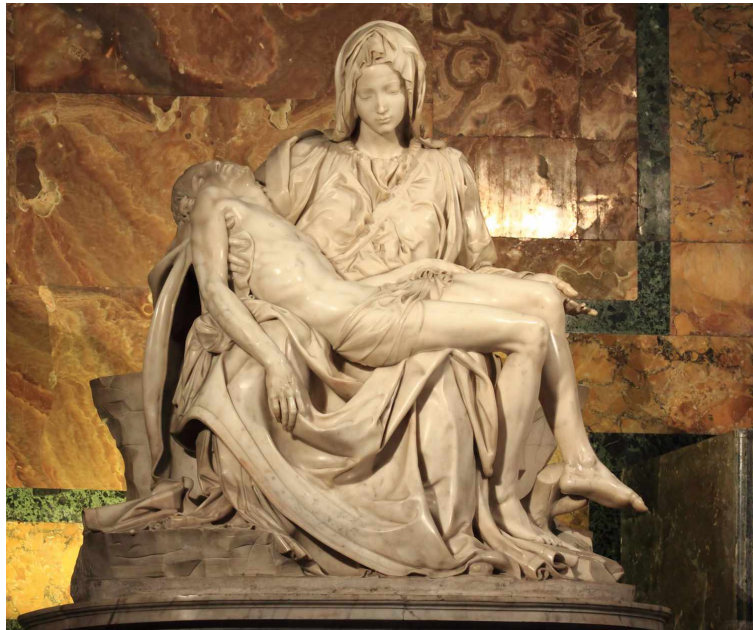
[33]

Figure 23 Michaelangelo, *Pietà*, 1498-9.[33]

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[31] Charmaine A. Nelson, "So Pure and Celestial a Light': Sculpture, Marble, and Whiteness as a Privileged Racial Signifier', in The Color of Stone: Sculpting the Black Female Subject in Nineteenth-Century America, (Minnesota: University of Minnesota press, 2007).

[32] John Richardson, 'A Different Guernica', The New York Review, May 12th, 2016, accessed May 18th, 2022, https://www.nybooks.com/articles/2016/05/12/a-different-guernica/.

[33] Michaelangelo Buornarroti, *La Madonna Della Pietà*, 1498-1499, marble, 174cm x 195cm, Saint Peter's Basilica, Vatican City. https://www.tripsavvy.com/renaissance-and-baroque-artists-of-rome-1547823.

Figure 24 Picasso, *Guernica*, 1937.[34]

    I believe medium to be an imperative feature in constructing effective pieces of visual art. In a similar sense, I believe the selection of instruments and timbre to be imperative in constructing effective illustrative compositions. The foundation from which an artistic work is created plays a crucial role in the conveyance of the artist's illustrative intention, and I see this as being as true for visual art as it is for music.

    The formation of an ensemble is one of the most crucial aspects of my compositional process. To aid the illustrative quality of my work, I specifically select instruments with timbral qualities that can emulate a particular concept or image. Both the individual sound of these instruments and the qualities of their interactions with others are essential elements in constructing these ensembles.

    Within this portfolio, I sought to emulate this application of artistic medium through sound: how can the specific instrumental timbres I use aid the illustrative qualities of my compositions? I began the process of transliterating my selection of visual art mediums into my selection of timbral mediums here. I considered in a sense of the following: as both are woodwind instruments in in a lower register, and both are water-activated paints, might I opt for a bass clarinet over a bassoon in the same manner that I might opt for gouache over watercolour?

Figure 25 Demonstration of gouache vs watercolour: gouache, a more viscous consistency, on the left; watercolour, a softer, more diluted consistency, on the right.

SOUND MASS

'Sound Mass' is a musical term that, despite a technique claimed to be used by a multitude of modern composers, including Ligeti, Xenakis, and Lutosławski, appears to have no defined consensus in definition.[34] In an article entitled *Sound mass, auditory perception, and 'post-tone' music*, Jason Noble and Stephen McAdams explore the multitude of differing interpretations of the term, compile them, and propose the following definition:

> A perceptually homogeneous and dense auditory unit integrating multiple
> sound events or components while retaining an impression of multiplicity.
> Although their acoustical correlates may be highly complex, sound masses
> are perceptually simple because they resist perceptual segregation in one or
> more parameters (e.g. pitch, rhythm, timbre).[35]

The way I have understood sound mass, and the way I have incorporated it into my composition, is a compositional approach in which sound, or timbre, is prioritised over individual melodic lines or chordal sonances. There is a sense of focused ensemble timbre, in that individual instrumental components cannot be discerned. The result of sound mass is the creation of a music

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[34] 'Sound mass, auditory perception, and "post-tone" music' is a journal article constructed around compiling a multitude of differing definitions of 'sound mass' and constructing a new, all-encompassing definition. Jason Noble and Stephen McAdams, 'Sound Mass, Auditory Perception, and "Post-Tone" Music', *Journal of New Music Research* 49, no. 3 (26 May 2020): 231–51..

[35] Ibid., 239.

in which the pure focus is *sound* itself. Some composers, such as Ligeti (a composer who also drew great inspiration from visual art and colour)[36] used micropolyphony to create what he labelled 'A kind of complex of tone, color, movement, changing harmonic planes.'[37]

However, as previously established, I was not interested in establishing colour as a primary factor in my compositions due to its inherent subjectivity. What was not subjective, I felt, were unmitigated timbres of individual instruments. Just as one can easily see the amalgamation of oil paints, one can hear how easily the timbres of the oboe and the soprano saxophone blend together.

THE SOUND OF WOODEN DUSK

Because they dry so slowly, oil paints are noticeably more effective at blending colours together smoothly than other paints.[38] *the sound of wooden dusk* has timbral medium at the heart of its composition, and through composing this piece I sought to highlight many coalescing timbral qualities through a smooth blend similar to that achieved by oil paints. I sought to use the timbres within this piece in the same fashion I would if I were painting with oil: thus goes the transliteration process.

The composed musical material uses little progression or development, instead opting for slower, simple material to allow both the performers and listeners the ability to pay attention to how instrumental tone interacts and blends within a performance space: the saxophonist and oboist must focus on blending their instruments' timbres above all else.

I considered the performance space in a similar frame of mind to how a visual artist may consider, for example, canvas or wooden board: I have seen debate over which surface is more effective for oil paints: hardboard allows for finer painted detail, while the texture of canvas pulls more paint off the paintbrush, enabling an easier painting experience.[39]

Though *the sound of wooden dusk* does not have specific instructions regarding a performance space, I did notice, during the performance and rehearsal process, how different the piece sounded when rehearsed in a dry, muted acoustic as opposed to hearing it rehearsed and performed in a space with higher resonant qualities. When heard in a higher resonating space, one would begin to hear sonances emerging from the ensemble that were not specified in the composed score: beatings and overtones began to shine above the texture.

Ligeti's 'Lontano': My Inspiration and Diversion

I was inspired by Ligeti's *Lontano* (1967), a work considered to be that of sound mass. Its close and intimate starting tonal framework was something I sought to imitate. *Lontano* begins with canonical entries from the flutes and clarinets, successively playing long, sustained pitches that remain within

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[36] Ligeti speaks of the value visual art and colour have in his music: György Ligeti, *György Ligeti in Conversation with Péter Várnai, Josef Häusler, Claude Samuel, and Himself.*, Eulenburg Books (London: Eulenburg, 1983).

[37] Ibid., 95.

[38] Will Kemp, 'The 5 Key Differences between Acrylics vs Oil Paints', accessed 28 March 2023 https://willkempartschool.com/what-is-the-difference-between-oils-vs-acrylic-paints/.Will Kemp. 'The 5 Key Differences between Acrylics vs Oil Paints'.

[39] Chuck Black, 'Painting on Canvas vs Panel – Which Surface Gives the Best Results', *Chuck Black*, December 6, 2020, accessed June 29, 2022, https://www.wildlifeandart.com/blogs/chuck-black/types-of-surfaces-to-paint-on-pros-and-cons.

the limiting tonal framework of G-Bb. The piece, written for a massive orchestral ensemble, contains seventy-two pitch entrances, all gradually breaking away from the starting pitch: Ab. This creates a stunning tonal coalescence which allows the listener the experience of listening to an overall sound, rather than individual tones and timbres: the tonal structure of the piece is so intensely dense, it becomes near impossible to pick out any individual instrument and decipher which pitch is playing based on hearing alone.

In a similar sense to my compositional relationship with Lamb, I was inspired by the sound as opposed to the method. The tonal focus in this composition was clear, and, as previously established, tone itself was not an aspect of composition I was especially interested in exploring. What I *was* interested in, however, was timbre. In *Lontano*, one witnesses the collective sound of a massive orchestra. In *the sound of wooden dusk*, one witnesses an intimate, focussed display of specific timbral qualities and how they function both with each other and with the space they are in.

I began *the sound of wooden dusk* in the same manner that Ligeti begins *Lontano*: canonical entries of the same pitch. However, unlike *Lontano*, which diverts from the starting pitch relatively quickly, *the sound of wooden dusk* largely remains on an F# for the first minute, sustaining interest through F#-based multiphonics, and minor microtonal inflictions. Then, in order to avoid replicating the tonal-focussed coalescing sound mass Ligeti created, rather than opting for slow, semitonal movements away from the starting pitch, the soprano saxophone fully breaks away with a dramatic rise.

Figure 26 Ligeti, *Lontano*, 1967, bars 1-4.[40]

Figure 27 *the sound of wooden dusk*, bars 1-8.

Writing for such a small ensemble whilst being inspired by a piece for a huge ensemble proved very challenging in the practice of writing a piece that was both sustained and melodically simple while being idiomatic for the oboe and soprano saxophone. I examined other composers' works for solo wind instruments and found inspiration within two of Giorgio Netti's works for solo soprano saxophone: *necessità d'interrogare il cielo* and *ultimo a lato. necessitá d'interrogare il cielo, in particular,* sustains interest over an hour-long period almost exclusively using quiet, slow, and sustained tones, and I believe a significant reason for this is his use of multiphonics: rather than demonstrating this extended technique as an obtuse outlandish feature of the saxophone's vocabulary, the works have a decorative, harmonic quality, and bring to light a different timbral quality of the instrument. [40] I sought to use multiphonics in a similar fashion in my own composition, using this technique's timbral quality as another medium for the depiction of wooden timbre.[41]

Figure 28 Giorgio Netti, *ultimo a lato*, 2019.[41]

Discussions with Sam Newsome

Alongside this, I listened to Sam Newsome's discography, and found particular interest in his albums *Sopranoville: Works for Prepared and Non-Prepared Soprano* and *The Art of the Soprano, Vol 1*. His compositions place multiphonics in a seemingly effortless manner into the structure of his pieces. I set up a meeting with him to gain greater insight into how he was composing with multiphonics and ask his advice in idiomatically writing multiphonics for the soprano saxophone. Newsome directed me to Ronald L. Caravan's *Preliminary Exercises & Etudes In Contemporary Techniques for Saxophone,* a resource containing both instructional fingering patterns for alternate fingerings, multiphonics, and microtones, and etudes and exercises for instrumentalists to put these contemporary extended techniques into practice. [42] Studying the etudes was particularly useful in examining how to idiomatically incorporate these extended techniques into my composition.

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[40] Score Follower, 'Giorgio Netti - necessità d'interrogare il cielo [w/ score]', YouTube video, 1:06:43, posted by 'Score Follower', July 11, 2017, accessed May 27, 2021, https://www.youtube.com/watch?v=VOx0IdL7LE4&ab_channel=ScoreFollower.

[41] Giorgio Netti, 'giorgio netti, ultimo a lato, sax soprano patrick stadler 2019', YouTube video, 7:45, posted by 'Giorgio Netti', April 5, 2019, accessed May 27, 2021, https://www.youtube.com/watch?v=OsXx42WKdP8&ab_channel=GiorgioNetti.

[42] Ronald L. Caravan, *Preliminary Exercises & Etudes in Contemporary Techniques for Saxophone: Introductory Material for the Study of Multiphonics, Quarter Tones, & Timbre Variation* (Dorn Productions, 1980).

[43] Ibid., 41.

To
incorporate similar techniques into the oboe part, I took reference from Peter Veale's *The Techniques of Oboe Playing*, a resource containing thorough transcriptions and fingerings for multiphonics for the oboe.[44] I incorporated these multiphonics in the same way that I did for the saxophone, resulting in a composition where the many unique timbral qualities of the soprano saxophone and oboe are displayed in a manner that is idiomatic, interesting, and – like oil paint on a wooden panel – well blended with qualities for specific detail.

Sam Newsome gave me two pieces of key advice in keeping multiphonics in tune with the composition. The first was to look at the harmonic qualities within the multiphonics I wanted to use, and then construct melodic material around that harmonic structure, effectively using the multiphonics as a tonal or key centre to the piece.

The other advice Newsome offered me was to incorporate microtonal language into my composition wherever possible, the reason for this being that, as all multiphonics have microtones within them, by including microtones into the melodic material, it would allow the multiphonics to sound more 'in-tune' with their surroundings. I applied this advice to my compositions in an alternative manner. While the use of microtones appealed to me, I did not opt for this technique out of an interest in creating tuneful sonances. Rather, I felt that by constructing material from the pitches found in multiphonics, I would be able to retain the element of stagnation I was seeking by keeping material that was verging on melody in a very limited tonal framework.

An example of my utilisation of these suggestions can be seen in bar 4, where the saxophone's microtonal passage on a C# exists to be in tune with the C¼# in the oboe's multiphonic:

Figure 30 *the sound of wooden dusk*, bars 28-30

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[44] Peter Veale, *The Techniques* of Oboe Playing, (Germany: Bärenreiter-Verlag, [1994?]).

Simultaneity in *the sound of wooden dusk*

The primary objective of *the sound of wooden dusk* is to illustrate a medium *through* the medium it is illustrating. In this simple sense, simultaneity is achieved purely through the composition's innate purpose: wood is illustrated *through* wood.

In a similar sense to *blank slate*, and feeding into the research narrative of this portfolio, the musical material in this piece remains largely stagnant. Though there is harmonic and melodic development within this piece, its stagnation results in a composition that, like *blank slate*, any random individual bar can illustrate the composition's intention.

This piece was written almost entirely vertically: every bar was carefully constructed with every instrument in equal consideration. Neither the oboe, soprano saxophone, nor marimba are intended to take spotlight at any point throughout the work. The inherent focus *is* simultaneity: simultaneity of medium; simultaneity of musical material; and, most importantly, the simultaneity of wooden timbre found within these instruments.

BLANK SLATE

blank slate is the only piece in this portfolio for which I did not create a specific ensemble for the concept. As this piece was written to be workshopped by the Ligeti Quartet, the ensemble came first; the concept to illustrate afterwards. Thus, rather than focussing on instrumental timbres in their purest form and constructing a piece from that (as I had done in *the sound of wooden dusk*), I elected to focus on the multiple ways in which one can play a string instrument, and in each miniature, I concentrated on utilising a different performance technique for string instruments as a medium for effective illustration of the concepts. Just as the same paint might be employed in differing dilutions or brush strokes, I took a base medium (the string quartet) and employed diversified methods to effectively use a full range of timbre in my illustration. My timbral method involved examining the characteristics of gouache paint and transliterating them into the process of constructing these miniatures.

cisterns in memory

As previously discussed, I sought to emulate a distant quality within this miniature. I wanted to illustrate something gradually becoming more warped and distant, so I opted to have each string player use a playing technique that would aid this imagery: the first violin plays with a normal, standard technique; the second violin plays *sul tasto*, for a quieter effect with a little more fragility; the viola then plays the same pitch but as a harmonic; and finally the cello echoes this tone with the same pitched harmonic played *sul ponticello*, producing a soft, fragile tone. This array of playing techniques, combined with the gradual decrease in dynamics between the instruments, assists in the representation of the fragility of distant, or lost, memories, through the strings' overall warped

timbre. I saw this process as the transliteration of water-based paint fading as the brush runs out of pigment.

Figure 31 A single stroke of gouache until the brush ran out of paint.

Figure 32 *blank slate, cisterns in memory*, bar 1.

Depending on its water dilution, gouache can function as both opaque and translucent. In writing for the 'literal' sound of the river, I took gouache in its thicker consistency, and transliterated it into writing for the viola and cello, as I felt the thickness of the strings assisted the percussive quality I was seeking to recreate. The violins provided effective contrast for this, as their thinner strings and more delicate timbre aided the illustration of the continuous rushing quality, and the lightness seen in highly diluted gouache.

Figure 33 Gouache paint, high dilution (above) vs low dilution (below),
in the same pattern as how I view rivers in memory to be constructed.

Figure 34 *blank slate, rivers in memory*, bars 7-8.

Pertaining to the illustration of Kennerly and Kischka's definition of semantic memory ('nuggets of pure information'),[45] and aiming for as simple sound as possible to assist in the illustration of this definition, I opted to have the string quartet play quiet, sustained single pitches, with no vibrato. I saw this as the transliteration of single strokes of gouache with little dilution: lines that keep the same degree of pigment throughout the stroke.
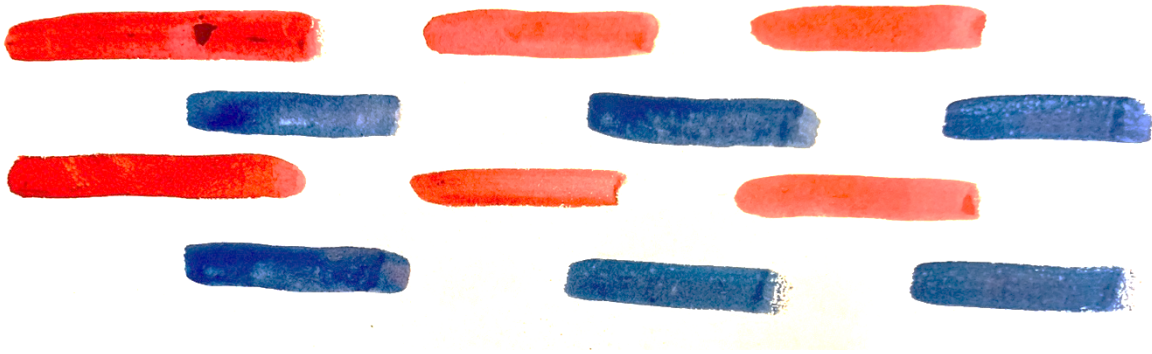
Figure 35 Gouache, block-colour lines of a thicker pigment.
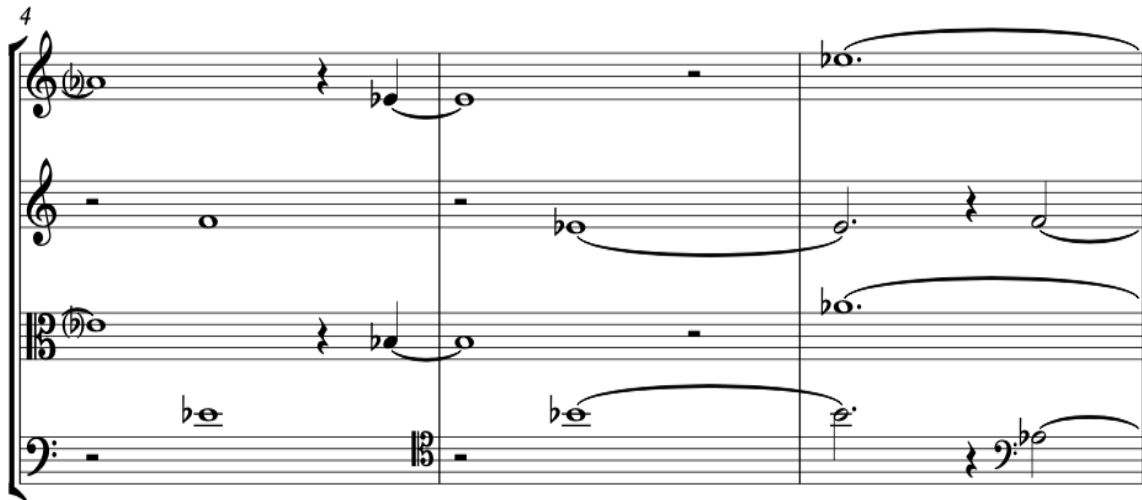
Figure 36 *blank slate, pools in memory*, bars 4-6.

always water in memory

The timbral medium incorporated into this miniature is tied into the same technique discussed under *Composition as Illustration*: the disarrangement of previously composed material. In the below example, in bar 7 of *always water in memory*, the second violin and cello have swapped around their

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[45] Kennerly and Kischka, 'The brain and memory', 56.

material from *rivers in memory*; the first violin is recalling chordal harmony heard in *pools in memory* but double-stopping them rather than sharing them between the other performers. Then in the following bar, the river's rhythm is discarded entirely in favour of the rushing sound previously held by the violins – except the second violin, instead of oscillating between sounding pitches and harmonics, double-stops an oscillation between a Bb and Eb (another interval heard in *pools in memory*) and the open A and D string. The timbral medium for this miniature is in itself the confusion caused by hearing familiar fragments of musical information played with different timbral qualities.

Figure 38 A muddle of gouache of the shapes and textures we have previously seen overlapped in different contexts.

Figure 37 *blank slate, always water in memory,* bars 7-8.

wind in memory

I opted here for harmonic glissandi, rather than glissandi with the standard playing technique for the diaphanous quality the harmonic glissandi produce. I appreciated the delicate, sustained timbre of single-string harmonics. The overall sound produced by multiple harmonic glissandi simultaneously played on different strings at different speeds, however, results in a more confused overall sound mass which assists the illustration of the constantly changing direction of both wind and our changing relationships with our own memories.

whispering in memory

In a similar way to *the sound of wooden dusk*, the timbre *is* this *whispering in memory*. The miniature instructs performers to bow the bodies of their instruments, a technique through which a timbre that has a discernible similarity to the sound of whispering is emitted.

My experience of listening to and looking at music has led me to believe there is a visual aspect of notation that enhances auditory experiences. I find it thrilling to see a score after hearing a piece of music for the first time and - rather than immediately deconstruct and analyse it – react instinctively to witness how a composer has written their music down. It can serve as a window into the composers' psyche and composition process. Many popular canonical examples of this are frequently discussed: the juxtaposition between Beethoven's manuscripts, with their hasty pen strokes; crossing out and rewriting, and the manuscripts of Mozart, which consistently appear perfectly realised, acting as an affirmation of the popular narrative of the composer's genius in hearing complete symphonies in his head and simply transcribing them on paper.

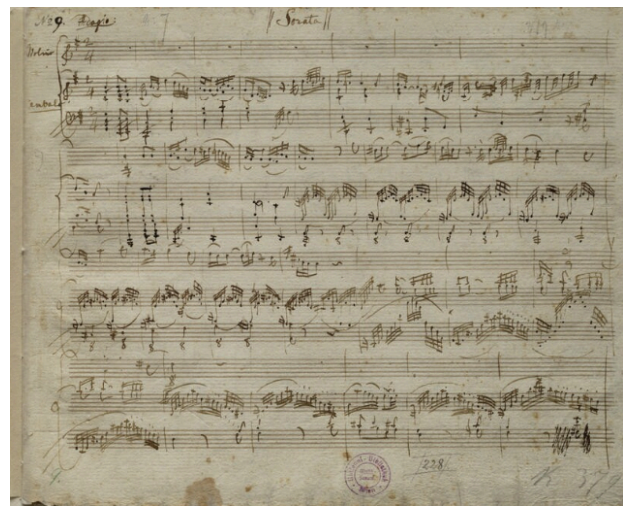Figure 39 Beethoven's piano trio in D major, op. 70 no. 1: autograph manuscript, ca. 1808.[46]

Figure 40 Mozart's Sonata for violin and piano k. 379, manuscript score, G major, 1781.[47]

The clear visual aspect of musical notation is useful: even without being able to hear the individual notes, those reading sheet music without access to an instrument can still get a sense of a composition's 'flavour' without hearing specific pitches or harmonies. Even simply looking at the overall colour of a score can help with this: a page of music that is mostly black is complex and intense; a white page is slow-moving and likely more straightforward.

Frank Zappa's work, 'The Black Page #1' – a piece written for solo drumkit - demonstrates this well. His primary artistic intention was to write a piece of music that was extraordinarily difficult to play. When interviewed by Andrew Greenaway for *The Idiot Bastard* in 1992, drummer Terry Bozio stated:

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[46] Ludwig van Beethoven, *Piano Trio in D Major, Op. 70 No. 1 : Autograph Manuscript, 1808?*, ca. 1808.
   https://www.themorgan.org/music-manuscripts-and-printed-music/114206.
[47] Wolfgang Amadeus Mozart, 'Sonatas, Violin, Piano, K. 379, G Major', 1781.
   https://www.loc.gov/resource/ihas.200033157.0/?sp=19.

> He wrote it, because we had done this 40-piece orchestra gig together and he was always hearing the studio musicians in LA, that he was musing on that, talking about the fear of going into sessions some morning and being faced with "the black page". So he decided to write his "Black Page".[49]

Bozio later stated in 2002:

> When we were rehearsing and recording during the days while performing nights a Royce Hall, Frank overheard the studio musicians talking about the difficulty of the music and how they all lived in mortal terror of coming in to a jingle session one morning and being presented with a mythological "Black Page," a piece of music so hard and filled with notes that it appeared 'black'. He joked about it and I soon forgot, but that was the initial incentive for "The Black Page" drum solo he would write for me two years later![50]

In a YouTube comment underneath a recording of a live performance of this piece, user Bong Jovi states his opinion that 'This sounds about as good as it looks on paper.'[51][52]
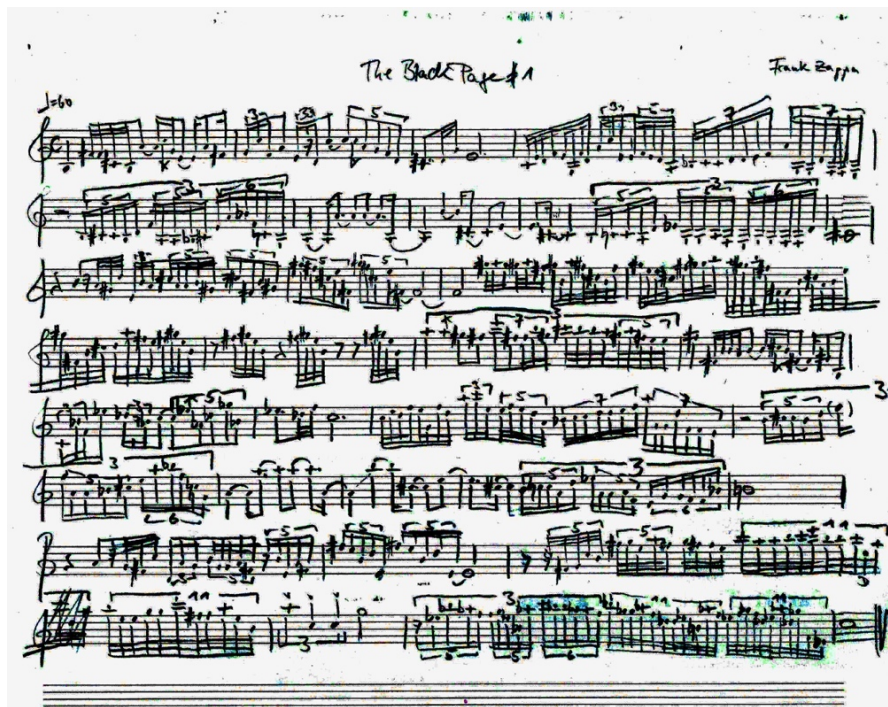

Figure 41 Frank Zappa, The Black Page manuscript.[52]

[49] 'Zappa in New York', Information Is Not Knowledge, June 19, 2022, accessed June 28th, 2022. https://www.donlope.net/fz/notes/Zappa_In_New_York.html#Page

[50] 'Zappa in New York'.

[51] Bong Jovi (twizz420), YouTube Comment, 2020, accessed March 19, 2021, https://www.youtube.com/watch?v=aDQE82ElyJg&ab_channel=Shaktidej.

[52] Frank Zappa, *The Black Page Manuscript*, 1976. https://forum.thefreedictionary.com/postst175858p27_Black.aspx.

Taking this idea in mind, I sought to explore creating scores that added a visual element to the auditory experience.

CHIYOKO SZLAVNICS

Szlavnics claims that she was first attracted to drawing as a first step in composition as she believed it was an effective way to map out slow and sustained musical figures.[53] A composer concerned more with pitch than rhythm, she found that drawing out scores first lead her to a better space to explore what interested her: just-intonation and 'beatless intervals'.[54] In an article entitled *Opening Ears: The Intimacy of the Detail of Sound*, she places her process of transforming visual art into sound art into four phases: 'Setting Global Scale', 'Setting Regions', 'Making Local Decisions (Naming Pitches & Orchestrating), and finally the fourth phase – creating a score.[55] Setting global scale involves adjusting the drawing and its grid (which is representative of aspects of a stave) to fit the overall pitch and timeframe of the intended composition.[56] Setting regions then involves a more thorough mapping out of the drawing upon the score through micro adjustments so that, for example, space between individual lines is proportional to the space between the intended pitches.[57] Then comes naming the pitches and the process of orchestration. As the drawing has already been mapped out on the score, Szlavnics often allows this to almost entirely dictate her pitch decisions, stating 'I enjoy allowing the drawing and the grid to define the pitch material. In a sense, it is this dialogue between an abstract drawing representing sound, and a grid representing musical history and evolution, that becomes most exciting during the transformation process.'[58]This highly technical process can be seen directly from her drawings, which, for the majority, resemble scores in of themselves. [59]
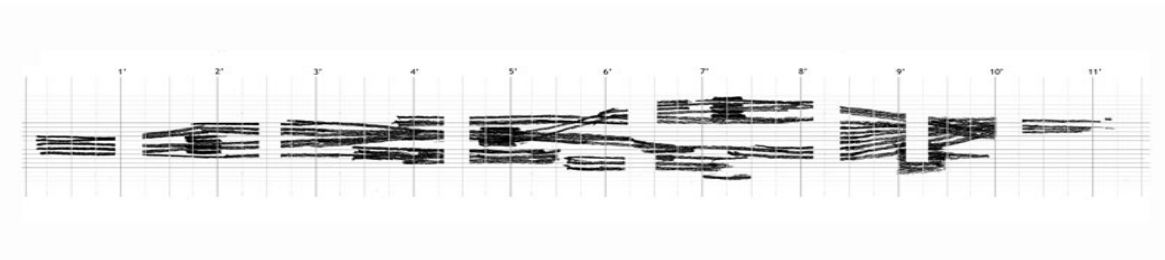

Figure 42 Chiyoko Szlavnics, *Sketch for 'Light Falls',* 2007.[53]

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[53] Slavnics, Chiyoko, 'Opening Ears: The Intimacy of the Detail of Sound', *Filigrane: Nouvelles Sensibilités* No. 4 (2006): 2.
[54] Slavnics, Chiyoko. 'Opening Ears: The Intimacy of the Detail of Sound'.
[55] Ibid., 5.
[56] Ibid., 5–6.
[57] Ibid., 6.
[58] Ibid., 7.
[59] Chiyoko Szlavnics, *Sketch for 'Light Falls'*, 2007. https://www.chiyokoszlavnics.org/journey1.html.
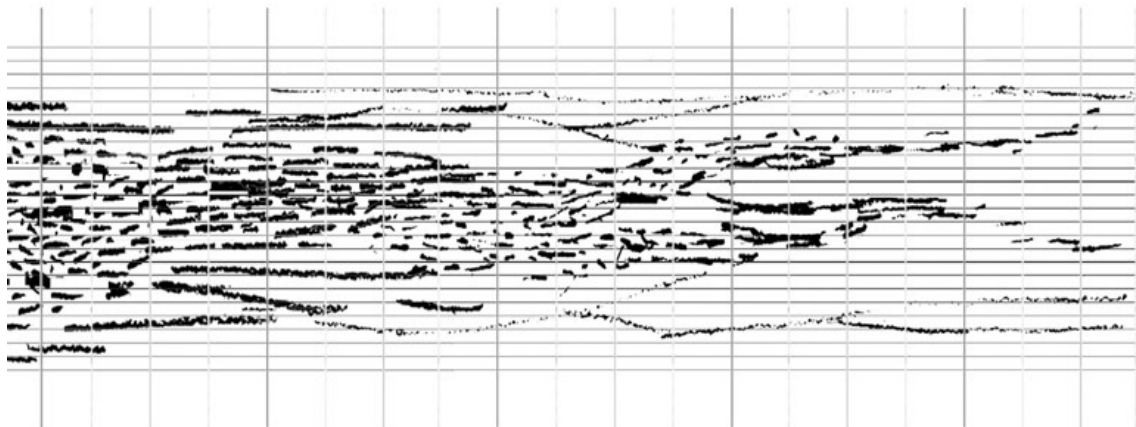
Figure 43 Chiyoko Szlavnics, *Heliotrope (working sketch),* 2007.[60]

Figure 44 Chiyoko Szlavnics, *Heliotrope*, 2007, pages 1-2.[61]

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[60] Chiyoko Szlavnics, *Heliotrope (Working Sketch)*, 2007. https://www.chiyokoszlavnics.org/journey1.html.

[61] Chiyoko Szlavnics, 'Heliotrope', 2007.

The difference in our similarity

Though Szlavnics and I share the same initial step in our process of composition, it is evident when examining our drawings alongside our finished scores that our methods in bringing pieces of visual art into sound differ rather significantly. When reading Szlavnics' breakdown of her compositional process, and viewing her drawings alongside the scores they became, it is clear her process involves a high degree of technicality, and that the drawings represent a more literal realisation of what will eventually be displayed on the score.

My process of constructing my drawings from my compositions is far less linear. The drawings I created to initially inspire the compositions in this portfolio were realised in the score in a variety of ways: some became a harmonic or rhythmic representation; some became more indicative of atmosphere or emotion; and for some, the drawing *became* the score. I believe, in this sense, that the visual component of my scores is not separated from the sound of my music, as the compositions are founded entirely upon visual ideals.

MY COMPOSITIONS' INITIAL SKETCHES AND
THEIR FINALISED NOTATION.

The scoring of *blank slate* encompasses a variety of material inspired by the shapes of my drawings, and material in which the drawing *is* the scoring. *cisterns in memory* encompasses both.
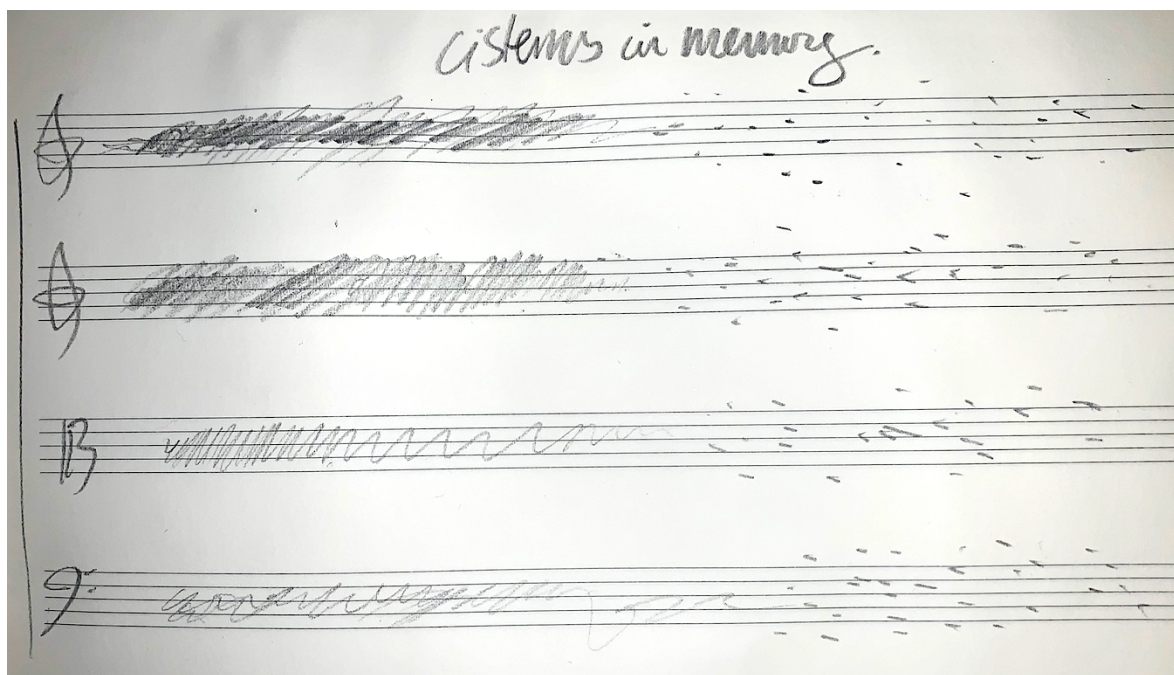

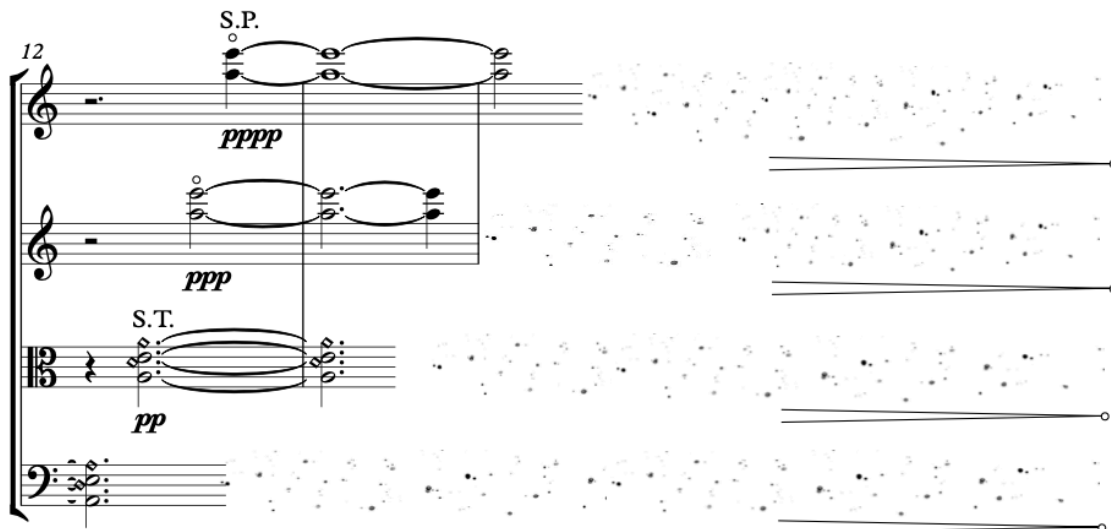Figure 45 Initial sketch for *cisterns in memory*.

Figure 46 *blank slate, cisterns in memory*, bars 12-finish.

As can be seen here, the final notation is an almost direct copy of my plan in the original sketch. This happens a few times in *blank slate*, in instances where I felt I could not replicate the effect I was aiming to create in standardised western notation. My reasoning for this was that if I were to notate an imitation of the imagined effect, it would result in a needlessly complex notation for a relatively simple technical idea, and, on top of that, a certain delicacy would be lost in the potential of a performer becoming overly focussed on technicality over intended sound. In other cases, however, it was simply the idea was more effectively communicated through the process of graphic notation. So goes *whispering in memory*, a miniature in which I replicated the initial sketch exactly onto the finished score.
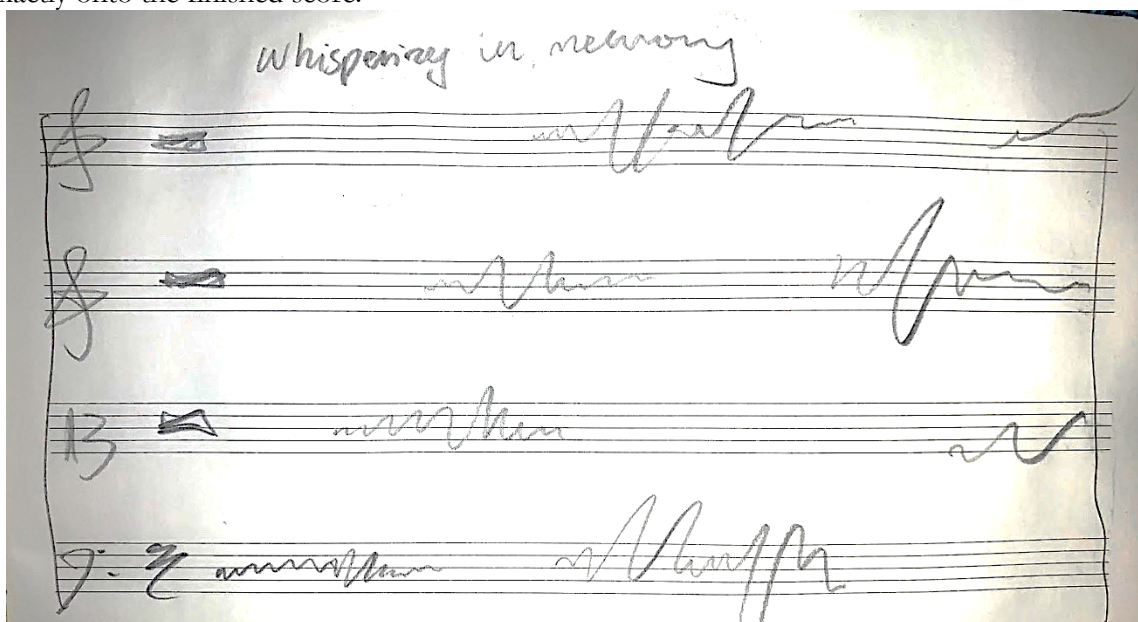

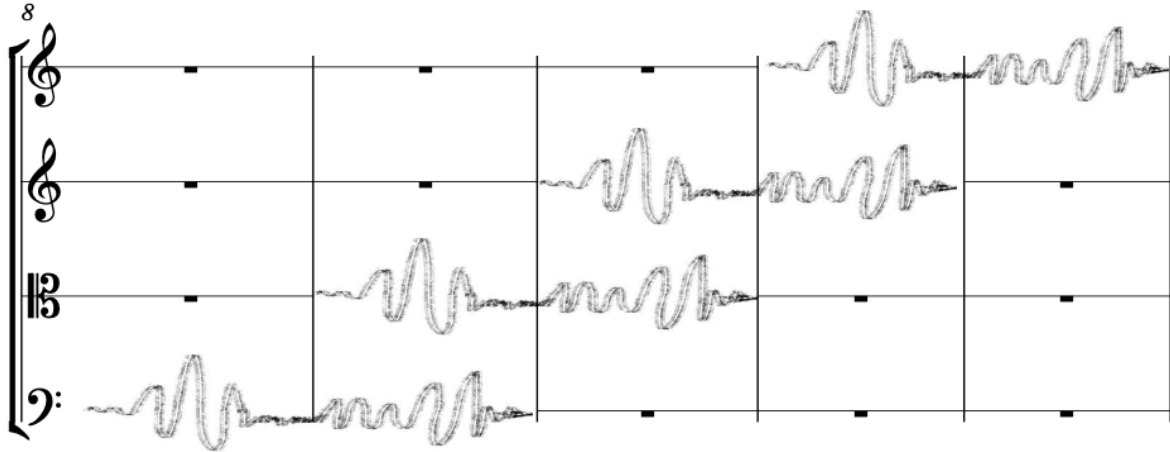Figure 47 Initial sketch for *whispering in memory*.

Figure 48 *blank slate, whispering in memory,* bars 8-12.

The lines on the stave are directions that the instrumentalist should follow with their right bowing hand when bowing the body of the instrument as the piece instructs. When drawing these lines, I specifically opted for a brush that held a delicate, chalk-like quality, to imitate whispering's frangible sonance.

The notation in *wind in memory*, a miniature also entirely graphically notated, is not indicative of pitch or tonal movement, but the movement of the instrumentalists' left hands travelling up and down the fingerboard. Whe looking at the score, the listener can grasp some level of melodic idea, though I believe the melodic framework to be more discernible in the initial sketch for this miniature.
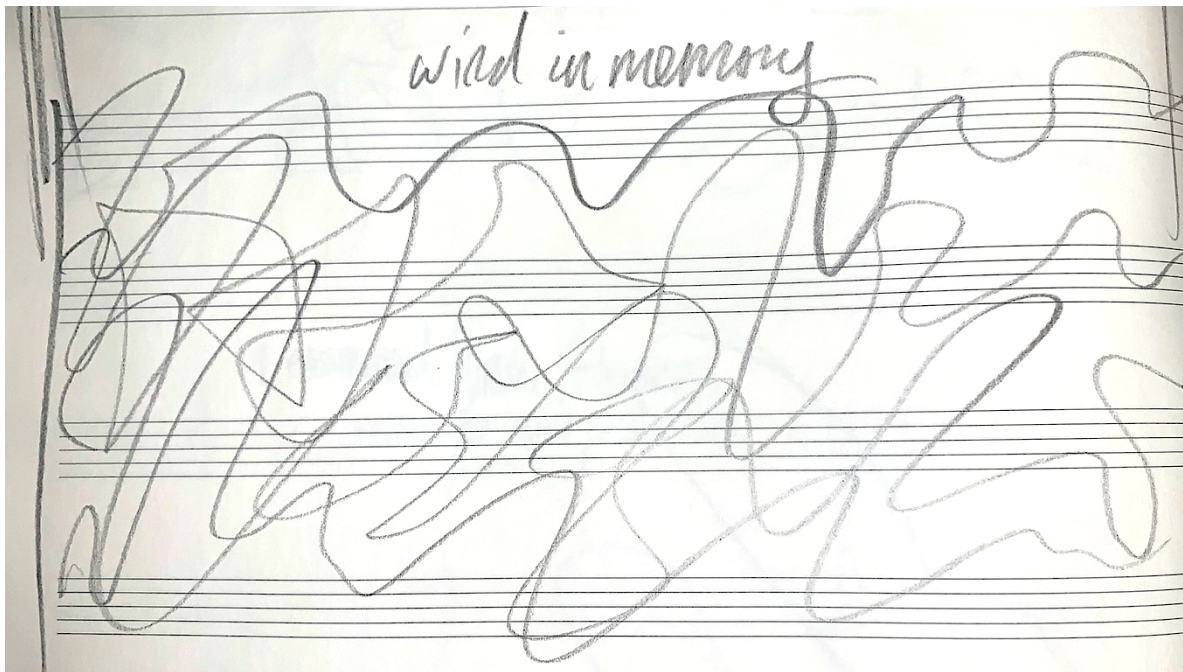

Figure 49 Initial sketch for *wind in memory.*

The finalised notation is more demonstrative of playing instruction as opposed to a direct representation of the miniature's overall sound. Despite having morphed into a more precise form of graphic notation, however, I still see the core element of the initial sketch is still to be present in the finalised version, and the rising-falling pattern of the lines in this score is indicative of its sound, thus lending itself to the 'music that looks how it sounds' concept.
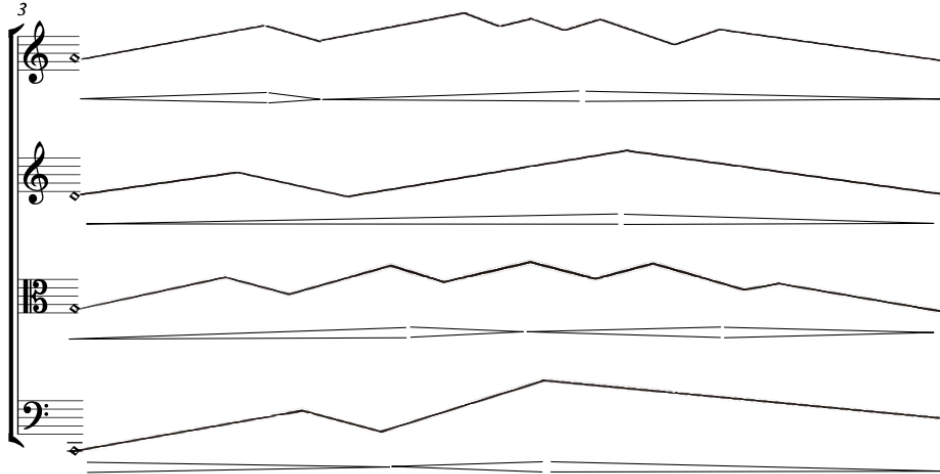
Figure 50 *blank slate, wind in memory*, bar 3.

rivers in memory and *pools in memory* both have a slightly different relationship to their initial sketches. While *rivers in memory* is more indicative of shape and form, *pools in memory* is indicative of atmosphere. I created the following sketch for *rivers in memory* after finalising the illustrative intention of cognitive dissonance in perception vs. reality. Just as the finalised composition was an audible representation of my perception of a river's sound against its actual sound, the initial sketch for this piece demonstrates a visual representation of the same juxtaposition.
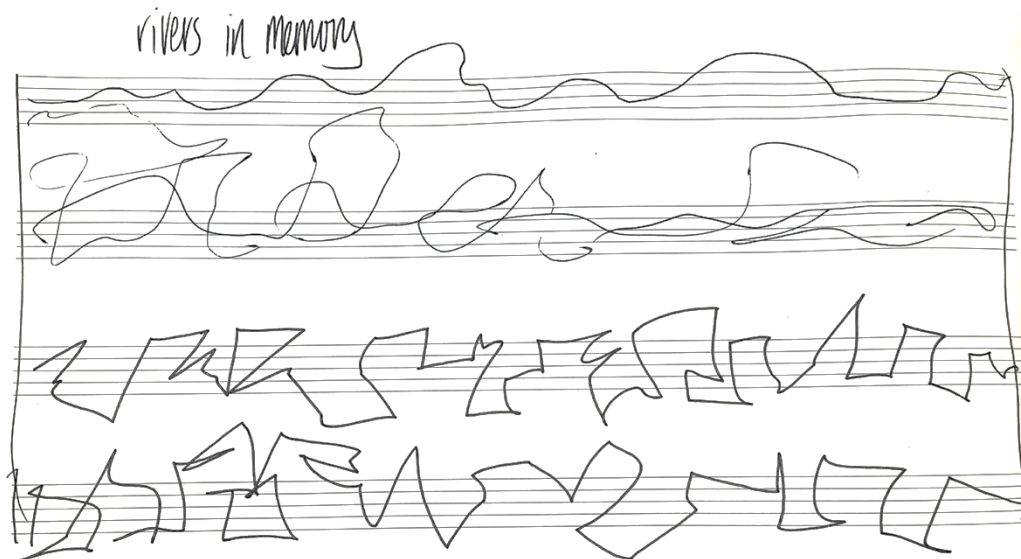
Figure 51 Initial sketch for *rivers in memory*.

Although notating this score did not involve the placement of graphics, nor the intense mapping process used by Szlavnics, I believe the notated score still bears a visual resemblance to the initial sketch. There is an airiness to the harmonics, minims, and semibreves notated, due to their open appearance on the page. Furthermore, I feel the viola and cello's rhythmic notation bears significant resemblance to the angular linework seen in the lower lines of the sketch.

Figure 52 *blank slate, rivers in memory,* bar 14.

pools in memory began with more of an illustrative image as to how I wanted the resulting effect of the miniature to be. Written alongside it are initial ideas I had for the realisation of this piece, interestingly entirely different to its final result.

Figure 53 Initial sketch for *pools in memory.*

Figure 54 *blank slate, pools in memory*, bars 1-3.

Noting that there is colour in this initial sketch, as has been discussed earlier in this commentary, the illustration of colour made no way into the composition of this miniature. Instead, I sought to imitate that which the sketch held in emotion and atmosphere: a sense of intimacy. I see the use of colour within this sketch as indicative of what interest can be created in a limited palette: the only discernible colours within the sketch of the pool are purple, green, blue, yellow, and pink; the only pitches used in this composition are Ab, Bb, E, Eb, F, and Gb.

Another initial sketch that did use colour was for *the sound of wooden dusk*. This use of colour had a far more mundane purpose, however: to easily see the cross-over of lines. The colour itself was not important: how the lines crossed with each other at certain moments was. The graphic element was not entirely lost here, either: the wavy lines seen in the sketch appear as expression marks in the final score.
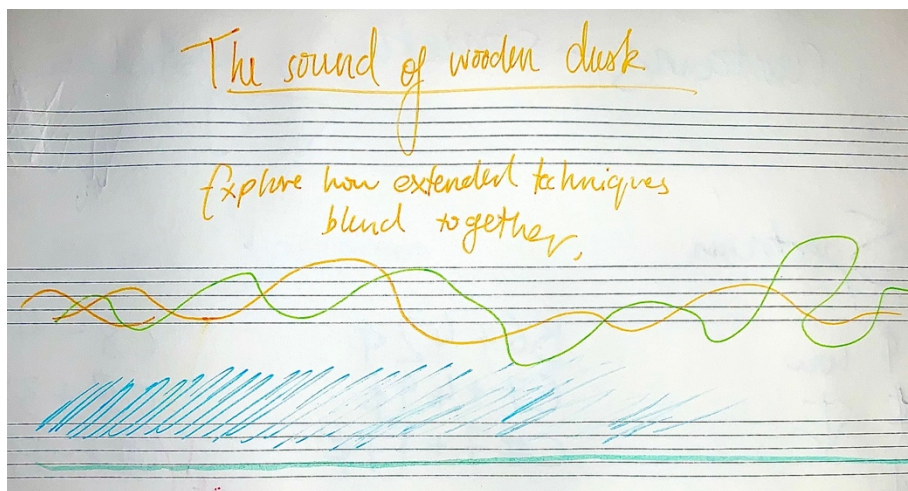

Figure 55 Initial sketch for *the sound of wooden dusk*.

Figure 56 *the sound of wooden dusk*, bars 20-23.

MY PIECE FOR DECONSTRUCTED BASSOON

my piece for DECONSTRUCTED BASSOON is disjointed and unusual in both its composition and timbral qualities, and, unlike every other piece in this portfolio, did not begin with a sketch. Rather, it began as an abstract plan. The biggest challenge for me in the composition of this piece was the process of figuring out a notational system: I knew I could not notate a piece like this using standard westernised notation. Partly this was because the bassoon has too many keys to fit onto a five-line stave, but the more important reason was that this piece would both sound and look entirely unique; I felt that the notation I used should visually match the character of the piece's sound and performance.

I began examining pieces of tablature style notation and eventually came across the score for Ruud Roelofsen's piece *on intimacy*, in which he uses a separate tablature style stave for the cello's left hand, using a simple illustration of the cello's fingerboard as a clef.[62]

Figure 57 Ruud Roelofsen, *on intimacy I (2021)*.

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[62] Score Follower, 'Ruud Roelofsen – on intimacy I [w/ score]', YouTube video, 13:04. Posted by 'incipitsify,' Aug 18, 2021, accessed November 20, 2021, Ibid., 7..

Taking this as inspiration, I created my notation system for *my piece for deconstructed bassoon*: I drew a simple illustration of each bassoon part's fingering system and then drew straight lines from each key to create a stave. I then added a line above the stave for breath work (blowing through each part of the instrument; blowing into specific holes). As the majority of the piece is percussively based – most of the composed material involves the flicking and pressing of the instrument's keys – x-noteheads are almost exclusively used except for instances where breath is involved, in which cases a diamond notehead is used instead.
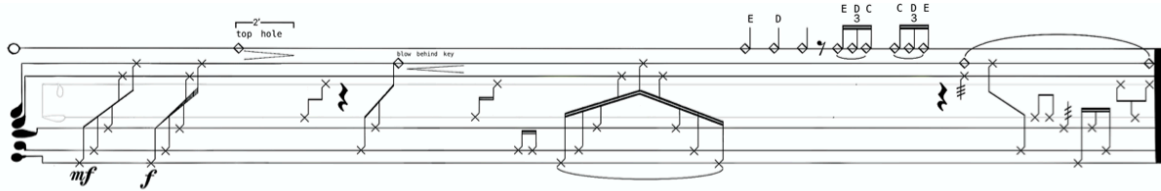

Figure 58 *my piece for DECONSTRUCTED BASSOON, wing joint.*

I wanted individualistic interpretation and performance to be a key factor in this piece's composition, so the notation involves very few performance markings, no tempo markings, and no markings of character. By omitting these details, I aimed to compose a piece that, rather than my personal relationship and philosophy with the bassoon shrouding any other potential performer, any bassoonist could pick up and perform while deconstructing their own relationship with the instrument.

Simultaneity in *my piece for DECONSTRUCTED BASSOON*

I see this piece as achieving simultaneity in a combined form of the ways simultaneity is achieved in *blank slate* and *the sound of wooden dusk*. Like how water and memory are simultaneously illustrated in *blank slate*, and how wood is illustrated through wood in *the sound of wooden dusk*, *my piece for DECONSTRUCTED BASSOON* constructs a simultaneous illustration of the subject at hand: a shifting intergenerational attitudes surrounding the bassoon through using the bassoon.

Perhaps this piece, more so than the others, requires more of a temporal element. The piece undergoes a journey of intimately exploring the instrument and slowly putting it back together, and thus does not retain the quality of every moment being wholly encompassing of the intention. I do believe, however, due to the distinct visual element the piece requires in performance, the simultaneity is ever present. Watching the performer and examining how they interact with each part of the bassoon creates a moving, active illustration.

Having compiled my research and compositional processes, I find it fascinating that I was inspired by so many composers who employ technical methods that I largely refute. Lamb, Ligeti, and Szlavnics, all composers who hold visual art as a key point of value in their processes of composition, constructed their music from incredibly technical, often mathematical frames of reference. In examining and learning from these composers' methods, I have gained their sounds and philosophies, and left the science behind. Instead, I chose to favour a method of composition that bases itself upon abstract ideas and feelings.

When it came to the process of transliterating visual artistic practices into music, I knew it would be inauthentic to approach the technique with such mathematical approaches as I had been researching. I often used my practices as a visual artist as a key point of reference when discerning what would be most effectively transliterated into a musical context. Knowing that the approaches I take to visual art were nowhere on the scale of technicality I was witnessing from these composers, I knew that if I were to attempt to employ these methods in my music, I would not have been authentically transliterating.

Simultaneity, I believe, was achieved within every single one of the works in this portfolio. Every piece is short with little material development. My composition method, of writing vertically as opposed to horizontally, aided this. Focussing on each individual bar – as opposed to focusing on an individual instrumental line – allowed me to compose pieces that have the quality of the illustrated concept to be discerned at any one random point in their timeframe, allowing for a the listener a temporal framework in which they can absorb a simultaneous image, creating an enhanced artistic experience.

Though this research was largely inspired by Klee's quotation: 'Polyphonic painting is superior to music in so far as the temporal element has more of spatial quality. The sense of simultaneity emerges in an enriched form',[63] this was out of no attempt to prove Klee's claim as incorrect. The intention of this portfolio is not to assert music as a superior art form, nor is it to attempt a levelling of the playing field. I maintain that music and painting are two distinct artistic alphabets. They present the same artistic material to be read in different ways. Just as Klee used musical material in his paintings, I placed my sketches into my composition, in both a literal and metaphorical sense. I believe the purpose of art is to universally connect the creator's mind with an external party. Some choose painting as their method; others choose composition. I chose to do both.

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[63] Paul Klee, *The Diaries of Paul Klee, 1898-1918*, (California: University of California Press, Berkeley, 1964), 374.

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