2018


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On
Myth & Music,
Legend & Landscape,
Science, Stars, & Story;
a Portfolio of Compositions:

*****

An Animist Aesthetic Argument on
Symbolist Sound-Synergies, with
Musings on Messiaen and the
Taoism of Takemitsu, in the
Work of Mulvany.

***

Submitted in Partial fulfilment
of the requirements for
the award of
Doctor of Philosophy
Music Composition

Dublin Institute of Technology
Conservatory of Music and Drama

Supervisor: Dr. Gráinne Mulvey

Eoin Mulvany
Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of

Doctor of Philosophy in Music Composition

is entirely my own work and has not been submitted for assessment for any academic purpose other than in partial fulfilment for that stated above.

Signed:

Date:

11 November 2018
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Acknowledgements

Many thanks are due to a number of people who provided an invaluable support to the composer in the completion of this work. The work would not have been possible without the dedication and insight provided by my main supervisor Dr. Gráinne Mulvey. She provided inspiration, an enormous support, a tireless energy, and limitless ideas to me in the last four years. Her mastery of detail and nuance in instrumental writing is profound, and her fascination for concept and its’ nexus with raw sound has been inspirational. She provided a freedom to explore my own individual voice as a composer, and this has been a wonderfully enlightening journey as a result.

My loving partner Jody Madigan, has been my encouragement and support throughout the last few years. Without his forbearance, patience, and support, this work may have been immeasurably more difficult. His encouragement has made all of the difference. These works are inspired by and dedicated to him.

My parents, Gene and Irene Mulvany, have my everlasting gratitude and love for their unerring love and support, as well that of my sister Lorna, and my brothers Kevin and Anthony, and my niece Heather, and nephew Ethan, who have been a life-affirming addition our family.

The Madigan family have been a source of great comfort, conversation, and love throughout the course of this work, and I would like to thank Terry and Maura for everything they have done for us over the years, as well as Ter, Emilie, Ava, Oscar, and Sophie, for their interest in my project, their positive energy, and for providing the occasional welcome distraction.

Maria-Jose Gonzalez, my colleague at in the Academic Writing Centre at DIT, has inspired a renewed love of language and the interrogation of concepts in my professional practice. Without her influence, this project would have proven that bit more difficult.

Within the Music Department, Dr. Kerry Houston has been an indefatigable defender of the composition department and deserves recognition for his efforts to expand the provision of facilities and opportunities in the department. I would also like to extend my gratitude to Dr. Jane O’Leary and the performers in Concorde, Martin, Elaine, Madeline, Paul, and Dermot, for their patience and advice, and for making themselves available to try techniques and suggest alternatives. These have been invaluable and much appreciated experiences.

An advance thank you is due to Dr. Martin O’Leary for agreeing to provide an external expertise in order to complete this project, and to Dr. Kevin O’Connell for his role in the assessment of this project before its completion.

Thank you to all who have been a support and encouragement to me during the completion of this journey.
Abstract

The accompanying portfolio contains eight major works for disparate forces: *Brú na Sídhe* is a work for Large Orchestra; *Bog Bodies* is a work commissioned for a heterogenous Quintet; *Gáeth Ard Úar* is a work written for a Solo Bass/Contrabass Clarinet in B-flat; a Piano Trio, *SzyzygyS*, follows; a work entitled *Blackwater* is written for Solo Guitar; a diptych, named *Sigil*, written for a Dectet of Harp and Vibraphone with double String Quartet, follows; then, *O Unworn World* for a ten part Choral ensemble is presented as a meditation on a poem by Patrick Kavanagh; and, the last of the works in the portfolio, is a String Quartet entitled *Wodwo*. These pieces are conceived using an aesthetic guide provided by two substantially different composers: Tōru Takemitsu and Olivier Messiaen. The connection with these composers is explored in a chapter entitled the Aesthetic Review, Chapter One; and, indeed, throughout the commentaries provided in the subsequent chapters dealing with each of the works in the order stated. It is noted that, while these composers provide a guide to the formulation and execution, and even the subject matter, of ideas in music, it is not the case that the music will sound in any way similar to either of these composers. The divergent techniques of composition described within are substantiated with reference to these composers, and fall into three broadly defined categories: the Constructivist, the Impressionist, and the Deductivist approaches to style. The works also contain a similar approach to the subject matter of the inspiration. A thread of Pagan Spirituality and Mythology can be traced through all of the works, to varying degrees. They contain, in addition, a preponderance on duality as a concept; the duality of Science and Natural Spirituality; the duality of defined and undefined sounds; and the duality of composer and performer. With these works, the composer wishes to demonstrate a mastery of compositional techniques and a thorough and methodical approach to the realisation of a conceptual framework.
Philosophically, the conception of the works of this portfolio relies somewhat on a principle of quantum physics; the Uncertainty Principle of Werner Heisenberg. Very simply, this law of quantum mechanics states that an observer, by the very act of observation, changes that which is observed; that a particle fundamentally lacks a position in space, but instead possesses a probability of being in a particular place at a particular time. This uncertainty in the position of the particle is a fundamental truth, and has been repeatedly proven to be experimentally true.¹

In a leap of imagination, this duality in the existence of the particle, could be equated to the unknowability of the nature of the unseen; to the unprovability of the existence of a parallel realm, a concept which was a very real layer of consciousness for our ancestors. It is here observed that, in the absence of exacting scientific data, an unknown force or quality of quotidian life can be manipulated, if one places this unknown in a metaphorical box and, using a label, deals with the box and not the unknown force.

The idea here outlined is a way to view the unknown and derives from the mathematical strategy of dealing with an infinity, and even of multiple infinities, by containing them with a known label.² These infinity-objects, thus labelled, can then be manipulated, often with counter-intuitive processes and results. If one then assumes that the idea of divinities in the animated elements of nature are born of the human mind by the same process of containment in a labelled box of the unknown, then one can arrive at an acceptance of the label, without assuming that all is known about the contents.³

So, the caprice of the Wind, in the absence of four-dimensional modelling and meteorological metadata, can be assigned a known God, its behaviour, not a mystery, but the actions of a God, and therefore of no concern; the Sea and its vicissitudes can be labelled as obeying the commands of the God of the sea (in Irish mythology, the

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God Mananán McLír); the phases of the Moon associated with the feminine cycles of life (the Maid, the Mother, and the Crone; in Ireland Fódhla, Éirú, and Banba); and the Sun, being the setter of time and the definer of seasons, becomes the chief or Father God (the God Lugh, the god of light). Perhaps, then, our Pagan ancestors could label unknown forces thus, and over time, these personages of divine agency and caprice became actors in an uncertain world.⁴

An observation that some contemporary composers seek to control all of the elements of a sound and its textural personality through an extreme perspicacity of the parameters of the sound, provides an insight into the counter-example.

In considering the implications of this duality in the realm of music, one can similarly label the unknown, and without describing all of its constituent parts, can treat with it as an element in the musical firmament. This way of thinking about the sound allows a consideration as to what elements of the sound can be left to chance, and which can be known and manipulated. The imparture of the sound can therefore contain elements of the unknown, without losing overall control over the syntactical relationships between sounds, in one or more of their parameters. The rhythmic, durational, pitch, harmonic, timbral, and articulate components of the sound can be considered as separate elements and be allowed a degree of chance in one or more, without affecting the comprehensive sound. Those elements can be controlled, or liberated to chance according to the intrinsic content that is being communicated.

A common tactical viewpoint in approaching the technical elements that connect the works of the portfolio, can be traced to some of these influences. In the conception of the envelope of a sound, for example, ideas of fundamental physics abound. To consider a sound from its most basic envelope can envisage that it be manipulated, to be chopped, spliced, or retrograded, without recourse to a total control of its constituent parts.

In the Japanese musical tradition, the concept of sawari is identified by Burt as being a fundamental element in the sound production.⁵ The delicacy of this noise element, that is so labelled as sawari, is an unquantifiable part of the nature of the sound; it imparts a

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personality on the sound, and is a feature of the technique of the production of the sound in an instrument. So, for example, an airy quality may accompany a flute sound, in addition to its pitch and rhythmic parameters; or a scratch of a string may be exaggerated in the attack of a note. In Western traditions, these ideas are increasingly becoming part of the compositional process, and, with notational interventions, are instead increasing complexity.

In constructing the works thus, one can draw a comparison to the work of Tōru Takemitsu, and from a different perspective, that of Olivier Messiaen. Each of these composers, in his own way, was influenced by extra-musical stimuli. In the case of Messiaen, quite often that stimulus involved his interpretations of the bible and of his strong Catholic faith. In his music, there exists, for him, multiple layers of meaning to the chosen sounds. The act of choosing a sound to write involves imbuing it with an intrinsic reasoning and motivation. The contention, then, is that the chosen sound somehow contains the extra baggage with which it is imbued. This point is endlessly debatable, for a sound is merely that, surely; but a further indulgence in the point is necessary. If the sound thus extra-musically generated, is not layered with extra meaning, then why this sound and not another? These considerations underpin the philosophical approach to the composition of the pieces of the portfolio.
Introduction II

Rhetorical Reasoning: The Works

The purpose of this essay is to illuminate the connections that exist on multiple planes between the pieces of this portfolio and the concepts and works of two great composers: Olivier Messiaen and Tōru Takemitsu.

The ground work for the following commentaries is conducted under a trio of different rhetorical styles, each of which can illustrate the particular type of thought process exerted on the aesthetic rationale, as delivered in the pieces of the portfolio. These approaches may be termed the Constructivist (as applied to the analyses of Brú na Sídhe and Bog Bodies); the Impressionist (to be seen in analyses of SzyzygyS, Gáeth árd Úar, and Blackwater); and the Deductivist (a recurrent device used in the rationalisation for Sigil I & II, O Unworn World, and Wodwo). Each of these approaches, as applied to the various elements comprising the music, is explored through the lens of the influences of the aforementioned composers.

A constructivist viewpoint of these works supposes that the compositions, built from first principles using extra-musical stimuli, are elementally constructed using disparate parametric qualities derived wholly from those stimuli. The techniques of writing employed throughout the portfolio, described throughout the commentaries, are historically commonly held generators for composers. The application here is evident in the minutiae of the detailing, and in the divergence of subject matter, on which the compositions are founded.

So, for example, the contention here is that the Orchestral piece in this portfolio, Brú na Sídhe, is devised from first principles; from the ancient Horns in the Irish Archaeological Museum, and from leitmotifs based on one of the names given to the Hunter God worshipped throughout Pre-Christian Europe (see Chapter Two). In addition, this piece incorporates the duality of the particle accelerator at CERN in Geneva and the Ancient Irish burial mound at Newgrange in County Meath. Though the approach to the construction of the music may compare to that of another composer, the choices enacted along the route to the finished piece, in aggregate, result in a fundamentally different music than might be expected of another author given the same stimuli.
In the quintet *Bog Bodies*, the generating process involves an imagining of the degradation of the body of a human sacrifice in the environment of a bog, as it is altered by the Aristotelian elements of fire, water, earth & wood, and air, while also incorporating spirit as a proxy for the sacrificial human (see Chapter Three). The approach to the composition of the piece can be considered to fall into the same category, that of the constructivist approach, in that the elements are constituted as instrumental characters, and each is designed to exhibit a subjectively reasoned timbral approximation of the elemental quality in question. A further constructivist element employed is that this piece uses a pitch-class set as the basis for the harmonic and melodic material.

The Bass/Contrabass Clarinet piece *Gáeth Árd Úar*, exhibits an example of an Impressionist-style piece. The main element engaged in this work is Air (Chapter Four). It is loosely based on an ancient Irish allegorical poem equating an oncoming *high cold wind*, to the invasion of the foreign religion of Christianity. The allegory is told through the deeply significant characterisation of the Stag and his herd, as proxy characters for the mythological heroes of Irish legends, Fionn and the Fianna. The music reflects the flight of the herd, in the face of this threat to the old ways, by quoting the medieval *Dies Irae* in a schismatic-melodic plane, cutting through the augmented-triad-dominant tonality representative of the Pagan ways. Though more traditionally structured than would be expected of a purely impressionist piece, this work exhibits a quasi-impressionist stylistic bent in the caprice of the melody and, in its broad tessitura and melodic nous, owes a debt to Takemitsu.

In *SzyzygyS* (Chapter Five), a similar style of composition is expounded, though in a different way. In a piece exploring the Orion constellation of stars and their affinity with the earth-based theologies of the ancient Irish, the inspiration for this work lends itself to this Impressionist approach, though also to the Constructivist approach of first-principle origins. In its similarity to the style of Takemitsu, and its discourse in the *repeat and elaborate* approach, though, the piece can more fully be examined through the lens of the Impressionist approach.

This impressionistic rhetorical stance can also be discerned in the exploration of the elemental flow of water in the piece for solo guitar, *Blackwater* (Chapter Six). In this work the drips, rivulets, and torrents of a river are approximated in a musical narrative
akin to the styles of Debussy and of Takemitsu. These styles could be summed up as **repeat and elaborate**, in which style a section of music is immediately repeated subsequent to its first hearing, and is altered on the repetition. This style of writing is readily recognisable in the styles of these two composers.

Into the third category outlined above fall the remaining three pieces: *Sigil I & II*, *O Unworn World*, and *Wodwo*. In using the term **Deductivist** to encapsulate the thinking used for these pieces, this composer wishes to apply a reasoning whereby each work can be referenced and analysed through the prism of the **magic-square** (outlined in Chapter Seven), as each is directly, or obliquely, derived from this source. In addition, these three works share the commonality of having been influenced by the Kavanagh poem *Canal Bank Walk*.\(^6\)

*Sigil I & II* derive directly from that poem, each movement using quotes from the text to create the music, as transliterated through the **Magic-square** (see Chapter Seven). This work, for Harp, Vibraphone, and Double String Quartet, explores the idea of water-reflection as a bridging between worlds, and of conjuring wishes through the spiritual veil using the gestures of music to approximate the transmission of the text. In addition, noting the bridging congruences between an imagined wind-blown aeolian harp, a bridge in sound; the harp-shaped Beckett bridge over the River Liffey in the Docklands of Dublin City, a temporal bridge; and the metaphorical bridging quality of a willow grove with its own reflection; informs the impressionistic soundscape built up in the two movements of the piece.

In *O Unworn World* (Chapter Eight), the same text is utilised for a three movement choral work in ten parts. The dappled dancing of the light and the phases of the moon are explored through a focus on three major ninth chords. This trio of pentad chords, each rooted on a corner of an augmented triad, paints a connection to the idea of the sacred feminine triunity in the transition of the light of the moon through its phases.

Finally, a work for String Quartet, *Wodwo* (Chapter Nine), explores the relationship of mankind to the forest and wildness and is derived obliquely from that text, too: the poem written as the basis for the work, is a personal response to that original

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Kavanagh text. In the work, the *Magic-square* again forms an integral corner stone in the devising of the music.

All of these works share in common a number of qualities: the integration of gesture, the use of extra-musical stimuli, an interest in the contour of the sound envelope, a composite dialogue in harmonic and timbral integration, a strong connection in the syntactical organisation of tones, and a spiritual resonance in the subject matter. The following aesthetic review aims to substantiate the connections between the pieces and the works of Messiaen and Takemitsu.
Chapter One

Aesthetic Review: The Context

All of these works contain the threads which connect them to overarching narratives. Firstly, the elements of Myth and Legend pervade most of the works; though, more broadly, this manifests in a rooting in the traditional spirituality of the Ancient Irish Pagans and Animists. Several references to Pagan Gods, Demigods, and ritual can be discovered throughout the commentaries to the works. The idea of the sacred can be said to be present in one form or another in all of the works. In this, the influence of Messiaen and his theological primary purposes can be deduced.

Some issues arise, though, in the transformation of the medium of music into one of the communication of concrete ideas. Roberto Fabbi, writing an essay entitled *Theological Implications of Restrictions in Messiaen’s Compositional processes* acknowledges that:

> ...admittedly, the relationship between music as an autonomous form of expression responding to its own sense horizons, and the other horizon to which the symbolic system refers, is somewhat problematic. This relationship, which is of an extra-musical nature, pertains to a sensibility and a faith that escape reason. Moreover, the cultural matrix of the contemporary world - especially in the West, dominated as it is by technology and often disconnected from a sense of the sacred - is not particularly conducive to an understanding and sharing of the language of religious symbolism.

In approaching the analysis of the works of this portfolio, this identification, of the limitations in the communicability of extra-musical stimuli through music, is adopted credulously; the texts reflect this realisation. As Fabbi concedes, the sense of the sacred is somewhat diminished in the Western World, replaced as it has become, by consumption and self-absorption, therefore in any musical discourse, regarding the plane of spiritual meaning, one must acknowledge this dichotomy.

In approaching the music of Takemitsu as compared to that of Messiaen, it is important to draw the distinction that, though Takemitsu did not share the zeal of Messiaen as regards the religious content of music, he did, however, form a spiritual connection in his music; one which relied more on the Animist view of nature, inherent in the Zen

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philosophy, which forms an integral indigenous component of Japanese cultural aesthetics. Burt, acknowledging the aesthetic influence of John Cage on the music of Takemitsu, notes a fundamental divergence from the Cageian Zen philosophy in music by quoting Takemitsu, who wrote in *Bijitsu Hikyō*, a journal, in 1956 thus: ‘[…] a true artist is a person who, descending to the bottom of his inner mineshaft, reveals his own self like a piece of unrefined ore […]’.\(^3\) In this, it would seem, that he wants to negate the dissociation of the composer from the composition, that was to become an integral part of the works of Cage and others in the decade which followed. Takemitsu, steeped in the Taoist principles of Earthly and Heavenly Harmony, forms a fundamental aesthetic guide for the conception and composition of these works.

Secondly, though not unconnected to the first point above, Nature can be seen as a big influence in the generation of all of the works of the portfolio. The focus on elemental forces, on Air, Water, Earth, Spirit, and on Fire, is explicit throughout the commentaries. In this, the works betray the influence of Takemitsu above all, and to some degree, of Messiaen. In relation to Messiaen, Fabbi notes that:

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\text{Nature with its colors [sic.,] noises, and, of course, its birdsong, pervades a large part of Messiaen’s work; … For an entire decade (1952 - 62), he dedicated himself to nature... Nature, like human love, is perceived as a manifestation of divine love...}^{4}\]

Takemitsu is noted as having used the aesthetic principles of the proportions of the traditional Japanese garden. Burt notes a shift in the conception by the composer of his formal constructs to reflect this preoccupation. In *Arc* (1963-6), the composer explores the idea that Garden objects, such as the stones, the trees, and the grass, form the furnishings in sound for the piece. In a lecture at the Eastman School of Music in 1974, Wilson recalls the composer referring to *Garden Rain* (1974) as being modelled on a Japanese rock garden.\(^5\) In this conception, the music forms the objects of the garden and each is imbued with its own life cycle, activity, and time scale dilation. Regarding the similarity between the universally representational nature of rhythm at different magnifications and in the life-cycle of different garden objects, this idea hues closely to the ideas of Messiaen.\(^6\)

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Takemitsu also uses the Japanese Garden as an ordering principle in *Coral Island* (1962). Elements such as sand are texturally presented in one of six sub-groups within the orchestra. ‘Mobiles’ shape a representation of the grass and flowers ‘whose time-cycle is the shortest of all the elements in the Garden.’

Indeed, Takemitsu’s compositional career comprises prominent series of compositional output; among them the *Garden series*, the *Waterscape series*, the *Dreaming (Dream and Number) series*, and the *Star series*. The works of this folio contain similarities in each of these categories.

Other important connections throughout the portfolio are numerological and linguistic in nature. The nexus of music and number is a well-trodden path of enquiry, and as such, need not be elaborated upon to a great degree here; although, suffice it to state that, as an ordering principle, the connection between music and mathematics would seem to be a fundamental principle in devising methodologies for the analysis of perception and understanding of music. In the fundamental perceptions of the world, one relies on the instant and intuitive recognition of simple numbers and proportions. This intuitive nature of number necessarily lends itself to perceptions of proportion and repetition in music, art, architecture, literature, and poetry, among many other pursuits in the humanities.

In the works of this portfolio, a preponderance on Prime numbers is, perhaps, apparent. A free approach to the application of these numbers is considered essential in order to forge a new aesthetic path; a departure from previous applications of these numerical and proportional concepts by this composer. In several of the works, these indivisible numbers recur with a recognisable regularity in the rhythmic choices, in the numbers of sections and movements, in the instrumentation, in repetition, and in other fiat decisions enacted throughout the compositional process. Though not exhaustively broached through the accompanying commentaries, the significance of these numbers

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7 Ibid., 103.
8 Ibid., 200.
is present in micro-choices throughout all of the works. So, for instance, the number five is easily traceable through the Quintet *Bog Bodies*: in the number of sections; the number of instruments; and in certain of the durations. Elsewhere, that number is an important factor in determining the number of movements in the String Quartet *Wodwo*, while other Prime numbers are the determinants of the durations of mobiles towards the end of that work. The numbers three and seven are invested with significance in the Trio *Szyszgy*S and in the choral work *O Unworn World* (see Chapters Five and Eight respectively).

The Primes, being indivisible, contain a certain infinity within themselves. This is an attractive concept, somewhat analogous to Messiaen’s understanding of rhythm and of time in general, in that the capture of infinities has a conceptual basis in his music.

Ian Darbyshire asserts the centrality to Messiaen’s music of symmetry in rhythmic elements as a representation of eternity:

> This elementary notion of symmetry, which Messiaen detected or built into his basic techniques, made them a kind of music-mathematical formula, descriptive of a law that holds the secret of the ultimate nature of things.\(^1\)

In his *non-retrogradeable rhythms*, and also, as concerns pitch material, in his *Modes of limited transposition*,\(^2\) Messiaen sought to represent the divine, and thus, to a degree, the infinite, through the language of music. In this he was influenced by the study of Indian Classical musics, and by the rhythmic systems of the *Tala*, the 120 rhythmic variations used in the Carnatic tradition.\(^3\)

Messiaen was particularly taken with the idea that the divine can be represented using a rhythm; in the Indian scheme, the quaver represents the indivisible origin of the Universe; in his scheme, the semibreve is endowed with the same quality. Therefore, its’ divisibility can be thought a metaphor for divisions of real time. In this thinking, the ideas of scale and the telescoping of time, can be expedited in a musical context. This concept formed an influence on the ideas about the dilation of time across the chasm

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\(^3\) *Ibid.* 42.
of history, explored in the composition of *Brú na Sídhe* and *Bog Bodies* (Chapters Two and Three).

Takemitsu, too, seemed to have a preoccupation with number in his music. *A Flock Descends into the Pentagonal Garden* (1977) is rigorously centred on the number five; it uses the pentatonic based on F#, and, according to Kuniharu Akiyama, a system of rhythmic cells based on the addition of values to the number five: ‘Various shapes are derived from the cells whose rhythmic construction is related to the number five: 3+2; 1+4; 2+3; 4+1…’.

Burt notes the use by Takemitsu of the Magic-Square to generate the pitch and rhythmic material of *A Flock Descends into the Pentagonal Garden*. This work is considered to be one of the Composer’s *Dream and Number* series. The idea of using the Magic-square, is explored in two of the works of this portfolio to generate pitch elements: *Sigil I & II* and *Wodwo* (See Chapters Seven and Nine).

In an attempt to draw an analogy to the Garden series of compositions, and to a greater depth of symbolism in the work, Poirier, as noted by Burt, identifies the Taoist Magic-Square, each of whose numerical systems adds to fifteen, as an important ordering principle. The central numbers of the square (7-5-3) determine the rhythm of the distribution of stones in a Japanese rock garden. This forms yet another connection to both Messiaen, and to the works of this portfolio.

Also fundamental in the communication and understanding of music, are the linguistic functions of the mind. Stephen J. Pinker uses the term ‘mentalese’ to describe the process by which communication ‘bypasses verbal constructions at the encoding and decoding stages’. It seems that the linguistic functions of the mind do not rely, therefore, on words, but can be stimulated by other means. Andrew Shenton, recounts Benjamin Lee Whorf, an American anthropological linguist suggesting that: ‘language

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determines perception and thought'.\textsuperscript{20} Taken together, these concepts synergise in the musical plane to form a communicative device that can be employed to impart meaning via alternative pathways to consciousness.

However, Shenton counters this argument as he cogitates on the implications of Messiaen's \textit{language}, that communicable language as transliterated from letters to musical notes, used by the composer, and its supposed inherent extra-musical meanings.

Messiaen's music is difficult to comprehend because the melodic lines generated by the language do not sound like melodies we might reasonably expect someone to have heard as part of their cultural heritage... Messiaen does not herald or announce phrases in the language in any way, but integrates them into the musical whole.\textsuperscript{21}

In the use of the \textit{Magic-square} to transliterate words into music, the meaning of the words can be explored in a different way. The tonalism of the spoken word may be approximated, and, additionally, the breath of the clause can form an ordering principle in the music. In the application of the transliteration of the poem \textit{Canal Bank Walk}, in the piece \textit{Sigil I & II} for example, the words are transmitted through the music in phonemes; clusters of notes representing letters; as it is reasoned that this is the method by which language is understood by the listener, and not in the formation of letter-by-letter components. This issue, encountered by Messiaen too, is identified by Shenton as being a slight short-coming in application of this generative device by the composer. Linguistic accents and other spelling indications are noted as being ignored by Messiaen in his inclusion of transliterated notes, though admittedly, the composer strives above all to transmit a concept of \textit{couleur} in his pieces.

Curiously, Shenton introduces us to the Rosetta stone (found in 1799 near Rosetta in the Nile delta), which was one of Messiaen's many fascinations. Shenton relates that Jean-François Champollion decoded the language having realised that the hieroglyphics represented a phonetic system. Messiaen, responding to this, 'enclosed words in cartouches in the score of the \textit{Méditations sur le Mysteré de la Sainte Trinité pour Orgue} (1969), as the hieroglyphics enclosed the names of Kings.'\textsuperscript{22} The author


\textsuperscript{21} Ibid., 230.

\textsuperscript{22} Ibid., 239.
does not relate a corresponding treatment of phonemic transliteration in Messiaen’s music; it would seem a logical step to draw the connection, though, perhaps this linguistic connection was considered and discarded by the composer for some unknown reason.

The systems of communicating tones in both the Greek, Arabic, Hebrew, and Aramaic phonemic alphabet and Mandarin Chinese pictograms, is well established in the phonemic and written languages of those civilisations. Perhaps, speculatively, the same is true of the hitherto-for untranslated protolanguage inscribed on the standing stones of the Ancient sites of the Boyne Valley. Perhaps all of those spirals and lozenges inscribed on the entrance stones at Newgrange and Knowth were a tonal language communicating extra-linguistic sounds of some ritual nature. It is interesting, if ultimately futile, to consider such ideas, as there is no Rosetta Stone equivalent to decode them.

In the gestural qualities of the music of Takemitsu, one can hear the structure and tonalism of spoken discourse; whether or not this is a conscious deliberation on the part of the composer, is open to perception and debate. Takemitsu, quoted by Oto, Chinmoku understood the communication of music thus: ‘To express it a little more precisely, I understood that to compose equaled to attach meaning to (signifier) the stream of sound flowing through the world around us.’ Furthermore, this insight elucidates Takemitsu’s perceptions of nature in music, alluded to above.

Subsequently, there are some other considerations to include in this appraisal of the use of the Magic-square by Messiaen. Other parameters of the music are governed by this generative device. Shenton notes that:

> [...Messiaen] explains in the preface to the score and in conversations with Claude Samuel and others, [that the ‘Méditations sur le Mysteré de la Sainte Trinité pour Orgue’] is comprised of [sic] three elements: 1) a musical alphabet which assigns a rhythmicized [sic] pitch to each letter of the Roman alphabet; 2) a system of grammatical cases based on Latin; and 3) a series of Leitmotifs.

While Messiaen assigns multiple parameters, including rhythm and register, to his letters, the author of this portfolio has instead taken a more liberal approach, disincluding other parameters, even those registral and rhythmic parameters integral to

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the formulae of Messiaen, from the scheme, in favour of a more pitch-class-based approach. This approach, it is here concluded, affords the maximum freedom in the expressivity required of these pieces. This freedom of manoeuvre is intended to address the difficulties of transmitting a spiritual concept through symbolism as alluded to in the comments by Fabbi, quoted at the start of this chapter. The free application of this transliterative strategy enables a more communicative approach to be applied to the music, rather than a schematic rendering of a pre-ordained set of principles, set in motion to grind to their inevitable conclusion. These schematic vortices are encountered in extremis in the *cellular automata* of Iannis Xenakis, and in the *integral serialism* of Pierre Boulez, both students of Messiaen. A choice avoidance of this inevitability is in itself, ironically, a pre-ordained principle of the pieces here.

A further use of textual significance concerns the use of leitmotif, alluded to above. There are multiple uses of this useful form of transliteration in the works here presented, some of which are quite baldly obvious, such as the use of the Abracadabra and Dagda leitmotifs in Brú na Sidhe, or perhaps less apparent, as in the use of the signature leitmotif in Wodwo. This is similar to the use of leitmotif by Messiaen, as he includes the cartouches referenced above in his music. Shenton notes that Messiaen uses leitmotif in a similar manner to Wagner; the music is composed to ‘represent a being or idea’. Moreover, the author writes that the system devised by the composer percolates into three categories:

Representational leitmotifs... (eg. the Theme de Dieu in the Méditations); Language leitmotifs [part of the Language Communicable]; and Associated leitmotifs, which by association, have come to represent an extra-musical idea (eg. Le Souffle de L’Espirt).

Taking a cue from Messiaen, Takemitsu, too, has used the device of leitmotif and transliterative processes in his music. Burt notes that Takemitsu uses the technique of transliteration in *Bryce* (1976). He takes the letters of the name and uses them to construct a short melodic phrase (B♭, C, E) which, ‘[…] according to the Composer - together with the adjacent quarter-tones, provides most of the musical material.’ In *Star-isle* (1982), commissioned by the Waseda Institute of Tōykō University, the composer turned the name of the institute into a musical phrase, by taking the letters and transliterating them into notes. Burt also references Akiyama’s analysis of

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27 *Ibid.*, 200; The musical phrase in question comprises [w] - As (=Ab) - E - D - A.
Takemitsu’s *Asterism*, for Piano and Orchestra (1967); ‘Akiyama suggests that the emphasis on \([\text{Ab}/G\# \text{ towards the end of the work}]\) might even represent an example of Takemitsu’s direct transliteration of Roman letters into their equivalent musical note-names.’ He substantiates the insinuation by quoting Akiyama thus: 'G\# = Ab… is this sounding of the As [German Ab] of Asterism the solution to the riddle?’

While it is true that these named composers are the principal guiding lights for the works of this portfolio as a whole, it should be acknowledged that there have indeed been other composers whose works have had an influence on the composition of elements within the portfolio. Among them are Gerard Grisey, through his work *Partiels* (1975); a work which may be recognised in the initial sounding of the double basses of the Orchestral piece *Brú na Sídhe*; Tristan Murail whose work *Gondwana* (1980) is a masterpiece in the use of meta-instruments, and whose influence may be discerned in the same work; and Kaija Saariaho, whose work *Orion* (2002) has a special affinity with the Trio *SzyzygyS*, based as it is on the same constellation, and in the use of ideas concerning augmented spectra and repeating chordal soundscapes. These practitioners of spectral composition have inspired some of the features one might hear in, for example, the start of the Orchestral piece *Brú na Sídhe*, and in the Quintet *Bog Bodies*. They, in turn, have inspired others such as Panagiotis Kokoras, whose work exploring noise elements and articulated, often pitchless, soundscapes, often relying on timbral entities alone, has influenced the adoption of *Sawari* ideas explored in the portfolio, for instance in works such as *Holophony* (2003) or *Cycling* (2015); or Jane O’Leary, whose influence on the piece written for her Quintet, *Bog Bodies*, enabled a more expansive view of performer-freedoms to emerge.

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Chapter Two

Brú Na Sídhe: An Orchestral Work

This work, for a large Orchestra, is rooted in a striking observation: that of the close correlation between the two sites of Newgrange (Sídh in Bróga), a Stone-age burial passage complex in the Boyne valley in county Meath, Ireland (See Appendix A p.102); and of the Centre for Nuclear Research Large Hadron Collider (LHC) machine on the outskirts of Geneva, Switzerland. For such hugely contrasting sites in time and space, these two entities share a remarkable number of qualities in common. The title translates as a complex, or palace, of the Fairy Folk, and is a derivation of the name of the Sídh in Bróga complex.

The duration of the work is about the same, eighteen to nineteen minutes (performance may be closer to twenty minutes allowing for durational fermata), as the duration in which the central chamber of the passage tomb is illuminated during the Winter solstice each year. Over the millennia, the time of illumination has decreased as the course of the Earth has altered appreciably in that time.¹ For musical reasons, the length cannot be exact to the second, though the duration of the whole piece was chosen in a rough fashion for this interesting correlation.

While the Centre for Nuclear Research (CERN) is situated on a temporal international border, as part of the twenty-seven kilometre collider tunnel is situated in the territory of France, the Newgrange/ Sídh in Bróga complex can be thought of as straddling the border between this world and the spirit world (in Irish mythology variously called the ‘Land of the Undying Ones’, or ‘Tír na n’Óg’). Across a span of time separated by approximately five thousand years, they each allude to the insatiable desire of humanity to understand the Universe, the cosmos, and the nature of reality.

The motivations in the design and execution of these sites, as well as the design motifs, are curiously similar under a number of different rubrics. Firstly, the shapes used, such as the triskele, the spiral, the zig-zag, and the lozenge, correspond in the enigmatic stone carvings at Sídh in Bróga and, from an aerial viewpoint of the

¹ Murphy, Anthony: Newgrange: Monument to Immortality, (Dublin: Liffey Press, 2012). On a 25,590 year cycle, the Earth wobbles in relation to the sidereal neighbourhood, its axis circling the polar star, and thus, the relationship in space to the Sun and to the background stars, is increasingly altered, so that it is not the same as it was 5,000 years ago, when the complex was built.
subterranean schematic, in the smaller booster particle accelerators at CERN where particles are accelerated before being boosted to maximum speed in the main collider. Some of these spiral shapes and hatch and lozenge patterns can be seen, intriguingly, in the fascinating snapshots of the contrails of fundamental particles from the LHC experiments (Appendix B p.103). These shapes seem intrinsically to bind the human mind in both imagination and observation to some fundamentally deeper reality. In this piece, these elements of shape can be perceived, in metaphor, in some of the melodic and chordal entities throughout the work.

Secondly, the dimensions and siting of these observatories is a common feature, as both are circular in design and subterranean; their respective connections to the deeper resonances of the cosmos are rooted inside the earth. The piece encodes a lot of circular elements in proxy, from melodic fragments, to rhythmic generators, and to structural conceits. These circular elements are, necessarily, approximations, and bear resemblance to these shapes only in the sonic metaphor as it is psychologically and intrinsically received; for example, by means of a smooth dynamic contour, a sound can be perceived as approaching or receding. A circular shape may thus be communicated in the dynamic shading to approximate the concept of a spatial circularity. The same message may be communicated in a dynamically shaded melodic pattern. Both of these concepts are explored throughout the piece.

Thirdly, the collaborative nature in the use of each of the observatories mentioned, too, is in accord; as with the international consortium that contributed to the building of the LHC at CERN, so with the enormous undertaking in Stone-age Ireland of the building of the finely tuned astronomical instrument at Newgrange/Sídh in Bróga. In the work, this collaborative effort is approximated in the use of the concept of the meta-instrument; the idea that combinations of instruments can be treated as a single timbral entity, or can perform a function in aggregate that is not achievable by considering only the constituent parts.

Fourthly, the reasoning employed in the desire to build these places, chimes across the millennia, as they are, and have been, both used as scientific instruments to investigate

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the fundamental nature of the world. In the piece, this concept of anthropologic time-scales can be discerned in the textural variety of the orchestration and, perhaps, in the musical language, as it evolves from rough, elemental, and almost undefined sounds at the beginning, towards more refined and defined sounds towards the middle, and thence to a more complex harmonic language following the golden mean, as approximately measured by the duration of the piece as a whole.

In addition, both locations are part of wider complexes of three or more circles; Newgrange/Síd in Bróga is accompanied by the older passage tombs at Knowth and Dowth, as well as many other circular barrows in the vicinity, while at the LHC, there are a number of smaller circular experiments which feed into the larger particle accelerator. The idea here is translated into the musical plain as a furtherance of the meta-instrument concept; the envelope of a sound can be divided and apportioned to different timbral collectives, and in this piece that idea translates in the opening section to the initial push of the sound transferring energies to another sound, and dissipating in others still. The close and mensural canonic ideas used could also be seen as an extension of this concept.

Furthermore, and indeed most importantly, both sites use beams of channelled particles to observe or deduce that which is unseen. In the piece that concept is approximated in the sustained waves of timbrally coloured, hazy, and airy notes first in the double bass ricochet pulse from bar 2, then in the contrabassoon from bar 9, and then to the upper strings playing col legno battuto from bar 61, to the culminating segment of this introduction section in the brass textures from bar 66 - 84 (see Fig. 2.13 below), as the sound becomes fragmented, in a proxy of the dual nature of the photons of light, which are at once waves and particles in the science of quantum mechanics.3

In furtherance to all of these intriguing correlations, there arises the possible assertion that each of these places is instrumental in the creation of a God. In the case of Newgrange, the spirits of the dead depart the worldly plane and pass into the other side on the Winter Solstice alignment, with which this ancient place is most famously associated. Murphy, in recounting the early oral mythological traditional stories of this place, speculates that the tomb was considered to be a portal into the kingdom of the

*Tuatha dé Danann*, the fairy folk of mythology. This tomb and mythical portal was in the possession of Aoengus, the son of the *Dagda*, himself the chief god of Pagan Ireland, and the chief of the mythical fairy folk, the *Tuatha dé Danann*, and of his consort, the goddess *Bóann*, herself the embodiment of the sacred River Boyne, the river which wends its way through the valley, curling around the promontory from upon which the passage tomb surveys the solstice sunrise.

This could be considered to be a dual direction portal. The solstice light of the first sunrise of the new year was traditionally associated with rebirth, and renewal, and, perhaps, as an opening of the portal into the other world, as the sunlight penetrated deep into the earth. In fact, this association was so strong in the Pagan world that the early Christian church decided that their new god should borrow this auspicious birthday from the Old Gods in order to legitimise the new regime. Hence, the celebratory feast associated with this time, was rebranded as Christmas. It has been a common Pagan precept in Northern Europe, from time immemorial, that the local God would be reborn on the Winter Solstice and would live the year to be reborn the next.

One such God is *Cernunnos*, the hunter, god of the wild, the forest, and of the underworld. He has been variously known, as ‘The Horned One’ for his Deer-like antlers, or as Herne the Hunter, Pan, Bacchus, or by many other names throughout Europe and the Middle-East. In Ireland he is cognate with the *Dagda*, who, in addition to being the Chief of the *Tuatha dé Danann*, is also lord of the underworld, and of the forest. He is represented by the Oak Tree and by the Stag, exactly like *Cernunnos*. It is interesting that in the area around the current site of the CERN facility, in Switzerland and France, this god was historically the chief focus of worship for the ancient Pagan

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4 Murphy, Op. Cit.
6 Murphy, Op. Cit. Murphy notes that the name of Bóann survives in the name of the River Boyne (“Amhainn an Bó Finne”), and in the Irish name for the Milky Way galaxy (*Bealach an Bó Finne*), which translates as the ‘way of the white cow’.
inhabitants. The similarity in the names of CERN and Cernunnos is a happy coincidence.\(^8\)

In the case of the LHC at CERN, one of the chief reasons for building the accelerator was to search for a particle that was a missing gap in the theoretical framework of physics called ‘the standard model’.\(^9\) This model charts all of the known subatomic particles that have been discovered since the devising of quantum theory in the early twentieth century. The missing particle is required in the model in order to provide the other particles with mass. It was named after one of its theoreticians, British physicist Peter Higgs. The ‘Higgs’ Boson’ became popularly known as ‘The God Particle’ by the more excitable commentators among the press, because without it, the theoretical model cannot work. The discovery of this theorised particle was announced from CERN in 2012.\(^10\) This announcement completed the theoretical framework of the Standard Model, and was thus an extremely important milestone in the understanding humanity has of the nature of things.

The idea of rebirth and renewal in the conception of Newgrange, forces an undeniable carnal association. The Sun God, was traditionally considered to be masculine, and the Earth had associations with the feminine gods. The light alignment provides a union between Earth and the Sun by ritual cosmic processes. These events could be marked and celebrated by a detailed knowledge of the various natural inflections in the heavens, and made into a calendrical reference point for ancient humans to calculate the sowing, reaping, hunting, and gathering times that were necessary to plan for food security in the agrarian societies of the time.\(^11\) The Ancient Irish, like many ancient civilisations, worshipped fertility and fecundity. By drawing the mind towards an association with the womb, the builders of Newgrange encapsulated the essence of the concept of rebirth in the quotidiant. Fertility rituals and associations were foremost in the religious practice of Pagans around the world, both ancient and modern. In

\(^8\) Porter: ‘A Sculpture at Tandragee’ (Burlington Magazine 65, 1934), 227. Interestingly Porter states that, in Ireland, ‘Conal Cernach’ was the foster brother of Cúchulainn; there may have been more of an overlap in the labelling of these supernatural forces.


\(^11\) Ó hÓgáin, Dáithí: The Sacred Isle, (Cork, 1999).
Ireland, the Kings of the Bronze age and, perhaps earlier, were mated to the Earth in order to ensure good harvests. This may be an element of the birth of the God in the Brú which is an inescapable interpretation of the Solstice event, and of the shape of the mounds of the Boyne Valley. This carnal dimension ties in the God figure Cernunnos, to whom is attributed the embodiment of the masculine energy.

It was understood by the ancients that the timing and duration of the yearly cycles of Solstices, Equinoxes, Lunar, or astrological events was fixed and repeating. The physical reasons for these phenomena, such as gravity, radiation, orbit, and so on, were not understood as we now understand them, though the timing and duration of annual, and even multi-annual cycles was clearly important enough for the ancients to spend a great deal of time and energy building these alignments into the landscape. Thus, by framing these processes, the ancient people captured and utilised the essence of elements unknown. This idea chimes with the concept of the LHC and its capture of the Higgs Boson; in essence it was found by looking for its absence. Its energy signature was the missing part in the data collected from the collision of particles at high energies. It was deduced as a statistical probability. This, too, involves the encapsulation of unknown forces in frame and name; the same process by which the ancients understood the unknowable (See Introduction: Philosophical Prologue: The Concept).

All of this provides a thorough background for the Brú na Sídhe project, the elements of which are all contained in the comparison. The initial starting point of the piece was to design a meta-instrument in order to characterise the sound of the earliest known instruments discovered in Ireland. These instruments, low horns, are housed at the National Archaeological Museum of Ireland, in Kildare Street, Dublin 2 (see Appendix C p.104). A sound file link was provided by the sta...
There is speculation by some archaeologists that the internal volume of the tomb could have been used as a resonating chamber by priests and shamans to invoke the gods in a trance-like state. This speculation is grounded in a loose interpretation of the lozenges, zig-zag, and spiral shapes carved onto the boulders around the perimeter and on the entrance stone to the tomb. In the imagined resonance, the dust of cremated bones dances, forming patterns akin to these outlined shapes in the air travelling towards the sunlight of the solstice.

The archaeo-horns are here caricatured using modern instruments and extended techniques. This meta-instrument interpretation is entirely subjective and invented, but is imaginatively refined to approximate the timbral qualities of the horns. The sound evolves over time to imitate the varying sounds of these ancient instruments. Beginning with this timbral idea also gives rise to a triskele-spiral spatial element in the orchestral corpus, which comes into play more as the composition progresses.

Ó Fóghlú states that these archaeo-horns were capable of playing approximately four chromatic notes, and so were very tonally limited. They were, perhaps, instead used as a kind of prototype amplifier for the voice. ‘Drawing insight from Bronze-age

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16 ‘The 110 Hz frequency is in the baritone range – the second lowest level of the male singing voice. It is therefore possible to speculate that chanting male voices could have been used in these supposed tombs for the silent dead. This could have been on ritual occasions, or for oracular purposes, in either case most probably at those times of year marked by the entrance of sunbeams into the chambers, for these sites are astronomically aligned – at the 5000-year-old Newgrange, for instance, the beams of the rising midwinter sun shine through a special roof box above the passage entrance, down the long passage and into the central chamber, making the stones there glow like living gold.’

17 Ibid., 110.

18 Ó Fóghlú, Op. Cit., 105 reports that: ‘McAdam (1860) writes that: “these very large Irish Trumpets” based on his analysis, could never have been “employed as blowing trumpets, but as shouting-trumpets”, as simple megaphones to amplify basic vocalisations and not to produce music.’
horns: the music of these Iron-age horns is demonstrably the product of one or more locally established, unstandardised and perhaps microtonal musical systems'.

These concepts are folded into the beginning sections of Brú na Sídhe. There are elements of human voice used in the initial meta-instrument design, such as the aspirant sibilance provided by the hissing required of the string players (See Fig. 2.1 below), and the intoning of chromatically dissonant intervals hummed or sung into the brass instruments at points (See Fig. 2.2 below).

**Fig. 2.1** Sibilance vocalisation in Violin II Bb. 5 - 11.

**Fig. 2.2** Hummed and sung notes in Horns Bb. 17 - 21.

This supplies a metaphor for one of the possible uses for the ancient horns, and also of the imagined mechanical cooling sounds of the LHC. Two of the four Double Basses, detuned to E-quarter-flat, provide the attack for the sound, followed by harmonic glissandi in the upper strings, which supply the sustain and decay elements to the envelope.

On the subsequent iterations of this idea, more instruments are added, with varying degrees of definition. For instance, the brass entries, undulating in quarter-tones, are requested to attack the sound in an airy and emergent way, then to dissipate the

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19 Ó Fóghlú, compiling researches of: (Ayari and McAdams, 2003; Killins, 2008; Marcus, 1993; Ó Fóghlú, 2011; Rajagopalan, 2010; Tsuge, 1972; Stevens, 2004); 105.
envelope with a ‘gargle’, or glottal, tremolo. This imitates the imagined subterranean resonating space issuing forth a dissipating tone; the ill-defined pitch implying a psychological distance by way of a ‘red-shift’ canon, as if one is hearing the note coming from the tomb from the outside. Here, in addition, there is the germ of a connection to the LHC: as a metaphor, the sound generated conjures an aural-image of the LHC beginning a cyclic acceleration of particles around its circumference.

Burt observes that Takemitsu used a similar approach in Waves (1976), for clarinet solo, horn, two trombones and bass drum; the piece also begins on E-quarter-flat, starting from niente; and uses a ‘timbral imitation’ as the pitch passes between Trombone and Clarinets. The sound emerges, he reports, from the stream of sound. This is an intriguing parallel to the beginning of Brú na Sídhe, though the music differs greatly in its execution and indeed in its origins, as explained below.

The pitch material used here in this piece is chosen because it is approximately the same frequency (79 Hz.) as the length of the passage in feet (79 ft.); in the imagined resonance of the space of the passage this would produce a throbbing sound (see Appendix D p.105). In addition its frequency corresponds to the supposed resonating pitch of the human body, and the pitch of the demonstration horn built by Simon O’Dwyer. It is also the first name initial of this composer. The pitch is accompanied by a rhythmic motif on the bass drum and E timpani which is derived from a signature quote of the heart beat of this composer (the ‘Heart-Beat’ motif), constituting a personal element in the piece (See Fig. 2.3).

The personal element can be found in other works of this folio too, such as in the Wodwo String Quartet. This idea of adding a personal signature has been a feature of

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20 An underlying element in the folio as a whole is concerned with the elemental nature of the sound envelope. The three sectors of the sound, the attack, the sustain, and the decay, are investigated and manipulated at length.

21 Hawking Op. Cit.: The term applied here is a scientific phrase describing the stretching of the frequency of a light wave of a receding object into the red spectrum. It enables astronomers to calculate the distance and velocity of objects moving away from the observer. This is a consequence of the speed limit of light.


23 This quality is not reliably scientifically verifiable, though it has been used for this reason by, among others, R. Wagner in his Ring Cycle, and the popular American song-writer Prince. This choice is, therefore, firmly acknowledged as being rooted in pseudoscience.

24 O’ Dwyer and O’ Dwyer, Op. Cit.
the work of other composers, including Takemitsu,\textsuperscript{25} which has been well documented. In addition, this element is intended to suggest the heart-beat \textit{in utero}, before the birth of the God \textit{Cernunnos} (a.k.a. the Dagda), and that of the analogous ‘God particle’.

\textbf{Fig. 2.3} The ‘Heart-Beat’ motif on E Timpano and Bass Drum Bb. 1 - 4.

In the use of letters of the alphabet to connect musical ideas to another plane of correspondence, this piece has many elements of correlation to significant numerological and linguistic concepts.\textsuperscript{26} For example, there are eleven iterations of this cyclic archaeo-horn meta-instrument idea in section one of this piece, as counted by the unique formal marker of the \textit{Heart-beat} motif. This is an aural quality that can be heard, counted, and appreciated in a numerical way by a listener. However, a hidden symbological importance is attached to this number, namely that it is the number of letters used to spell ‘\textit{Sídh in Bróga}’. While it is conceded here that this is an arbitrary connection, it is nonetheless one of the important ordering principles on which this piece is composed. The ghostly undulation of this meta-sound, which here results from the layering of various shades of E with undefined non-pitch material, is conceived as the equivalent of the pulsation of embryonic letters conjuring the origin name-place of the God.

There are fleeting elements of the formance of pronunciation of these letters and phonemes incorporated into the meta-sound; for example, the ‘hiss’ sound required of the string players in the opening sections recall the letter ‘S’ (See \textit{Fig. 2.1} above), while the high harmonic glissandi following has an element of the ‘Ee’ of the letter ‘i’ (See \textit{Fig. 2.4}); the ‘sh’ vocalisation sound in the Violins II Bb. 26 - 8 (\textit{Fig. 2.5}), the ‘guh’ phoneme provided by the glottal tremolo in the Bass Trombone part also in Bb. 26 - 8 (\textit{Fig. 2.6}); and the aspiration of the ‘Heh’ sound in the keyed air of Bb. 22 - 5 in the

\textsuperscript{25} Burt, \textit{Op. Cit.}, ventures that the SEA [Es/\textit{Eb}, E, A] motif, used frequently by Takemitsu in his waterscape and rain series, is actually a transliteration of the composer’s family name in retrograde. This a quirky interpretation for its frequent appearance, as if the composer is signing his scores; 177.

\textsuperscript{26} These concepts are explored in other works of this portfolio, particularly \textit{Sigil I & II}, \textit{Wodwo}, and in the Aesthetic Review chapter.
Bass Clarinet (Fig. 2.7), with the rolled ‘r’ phoneme of the tremolo ‘frr’ at bar 25 in the Flute, Oboe, and Cor Anglais parts (Fig. 2.8), provide a hint of the phonemes of the words encoded into the musical envelope. This quality is not exhaustively broached here, as other musical concerns encroached on the process, but is perceivable in embryo, so to speak, even if the elements are nebulous and disconnected.

Fig. 2.4 High harmonic glissando hints at the / phoneme in Violins I Bb. 1 - 4.

Fig. 2.5 ‘sh’ vocalisation sound in the Violins II Bb. 26 - 8.

Fig. 2.6 The glottal tremolo hints at the ‘Guh’ phoneme in the Bass Trombone part also in Bb. 26 - 28.

Fig. 2.7 Aspiration of the ‘Heh’ sound bar 22 - 5 in the Bass Clarinet.

Fig. 2.8 Rolled ‘r’ phoneme of the tremolo ‘frr’ in the Cor Anglais Bb. 26 - 8.

A further, more explicit use of linguistic correlation can be found in the generated pitch material (See Fig. 2.9 below). The motif used here comprises the Heart-Beat rhythmic motif, and is connected to the overall conceptual framework in that it constitutes the initials of the aforementioned Gods of the Tuatha dé Danann, Aoengus, Bóann, and the Dagda, as well as the cognate divinity, Cernunnos. The melodic idea generated from these letters constitutes the letters of the Hebrew-origin phrase Abracadabra, a term used in conjuring something from nothing in both magical practice history and in the
This theme, emerging on the Vibraphone, marks the start of the exposition of the work. The moment is imagined to be the symbolic time of birth of the particle and of the God in the analogous metaphoric comparison, with an implicit allusion to the sun penetrating the chamber of Sídh in Bróga at the Winter solstice, and the smashing of large hadrons at the LHC.

Fig. 2.9 The melodic material is based on the names of Aeongus, Bóann, and Dagda, spelling Abracadabra on the Vibraphone Bb. 85 - 91.

From this point onwards in the piece, the melodic material emerging derives mostly from these letter names, with various stand-ins for the letter ‘r’, which is treated with a rest, or sometimes an octave transposition of a preceding note. One of the transforms of this material can be seen in Fig. 2.10 below.

Fig. 2.10 Horns 1 & 3 (transposed) Bb. 103 - 7; in bars 105 - 7, the music spells out Abracadabra with rests in place of the R.

A further transform can be seen in Fig. 2.11 below in the Flute part, one which utilises octave transposition in place of the ‘r’ mentioned above.

The etymology of the word itself seems to be lost, with varying interpretations, among them that it derives from the Aramaic phrase “I will create as I speak”; or, more interestingly in the current context, from three Hebrew words: ab (father), ben (son), and ruach acadosch (holy spirit).
It has been established that the spiral is an important originating principle in this work, from the point of view of both the LHC and *Sidh in Bróga*. This importance can be traced in the piece through the use of ‘red-shift’ canon. The predominant compositional techniques used in the piece involve some elements of spatial organisation. The idea of the mensural or ‘red-shift’ canon, used extensively in the work, is a good example of how this concept is executed. In a ‘red-shift’ canon, sounds appear to move through the space through gradations in dynamic, elongations and diminutions of rhythmic values, timbral modulation within the previously outlined meta-instrument, and sometimes alterations of pitch material. In this piece, there is an effort to encapsulate the triskele spirals of the motif referred to above, in the instrumental succession of the initial *dux* and subsequent *comes* voices of this ‘red-shift’ canon, in the imagined performance space. Thus, the physical environment of the concert hall is used to provide a psychologically drawn spiral in the sonic space. For example, a gradation in dynamic is used in Bb. 89 - 92 in the strings to trace a large spiral in the space (See *Fig. 2.12* below); in bars 24 - 36 there are durational changes in the entries between the lowest woodwinds and the horns, using the ‘ricochet’ rhythmic idea to paint a spiral (itself hinting at another spiralling idea in the single instrument); and from bar 36 on, timbral modulation is used to achieve the effect, for example, on the upper woodwinds. The effect provides for a timbral modulation from the intoned air of these bars to a developed sound as it progresses around the space.

Alterations in pitch material to achieve this effect can be observed throughout the opening sections of the piece, but in particular in the climbing chromatic section from rehearsal letter I, bar 66 to 84 (See *Fig. 2.13* below), preceding the exposition, the use of which among closely spaced instruments is imagined to invoke a tightening spiral. The tempo increases in these first sections also contribute to the quickening and tightening of the spatial spirals.
Elements of all of these qualities are layered at points to hint at a more integrated approach in the rest of the work. So, for example, the echo-spiral effect can be seen and heard travelling through the large corpus of the strings section from bar 89, beginning in the double basses and travelling counter-clockwise through to the first violins entry at bar 97, at figure L. This effect utilises the full spatial organisation of the staging, and the timbral modulation from low sounds, with a randomised pitch material component, providing a grainy timbre in aggregate. Preceding this is a tight spiral, which can be discerned from the orchestration of the woodwinds from bar 85 - 89, utilising a pitch differentiation and an entry-staggering to achieve the effect (See Fig. 2.14).

The vibraphone, timpani, and bass drum, together with the horns and trumpet trace a further spiral, also from bar 85, in a rhythmically varied synthesis of the ‘heart-beat’ motif and the ‘Abracadabra’ motif, with all instruments joining together to create a sense of spiral movement towards the back of the stage. These orchestrational choices continue throughout the work as a whole.
Fig. 2.13 Alterations in pitch material to achieve a spiral at rehearsal letter I Bb. 66 - 84; example below Bb. 66 - 70.

In concluding discussions on this piece, similarities must be acknowledged in the concepts of this work and some of those of Messiaen. Jean Boivin observed of Messiaen that:

One is bound to think of Renaissance philosophers (notably Descartes) who saw no difficulty whatsoever in the parallel existence of rational thinking and theology. Messiaen showed again and again the ability to merge various dimensions of life and thought into one coherent creative system.28

Through the incorporation of the divergent elements of Pagan spirituality, the sense of the sacred space, and the idea of scientific discovery and the nature of reality, this piece demonstrates an affinity with the reported world-view of Messiaen. And, though the methodologies are markedly different in the application to the writing process as illustrated, it is hoped that the initial motivations are demonstrably similar.

Furthermore, the influence of Messiaen and of his ideas about rhythms, is in evidence in this piece. Contractions of longer rhythms and of metric time space are, in a metaphorical sense, representations of longer durations or shorter accordingly; akin to a metaphoric speed-control of geologic time. Boivin observes that: ‘[..].’

Undertook to open the minds of his... students to the numerous layers of time... of the Universe, of the stars, of the mountains, of the trees, of microphysics; Human time, Animal time, insect time, mineral time. This idea of time-stretching forms a current throughout the piece (see Chapter One: Aesthetic Review: The Context).

In addition, as Fabbi acknowledges, science is a deep source of material inspiration for Messiaen’s work. In this, too, there is a commonality in the approach to composition between Messiaen and this composer. ‘He is fascinated by scientific research and uses it... His own theories on time and space-time... find theoretical support in Albert

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Einstein’s theory of relativity, in quantum microphysics, as well as in biological and psychological theories. In this, a connection can be made with the use of the ‘Red-shift’ canon idea discussed above.

Darbyshire, similarly finds this approach to the concept: ‘Messiaen saw a parallel between some advanced ideas of modern physics concerning the nature and behaviour of time and the arguments of theology, both of which could present us with ideas shocking to common sense.’ This synthesis of divergent subject matter, it would seem, is possible only in the creative arts; though Messiaen considered music itself to be a method of scientific enquiry; Darbyshire continues to explain Messiaen’s concepts about music thus:

The scientific capability of music is not limited to a systematic organisation of material, which thus bestows on it a type of structure but also asserts that music can be a means for ascertaining knowledge about the world in a manner at least cognate with the modern notion of scientific knowledge.

In this, there may be some merit. A deeply explored view of reality and of the universe may be exhibited through the abstraction of Art and Music; though, the scientific comparison in the wielding of musical materials as if they were scientific instruments, in the view of this composer at least, may be an assertion too far. Composers can hint at a deeper meaning, though it must be acknowledged that the resultant music cannot approach the certainty of meaning implicit in the scientific method. Even if methods of science are applied to music, the resultant meaning can never be considered definitive and without alternative interpretations. Music can, though, create the illusion of a scientific synthesis.

Furthermore, this concept can be thought connected to the pictorial elements of synthesis sought in this piece. In seeming agreement with this viewpoint Robert Sherlaw-Johnson writes:

Much music... depends on creating a sense of illusion in the listener - whether it is a vision of a submerged cathedral in a Debussy Prelude, a primitive ritual in Le Sacre du Printemps, or simply the transporting of the listener from the physical world to a world of some musical experience as

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33 Ibid., 33.
would be the case with music with no programmatic or pictorial content. In a certain sense, the illusion becomes the reality, if only for a short space of time.\textsuperscript{34}

This viewpoint encapsulates that elusive quality which can draw the elements of this composition together into a unitary whole.

\textit{Fig. 2.15 Summary of Form in Brú na Sídhe}

<table>
<thead>
<tr>
<th>Section</th>
<th>Bars</th>
<th>Tempo</th>
<th>Description</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bb. 1 - 4</td>
<td>Bb. 5 - 13</td>
<td>28 crotchet bpm (56 quavers in the score)</td>
<td></td>
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</tr>
<tr>
<td>Bb. 14 - 20</td>
<td>Bb. 47 - 64</td>
<td>40 crotchet bpm</td>
<td></td>
<td></td>
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<tr>
<td>Rehearsal Mark C</td>
<td>Bb. 22 - 46</td>
<td>56 crotchet bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehearsal Mark G</td>
<td>Bb. 66 - 84</td>
<td>66 crotchet bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehearsal Mark I</td>
<td>Bb. 66 - 84</td>
<td>72 crotchet bpm</td>
<td>transition section</td>
<td></td>
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<tr>
<td><strong>Exposition</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rehearsal Mark K</td>
<td>Bb. 85 -</td>
<td>56 crotchet bpm</td>
<td></td>
<td></td>
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<tr>
<td><strong>Development</strong></td>
<td></td>
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<tr>
<td>Rehearsal Mark Q</td>
<td>Bb. 145</td>
<td>48 crotchet bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bb. 166</td>
<td>Bb. 201.5 - 231</td>
<td>G.S. of bars (half of Duration)</td>
<td>Abracadabra theme on Flute</td>
<td></td>
</tr>
<tr>
<td><strong>Recapitulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Bb. 201.5 - 231</td>
<td>Bb. 232 - 256</td>
<td>Real G.S. of Duration (11’45&quot; of 19’)</td>
<td>Higg’s boson theme Quarter tone doppler-shift idea</td>
<td></td>
</tr>
<tr>
<td>Bb. 232 - 256</td>
<td>Bb. 257 - 275</td>
<td>Non-traditional recapitulation</td>
<td>Disintegration and echo</td>
<td></td>
</tr>
</tbody>
</table>

Chapter Three

*Bog Bodies: A Quintet*

*Bog Bodies* is written for a heterogenous quintet, commissioned by Concorde, an Irish group specialising in the performance of modern music. It is scored for Flute/Piccolo, Clarinet in B-flat/Bass Clarinet in B-flat, Trumpet in B-flat, Accordion, and Violoncello, and was premiered by this ensemble on 27 April 2015 at the Royal Hibernian Academy (RHA) gallery on Ely Place, Dublin 2.

The origins of the ideas for the piece, and elements related to its execution, connect back to the concept of decay and preservation as applied to bodies discovered in Irish and Northern European bogs. These bodies have been interpreted as providing evidence of ritual sacrifice. Some of these discovered bodies are housed in the National Archaeological Museum of Ireland, a source and inspiration for several of the works of this portfolio. The permanent exhibition housed at the museum is well described and researched, though, as in all matters pre-historic, is speculative in some of the information provided, by way of informed supposition, as there is no written documentation regarding, for example, reasons behind the burial of people in bogs, other than contemporaneous Roman accounts from the historian Pliny.\(^1\) These accounts are vaguely sourced, relying on a Roman world-view, and on the hearsay of returning soldiers and generals from expeditions of conquest, and are therefore used, by historians and archaeologists, as a guide to discovery only. However, these accounts of human sacrifice and disposal, are used by archaeologists as a template upon which to elaborate the theories surrounding these questions.\(^2\)

A picture emerges of a society in which Human sacrifice is practiced in order to appease the Earth deities in times of shortage. The societies of pre-historic ancient Northern Europe, it is surmised, sacrificed young men, warriors, priests, and perhaps Kings or royalty, in order to ensure that the Earth Gods were sufficiently appeased that they would ensure a fecund harvest. The degree to which these people were in accord with the decision to sacrifice them is open to dispute, though it is a commonly understood function of the ancient Kings that they would have been betrothed to the


feminine deity of the Earth (through a ceremony recounted by Pliny the Elder; his intention, to demonstrate the incivility of the Hiberno-Celts). As such, the monarch was considered to be responsible for the bounty of the harvest, and therefore took responsibility for its failure or otherwise. The elaborate rituals associated with the sacrifice are not necessary to recount here, though, suffice it to say, it was not a pleasant or peaceful way to die.\(^3\)

By using a range of methods to kill the victim, the ancient Irish sacrificed to the goddess in all her forms. This manner of death is peculiar to the ritual killing of kings. It meant that a king was being decommissioned.\(^4\)

Furthermore, in burial at boggy places, often the boundary between temporal and otherworldly kingdoms, ancient peoples were signalling to the deities that the sacrifice put the subject between the realms. In order to correct any perceived short-coming, this important person would pay for the imbalance. The concept is also evident in the treatment of the ancient horns discussed in Chapter Two. Billy Ó Fóghlú writes that ‘[these] horn(s) may have been ‘killed’ … to ‘remove [them] from the world, so that [they] could not be used again, until, perhaps, [they were] brought to life in another place.’\(^5\)

Ó Fóghlú further relates the views of Raftery that ‘the cumulative evidence… is thus consistent in favouring the conventional view that these fine objects were consigned to the watery depths for ritual purposes.’\(^6\)

This concept chimes with the ideas of ritual sacrifice, whether of a human or of a musical instrument. The liminal resting places of these sacrifices shares a common intent.

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\(^6\) *Ibid.*, 115 (quoting Raftery: (1978, 24)).
These fascinating concepts here demonstrate the raw, savage humanity that is attributed to these ancient people. The primal nature of humanity can be recognised, through current events around the world, manifest in these people. Though the discomfort of such a comparison and internalisation is palpable, it is nonetheless a feature of humanity from which our better nature strives to escape.

To translate this concept into music involves an effort to depict some of these savage forces, as well as to explore more esoteric concepts of the post-life echoes of a landscape. In approaching the piece, a constructivist viewpoint is engaged (see Aesthetic Review, Chapter One). With this in mind, the number five, as the representative number for the Pagan Pentagram sign, is a unifying element in this piece.

The Pentagram, as a symbol, has been used by Pagan peoples throughout history, variously as a protectional or invocational aid; as a symbol of protection from, or communion with, the Spirit world. In addition, it has Humanistic connotations, as can be seen in the symbolism implied in Leonardo Da Vinci’s drawing of The Vitruvian Man, drafted to demonstrate the proportions of the human body, and perhaps, to imply a divine importance in this symbol (See Appendix E p. 106).

For this piece, the five ‘earthly elements’, as thought of by the Pagans, those of Earth, Air, Fire, Water, and Spirit, are paired with the five instruments of the quintet, and also to the five sections of the work. These pairings are an effort to depict the elemental landscape forces which act upon the bog environment. The Flute and Piccolo (with one performer), are imagined to be the avatar for the element of Fire; the Clarinet and Bass Clarinet (also performed by one player), represent the Wind and Air here; the Accordion inhabits the concept of Earth and Wood; and the ‘Cello characterises the element of Water and Rain; while the Trumpet is the elemental avatar of Spirit.

A spatial instrumental arrangement is conceived for the performance of the piece. The instruments are required to play from the four corners of the gallery, the small venue in which this work received its premiere, and the fifth instrument, the Trumpet, moves from the centre of the gallery to a position outside the audience space, during the performance. This request is thought important in order to provide a further connection to the material in the allegorical departure and memory of the ‘Spirit’ element.
The music of Takemitsu contains elements of this spatialisation concept, too. Burt notes that: ‘[…] spatialisation is already present in the 1973 version of *In an Autumn Garden* (1973, 1979), which is scored for a foreground ensemble of nine players (the “Autumn Garden”) and, upstage of them, an “echo” ensemble of eight musicians (the “Tree Spirits”).’

The interactions across the venue of the other instruments in the Quintet can provide a spatial immersion for the audience in the cross relationship of the sound elements, their textures, and their personalities. However, this spatial requirement was judged to be inconvenient for the performers at the premiere for a variety of logistical and practical reasons, and so was not implemented in the premiere performance. One element of the spatial request, though, was used and worked very well: that requirement for movement by the Trumpeter, the avatar for the elemental Spirit, provided a satisfying and successful element in the overall performance of the work.

The harmonic and melodic material is generated using a broad scalar-chord leitmotif (See Fig. 3.1). This technique is somewhat analogous to the use of leitmotif in ‘Méditations sur le Mystère de la Sainte Trinité pour Orgue’ (1969) by Messiaen, explored in brief in the Aesthetic Review, Chapter One. This technique is a common thread to other works of this portfolio, including SzyzygyS, Brú na Sidhe, and Blackwater.

Fig. 3.1 Scalar-chord leitmotif

This scalar-chord is utilised throughout the work to represent the figure of the tragic Pagan King whose life has been sacrificed. Its attributes can be discerned in the

harmonic and melodic material throughout the work, and it should be observed, the notes attributed to the leitmotif are not necessarily always in any particular order, but the quality of association is sought more generally in the sonic build-up that results from the iteration of these tones. So, for example, the leitmotif is presented initially in a build-up of major and minor sixths. The broad tessitura presented by this arrangement is clearly not desirable at every iteration throughout the work, so, other forms of presentation are utilised, for example the ensemble unison chord at letters E and F (See Fig. 3.2). This chord is spaced in a closer fashion in the high tessitura, using a secundal arrangement of the notes. This divergence in characterisation of the leitmotif is desirable in order to provide a ‘language communicable’ in the resultant colour of the music. Elements of this generative system of Messiaen, such as registral specificity, the timbral, rhythmic, and articulant attachments to the pitches, are here ignored, as they would not further the musical aims of this work.

Furthermore, unlike others of the works of this portfolio, and indeed that of the use of leitmotif by Messiaen, the notes of the scale chosen as the harmonic template (See Fig. 3.3), do not transliterate a word in the sense applied elsewhere in this portfolio (for example in Sigil I & II, and in Wodwo). Instead, this is a representational leitmotif, of the kind used by Messiaen for the Theme de Dieu in the ‘Médiations’.

Fig. 3.2 Ensemble unison chords at letters E and F page 6

Fig. 3.3 D, F, G-Flat, A, B-flat, and C scale

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9 Ibid., 67.
Burt (2001) refers to the use by Takemitsu of scalar-chords. These are based on Takemitsu’s acquaintance with George Russell’s *Lydian Chromatic theories* and on Messiaen’s Mode II, the Octatonic scale. In the case of *Litany/Lento* (1950, 1989), Takemitsu uses a chordal expression of all of the notes of the heptatonic D-Lydian in bar 30.¹⁰

In addition, the leitmotif used here can be thought of as similar to the *cartouches* enclosing the names of the ancient Kings of Egypt, a concept also employed in the music of Messiaen, and explored in the Aesthetic Review, Chapter One. The *cartouche* employed here is so chosen for the reason that the scalar-chord palette employs all of the letter names of a scale but ‘E’. The note has a variety of connotations for this composer, as discussed in Chapter Two on the orchestral piece *Brú na Sidhe*. The notes are used in the manner of a pitch-class set, in that only the letter-name pitch is important in use, disregarding registral characteristics.¹¹ The pattern of minor 3rd/11semitone is broken by the inclusion of ‘C’ rather than the pattern-completing ‘C#’. This is an artistic decision to avoid an obvious reference to the ‘*modes of limited transposition*’ used by Messiaen, and, in fact, provides two additional major 2nd intervals, from B-flat to C, and from C to D, in order to offer more choice in the palette of melodic and harmonic material.

*Fig. 3.4 Fire Element on Piccolo and Clarinet letter E and F on page 6 in one of the ‘Free’ sections.*

Further to the importance of the instrumental avatars of this piece, each of the instruments is associated with one of each of the sections. The personality of each section is encapsulated in a portrayal of the elemental quality poetically interpreted in the music and connected with the elemental, instrumental protagonist. So, for


example, the element of fire is portrayed in the music in aleatoric boxed pitches on the Piccolo and Clarinet, where air and flame interact, for example from B-flat at letter E on page 6 in one of the ‘Free’ sections. The intervals after letter G are widely spaced, jagged, dynamically energetic, and fleetingly articulated to suggest a somewhat tame sprite of flame, though this is not an attempt to illustrate a conflagration, or the firestorm quality of wild fire. The sound is imbued in this bar with a rhythmic randomicity, too, as befits a sonic caricature of fire.

The portrayal of wood is musically imagined as a series of solid triadic chords on the Accordion from letter Q, suggestive of the wend, contour, and tie of wood knots found in preserved chunks of bog oak. An imaginative connection can be made to this element throughout the work in the depiction of other qualities, and, here, the Accordion is afforded a dual purpose in the representation of the Earth element. It provides a background framing and structure in which the other elements can interact. The framing of the harmonic field by this instrument can be demonstrated in its sustain of the chord in the initial gestures of the piece. This harmonic embrace and the imprint of the ensemble material onto the Accordion chord, has the effect of sustaining a memory and a sonic continuity in the space.

*Fig. 3.5* Accordion and Trumpet interaction from letter Q as a portrait of wood.

The aquatic suggestion of harmonic glissandi on the ‘Cello, as they are interacted with others of the instruments, suggest the dominant role in the bog landscape of the various forms which water takes; the oily sheen of a stagnant pond, the deceptive depths of the embracing water, the reflectiveness of its clinging film, and the relentless, gentle, dripping corrosion that water brings, are all portrayed by proxy in the music. For example, on page 5 of the full score, from letter D through to the fermatum, one can
see elements of the above qualities in the ‘Cello part; the sheen quality in the harmonic glissando, the deceptive depths in the low registers in sixth intervals, the reflectiveness in the harmonic and ricochet rhythms of the boxed music, and the dripping of water suggested in the leaping isolated pitches of the second boxed set on this page.

Fig. 3.6 From letter D to the fermatum, in the ‘Cello part for water.

The airy elements illustrated in the Clarinet part, in for example letter B of the score on page 3, utilise an association with eddies, rivulets, and gusts of wind, interacting with the other elemental forces to act upon the abstracted bog body, here, represented and reinforced by the breathiness of the Trumpet.

Fig. 3.7 Clarinet in B-Flat part letter B on page 3 portrays Air.

Although an element apart, the Spirit element, as multi-faceted as it is, borrows traits of the other elements in its generated material, and therefore takes on some of the character of the other elements. For example, starting with long, timbrally coloured sustained notes, the Trumpet element is gradually wound into the texture from letter I, as if integrated into the elemental environment of the bog. At letter K on page 10, the Trumpet touches off the elements of the rest of the ensemble at various points in just that short passage, taking a sustained note with a timbral trill from the combined sound of the ‘Cello and Accordion in the two bars after letter K; an anacrusis, syncopation, and spliced intervallic pattern in common with the upper Accordion stave also in the two bars after K (the effort here is to crush the body and mould it to the wood element, as the upper Accordion line maintains larger intervallic leaps than the lower Trumpet part); and three bars after K, the sighing semitone is a common feature in the Flute, the Clarinet, and the ‘Cello (See Fig. 3.8).
Fig. 3.8 From Two bars before K to four after on page 10: the Trumpet and Spirit element incorporates into the bog environment.

Also, for the short two bars of the ‘Wood’ depiction from letter Q, the material for the Trumpet clearly interacts with that of the Accordion in the wend of scalar swells employed in antiphonal dialogue between the two (See Fig. 3.5 above). This is again an effort to incorporate the body into the bog environment, as stated above. The rhythmic unison and tremolo used in both the ‘Cello and the Trumpet on page 21 from four bars before X to three after, demonstrates a connectivity in the material used here also.

Fig. 3.9 ‘Cello and the Trumpet from p. 21 at X.

As discussed in the Introduction: Philosophical Prologue, this piece employs the concept of labelling an unknown quality using a name, as is asserted in that chapter as a way to understand animist belief systems. The application here involves the allowance of a certain performance licence with regard to some of the elements of the music. This can be seen in the boxed pitch-sets which lack a rhythmic exactitude, for example on page 7 before H in the Flute and Clarinet parts (See Fig. 3.10); in the variation of the boxed pitch sets, which do contain rhythmic values, though not a number of repetitions, but rather a total duration, for example page 23 in the Piccolo, Clarinet, and Accordion parts (See Fig. 3.11); in some of the unpitched rhythmic ricochet ideas, which have no specific durational qualities, for instance on the first page in the Clarinet part; in some of the fermata points of repose, for example in the general pause on page 8, which has a suggested duration; or in the unstemmed colour chords which punctuate the boxed pitch sets, for example on page 6 of the score, which have durational suggestions (See Fig. 3.12).
While most of the elements of this work conform to the expected performance cues, others of the elements are allowed space to form a cohesive whole in performance. Takemitsu used these cue ideas in quite a number of his works, using connecting dashed lines in order to cue instruments in ensemble in, for example, *River Run* (1984).
This work, along with *Rain Tree* (1982), provided an inspirational starting point for the organisation of some of the mobiles in this score, though the solutions arrived at for this piece are, in fact, quite different from those devised by that composer, as this work is a collaborative effort with the musicians for whom it was written.

Finally, as Burt observes of Takemitsu’s *Requiem* ‘the work’s initial emergence out of its ambience shall be balanced by a fading into nothingness at its close […].’ This, too, is a feature of this work as it emerges from the timbre of the Trumpet from very quiet (alas, a niente attack is not feasible on this instrument) into the meta-instrument sound of the initial chord, and at the close, dissipates back into the nothingness with a niente decay.

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Chapter Four

Gáeth Ard Úar: A piece for Bass/Contrabass Clarinet in B-Flat

The origins of this composition are in a contemplation of an ancient Irish poem. The poem was translated by Máiréad Perron and is an allegory about the conversion of the ancient Pagan Island of Ireland to the Christian religion.1 (see Appendix F p.107)

The premise of the story, as told in poem form, is of an imagining of the warrior band of Irish legend, the Fianna as a herd of deer, led by the Stag, the famous warrior Fionn. The herd looks on in deepest winter as the high cold wind of the title encroaches on the old country bringing snow and discomfort with it. The Stag bravely faces into the cold wind in the knowledge that the old ways are changing and that the country his band knew is fading. The allegory refers obliquely to the encroaching tendrils of the early Christian church into the settled Pagan and animist culture of ancient Ireland.2

This allegory provides a rich seam of inspiration in form and in substance, with a cast of characters and a narrative template readily apparent. The primary concerns involved in a reimagining of this template in sonic form include a characterisation of protagonists in a relatable and recognisable form, a deference to the intact narrative of the original (and latterly to the translation), and the provision of an impressionistic atmosphere in form.

The Bass Clarinet provides the most apt characterisation for the main protagonist of this allegory. For its rich timbral palette, its deep resonant textures, and its varied sonic and dynamic profile, this instrument provides the requisite panoply of possibilities to paint the desired portrait for this work. The lowest chalumeau register of this versatile instrument can also be imagined to have an uncanny timbral resemblance to the belling Stag. The piece could alternatively be played on the Contrabass Clarinet in B-Flat, though with a little more difficulty.

As one of the works introduced in the Aesthetic Review, Chapter One, as being of an Impressionistic aesthetic, this work demonstrates that paradigmatic compositional

2 Perron, Op. Cit., provides an interpretation detailing the allegorical underpinnings of these poems.
device aptly. In considering form, it is thought necessary to provide a narrative through-thought structure, while simultaneously providing a resonance with the metric structure of the poem. This has been achieved through the use of rhyming and repeating notes in the music, and a repeat and elaborate strategy, to provide a narrative flow. The poem itself has a structure emphasising a tri-syllabic sentence form, in four line stanzas. As a result of this, the piece employs a reference touchstone to the number three and that number provides a basic building block in the piece in general.

The use of a compound melody remedies the difficulty of providing harmonic depth in a solo instrument (See Fig. 4.1). This technique, involving sudden and regular registral leaps in order to define layers of an accompaniment, is a tried and tested one, and has been in use from a time predating the baroque uses by Bach, to Stravinsky and on. It is a method that can supply a chordal context for a voice-led melodic line, a forward momentum, and a rhythmic complexity in the interweaving of layers of music. For the style of music desired here, the technique was expanded to additionally layer the music in the context of timbre and dynamic variation. This is done to achieve a delineated separation in voicing and thus a formal device to exploit throughout the composition.

Fig. 4.1 Example of compound melody, Bb. 111 - 119.

The central premise in the poem, of a conflict between the old and the new, in the form of the Pagan ways of the old giving way to the chimera of the new Christian-Irish regime, is alluded to in this piece through the incorporation of the Dies Irae melody. It has been included by a process of note addition at phrasal interjections. Each

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The Dies Irae melody, used by, among many others, Liszt, Rachmaninoff, and Berlioz, traces its origins to the thirteenth Century, and has been used in the Requiem Mass of the Catholic tradition to signify death.
fragmentary iteration enters at a semitone higher transposition from the previous, beginning on A-flat in bar 4 (See Fig. 4.2).

Fig. 4.2 The Dies Irae melody is used in the piece.

![Musical notation]

The music that intersects the Dies Irae quotes is here imagined to be a portrait, in the whole, of Fionn, the leader of the Fianna. It must be noted here that the portrayal of Fionn is not accomplished by means of a traditional category of representational-, linguistic-, or associated- leitmotif, as identified and explored in depth in others of the works of this portfolio, and in the works of Messiaen and, occasionally, of Takemitsu. The material is used in a somewhat different sense than those categories imply, as it is more gestural and comprising common cellular elements. This approach is imagined to be an approximation of the musical equivalent of an allegory abstracted. Thus, the material associated with this concept can be labelled hereafter as the Fionn Allegory.

The characterisation desired is difficult to substantiate musically or logically beyond references to desired adjectives: calm, strength, cunning, assuredness, and the stability of the protagonist. All are imagined to be reflected cumulatively, and separately

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in the music through various means, including through dynamic gradations, registral cues, contrasted articulation, the use of the prominent perfect fifth and the augmented triad on C, and the use of longer rhythmic values to allow the lower registers of the Bass Clarinet to speak more fully.

While these desired traits can be said to be representative of Fionn by fiat, it may not follow automatically that they are perceived thus, as may be the case for a leitmotif-proper. This composer submits, however, that the association is implicit by nature of the generation of the material, and by the inherent, though subjective, nature of the musical qualities in question.

Indeed, this music-as-portrait could be considered as functioning much as does a leitmotif throughout this piece, in that its associated characteristics, as mentioned, form an aural connection in contrast to the Dies Irae cellular element. A similar treatment can be said to be possessed of the Dies Irae melody, which is incorporated in the first and second sections. It is possessed of an association, rather than an actual leitmotivic treatment in the sense used in others of the pieces presented.

Together with the interpolation of the Dies Irae fragments, the Fionn Allegory motivic material forms the atmospheric undercoat of the work for the first section. The cold brooding melody of the Dies Irae, on completion at the end of section one in bar 55, breaks forth to prominence in a higher tessitura from bar 58 and prompts the flight of the metaphorical Stag and Herd, evident in the music in the increased activity exploring the tonal language of the Fionn Allegory motivic material further going into section two (See Fig. 4.3).

![Fig. 4.3 Higher tessitura of Dies Irae Bb. 56 - 63.](image)
To join the warrior band, the Fianna, an initiate was required to fulfil a series of tasks.\(^5\) These exploits are alluded to in the music, for example from bar 73 - 85 the quickening ascending arpeggio patterns hint at the requirement of the young warrior to jump over a shoulder-high branch while running at full tilt.

*Fig. 4.4 Feats of the Fianna Bb. 73 - 85*

The act of doing this is illustrated in the music using large leaps ascending, as one imagines hurdles in pitch. Following this, section three of this work begins at bar 86. The following music alludes to the required agility of the initiates in dodging arrows bowed towards them in open ground by a circle of warriors (See *Fig. 4.5*).

*Fig. 4.5 Illustration of Agility: bb. 86 - 98.*

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In the music this action is demonstrated with the quick agility of shortly articulated staccato notes leaping unpredictably into different timbral bands, together with tongued triplet rhythms and interspersed with longer value notes.

*Fig. 4.6 Single Combat: Bb. 99 - 110.*

In the following Section four (Bb. 99 - 157) referencing the feats of the Fianna splits thus; the ability to excel in single combat (See *Fig. 4.6* above); the ability to run unimpeded and silently through a dense forest (See *Fig. 4.7* below); a requirement in the initiate of rhetorical prowess (See *Fig. 4.8*); and a demonstration of charm (See *Fig. 4.9*) is illustrated in the music.

*Fig. 4.7 Running unimpeded: Bb. 111 - 115.*

*Fig. 4.8 Rhetorical prowess: bb. 116 - 129.*
To be clear, the music, in and of itself, cannot represent anything tangible, other than those oblique allusions to which a composer may want to draw parallels. In this instance it was not used in exactly the same way, but merely as an embarkation point. It is used principally to supply material with which to extrapolate further music subsequently in the piece; in this, the piece hues closely to the stated Impressionistic aesthetic.
Chapter Five

SzyzygyS: A Piano Trio

A confluence of heavenly bodies, or the appearance of an alignment of planets and of stars, provides the genesis for the ideas used in this piece. Such an alignment, in the belt of the asterism of Orion, as viewed from Earth, has been recognised by ancient societies all over the world, including in the often documented associations of the design and orientation with those luminous stars of the pyramids at Giza in Egypt, and also, perhaps, in the location of the sacred sites built by the stone-age Ancient Irish civilisation at Knowth, Dowth, and Newgrange, approximately five thousand years ago, which are located in the valley of the Boyne River, in County Meath.¹

The Boyne is a cosmic river of sorts, having the same name as the Milky Way, whose myriad of twinkling stars were seen in ancient times as a heavenly river.² These stars appear to be aligned across the galactic plane and appear to be angled towards the point on the horizon at which the Sun has set. According to Anthony Murphy, the Milky Way galaxy appeared to the ancients, from the perspective of these burial sites, as if it was a continuation of the Boyne River as it disappears over the horizon to the East and continues into the night sky. The sites may, perhaps, be the Earthly print of the Stars named above, though this hypothesis is speculative. It is more likely that the monuments have alignments to the various important Lunar and Solar events of the year; the equinoxes and the Solstices.

These stars are at their highest in the Northern hemisphere sky in mid-November every year. This piece was composed around that time in 2014. While no empirical

¹ Murphy, Anthony and Moore, Richard: Island of the Setting Sun: In Search of Ireland’s Ancient Astronomers, (Dublin: Liffey Press, 2009).
² Murphy, Anthony: The High Man - full documentary about ancient Ireland’s myths and monuments, (Mythical Ireland website, 8 May 14), accessed 14 November 17), www.youtube.com/watch?v=ALcP1o2EUjo&t=10s
connectivity, or audible reasoning exists as to why that fact should be pertinent, it is nonetheless quite an important insight into the genesis of this work, and indeed of most of the works within this portfolio, most of which, though not all, having been written within a particular timeframe relating to the ideas behind the work. This connectivity is an important ordering principle in the work design and of the personal meaning of the process in general.

So, the syzygy in the stars of the Orion constellation forges an association to the trio of this work. Thus the principal chord, a representational leitmotif, in the sense used to describe Messiaen’s *Theme de Dieu* in the ‘Méditations’, is labelled in analysis below as the *Orion Chord*. The shape and number of principal stars in that constellation supplies further reasoning to provide the desired connection (See Fig. 5.1).

*Fig. 5.1 The Orion Chord*

Not withstanding this connection, and in acknowledging the nature of this subject, connections can sometimes be tenuously contrived or partially formed while progressing, and thus may form a web of psychological connections not necessarily

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4 Murphy, Anthony: *Newgrange: Monument to Immortality*, (Liffey Press, Dublin, 2012). Murphy, in the accompanying documentary, suggests that the Orion constellation, as observed by the stone-age Irish, was recognised as a human figure and represented the hunter, the demigod, and mythological figure at the centre of the Battle of the Boyne in the Táin saga, Cú Chulainn. The documentary suggests that the imprint of the Hunter constellation is imprinted in the landscape of the Boyne and Dee valleys in the remnants of the ancient road network. This demigod, was considered to be pointing his magical spear, the *Gae Bolga*, at the rising sun. The Milky Way galactic plane can be observed to line up roughly with the plane of the belt stars; Murphy asserts that the Pagan Irish thought the galaxy to be an extension to, or to otherwise be an imprint of, the sacred Boyne River, having a derivation of the same name: *Bealach an Bó Finne* (the way of the White Cow); *Amhain an Bó Finne* (the River of the White Cow).

plain to an audience. Further to that observation, while not completely disconnected from the above outlined origin, the instruments of this work are imagined to be representatives and analogies of the most important three bodies of the ancient world: the Sun, the Moon, and the Earth. In their size and bearing, the trio of instruments used here represents these three heavenly bodies, with the notional gravitational attraction proportionate to each, though not in any scientific or empirical way. The Solar and Lunar associations of the ancient sites in the Boyne Valley substantiates this connection (see footnote 1 above). Using the piano and its great range and reach to lock the other instruments into a gravitational unity also enables its use as a resonating chamber. The sympathetic resonances sought by the performance direction to play into the opened piano cabinet would elicit a dialogue of sorts between the three instruments in the sonic environment. As such the piano performer is required to use the sustain pedal extensively.

First, in structure, this piece mimics the cycles of the lunar months of the solar year. There are twelve episodes, called ‘scenes’ here, relating to various lunar months, loosely imagined around the traditional labels for full moons of the year from the Farmer’s Almanac: the Wolf Moon, Crow Moon, Pink Moon, Harvest Moon, and so on. These scenes each evolve a different perspective on the musical material; a slightly altered mood developed on a subjective meditation of the seasonal and humanistic environment around each of the different views of the full moon throughout the year. Some of the scenes are cold and bleak to approximate the winter months, and some are more active and playful, to communicate an association to the Summer months.

Original conceptions of this piece envisaged an adherence to a time framework of twenty-nine to thirty seconds for each of the different so-called ‘scenes’, in order to forge a connection to the length of the lunar month (which is actually closer to twenty-seven days). For musical reasons, these strictures were abandoned to allow for a more lively, or a more resonant soundscape. However, the scenes remain quite short and episodic nonetheless, being on average, one minute each. The changing lengths of the night throughout the year cycle can provide a substantiation for this choice, if the discrepancy could be considered to damage or undermine the structural integrity, though, as a genesis-process rarely results in music which strictly adheres to the

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original conceptual framework, the structural compromises are here immaterial, as the work is not solely based around these concepts of duration.

A similarity to Takemitsu is evident in the structures here outlined, in that they bear a resemblance to that composer’s *November Steps* (1967). In that piece, the composer has structured the music into eleven *Dan*. Burt identifies the Japanese title of *November Steps* as ‘*Jūichigatsu no Dan*’. This, he translates as ‘*The Eleventh Month Scenes*’; and, using a quote from Eta Harich-Schneider, provides a definition: ‘the term Dan is used… for the scenes of Nō plays; it is also a musical term and means the sections in ballads’. In this understanding, furthermore, Takemitsu himself notes that: ‘In Japanese music, Danmono are the equivalent of Western variations, and the word Dan means “step”. My November Steps are a set of eleven variations.’ It is in this context that the variations contained in *SzyzygyS*, are best defined. Another similarity to the works of Takemitsu with this piece can be discerned from his use of the term ‘scene’ to denote the movements in *Cassiopeia* (1971), similar to the use of that word in *SzyzygyS*; to denote a change of mood, or a turning of the page.

A further debt to Tōru Takemitsu must be acknowledged from an aesthetic and musical point of view. In fact, his *Rain Tree Sketch II in Memoriam Olivier Messiaen* (1992), contains a chordal construct which is superficially very similar to the *Orion Chord*, providing a very interesting connection to both composers. This arpeggio (an expansive D minor #7#11) can be heard repeated throughout the work, but particularly at the golden section reintroducing the section labelled ‘celestially light’. The widely-spaced chord in question, used as an underpinning structural scaffold at several points throughout that work, may even be itself a quote, from Liszt’s *Nuages Gris*. This is an unsubstantiated claim, however, this work provides an underpinning to *SzyzygyS* in its use of gesture, and spatial and timbral effects.

To design these successive scenes, the Baroque era painting technique of *chiaroscuro* provides an apt analogue for the piece as a whole. As outlined in the Aesthetic Review, Chapter Two, this piece can be considered to be of the Impressionist aesthetic category. Through this prism, one could follow the logic of the choices taken using

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9 On a cursory listen, the chord can be heard at 52”, at 2’30”, and at 3’30”, as well as elsewhere.
pictorial analysis. In the painting technique named, that of the painting of light paint onto a dark-washed canvas, the artist is afforded a method in which to define the visual space of a painting more realistically. The idea of using this concept in music could be followed up in many ways; perhaps by defining a slice cross section of the sonic space using spectral or other techniques, is an appropriate perspective. However, this is not an apt description of the chordal constructs of this piece. In SzyzygyS the slow unveiling and reinforcement of a sonic space through the repetition of the Orion Chord, described in more detail presently, provides the analogous dark-washed canvas, upon which can be outlined a host of contrasted sounds. Another analogy can be made to Takemitsu's ideas of the emergence of a piece from the ‘stream of sound’.10

In imagining the rhythmic devices for this work, there is a preponderance on red-shift-canon rhythmic effects discussed in an earlier chapter. To reiterate, the label here refers to the red-shift effect, also known as the Doppler effect, where the frequency of a passing sound appears to change pitch due to relativistic compression of the sound wave. The same effect is observed in light as a red-shift, where a receding light source stretches the wavelength of the received light wave, thus making the light appear to be composed of more red spectrum content light than did the original source. It is a measurable quality of the rate of recess of the light source. A bouncing ball is an apt comparison for the rhythmic implications of this concept; it may appear to be approaching or receding, depending on a judicious calibration of some of the more spatially received parameters of a sound; viz. its volume, pitch, and rhythm.

A further example of the employ of this red-shift idea, may be discovered on analysis of the chosen tempi. The figure 5.2 below illustrates the point.

A gradual decrease in the tempo indications hints at the recession of time. This illustration demonstrates, not a strict adherence to this concept, but an Impressionistic embrace of the idea.

A similar rhythmic type influenced Takemitsu, though more from the traditional Gagaku, a theatrical Japanese form, in which ‘[...] the Kakko drum plays conventional

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10 Burt, Op. Cit., 53
accellerando patterns of the type known in traditional performance as katarai.\textsuperscript{11} Whether rooted in a human-, a theologic-, or a scientific- framework, though, the concept involves a rhythmic accelerando or decelerando, but with other parameters folded into the sound. In layering the voices and elements of the chord, the aim is to provide an illusion of movement in the music.\textsuperscript{12} This is not a new concept to music by any means, as ideas of close-canon, fugue, and phasing have been employed by composers since time immemorial, though, given the subject matter of this piece, it is an appropriate conceptual viewpoint.

Fig. 5.2 Tempo Shift illustrates red-shift recession

\begin{figure}
\centering
\includegraphics[width=\textwidth]{tempo_shift.png}
\caption{Tempo shift by scene}
\end{figure}

In addition, the analysis provided by Ian Darbyshire of the ideas of Olivier Messiaen about the fundamental nature of rhythm as the origin of all music and, in his view, of theology, forms an important ordering touchstone for this work. In the Traité, Messiaen conceives of numerous levels of durational correspondences, derived from his study of Vedic Tálas, in which the basic rhythmic value, tala one, equivalent to the quaver, is representative of the Creator.\textsuperscript{13} These levels are instead organised as a division of the semibreve, with each successive element in his rhythm-scale subtracting a semiquaver

\textsuperscript{11} Ibid., 162
\textsuperscript{12} As a further aim of research, these concepts can be further explored using computer transformations, though not for this research. Others of the pieces presented in this folio rely, too, on this rhythmic conceptual framework.
in duration from the previous. These ideas of the dilation of time are mentioned in Chapter Two dealing with the Orchestral piece Brú na Sidhe.

A further consideration is the use of prime numbers in the construction of the intervals of the initial chord, the Orion Chord (See Fig. 5.3). Its origins are found in the semitonal distance between the first elements of the chord. So, for example, the perfect fourth can be read as the prime number five, comprising five semitones; and the double compound diminished octave of the opening notes, F#1 - F5, form an interval 47 semitones apart. Other intervals in the opening chord are thus generated, from the perfect fifth of seven semitones, to the compound major seventh from B - A# of twenty-three semitones, and the minor second of one semitone difference. In other places, such as from D - B, this prime relationship breaks down as this interval is a major sixth, nine semitones, and therefore not prime (though its inversion is, being three semitones). However, the B reinforces the earlier iteration of the B in the bass to re-establish its centrality. There is also an octave between the F#, though, again, this is to reinforce the tonal language and to hint, perhaps at a stretch, to a gravitational affinity between the orbiting bodies (See Fig. 5.1 above).

The elements of the Orion Chord, if contracted into the octave, form a scalar-chord of sorts, of a kind with those used by both Takemitsu and Messiaen, with each note either a semitone or three semitones apart: F#-G, G-A#, A#-B, B-D, (absent D-Eb), D-F, F-F#.

Fig. 5.3 Orion Chord contracted to form a scalar-chord.

This is similar in the use of the scalar-chord employed in Bog Bodies, also in this portfolio (see Chapter Three). In a noted congruence, Burt attests that, throughout his

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14 Ibid. 33
15 Forte, Allen: The structure of Atonal Music, (New Haven: Yale University Press, 1973), 180. The original incarnation of this chord contained Cb and E# to enable a secundal reading of the scale (so replacing the element Cb-D and D-E#) thus completing the scalar chord, though this complication was corrected in the score for ease of reading by replacing with the spellings of B & F in the place of the cumbersome Cb & E#. This ordering was classified by Forte as 6-Z44.19B the 'Schoenberg anagram hexachord'.
career, Takemitsu continually uses a particular scalar pattern derived from Messiaen’s Mode III, the whole tone collection, but with an additional note. This collection is identified as the ‘7-33’ pitch-class set, the name of which comes from Allen Forte’s theoretical system of Pitch-Class sets. In the use of the scalar-chord in this work, another touch-point of affinity is demonstrated.\textsuperscript{16}

This Orion Chord is revealed slowly, with the piano representing the Sun in this musical analogy, as already mentioned above. Its gravity, captures the orbiting bodies, here characterised by the ‘Cello as the Earth and the Violin as the Moon. The dynamic contouring in the tremolo used in the stringed instruments is here supposed to signify the orbiting nature of those two bodies. There is a hint of alignment at the points at which the Violin and ‘Cello are both given pizzicato, for example in Bb. 11,15,18, & 19 (See Fig. 5.4).

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig54.png}
\caption{A hint of syzygy alignment in the pizzicato of the Violin and ‘Cello; Bb. 15 - 19.}
\end{figure}

The transforms of subsequent uses of the Orion Chord, and of the derivations that it generates in the twelve scenes of this piece, are organically intuited to reinforce the overall mood. Octave doubling and rhythmic spacing are used in some iterations to enable a thorough resonance to emerge from the ensemble, and, as mentioned, to hint at a gravitational lock. This chord is arranged by trial and error into the forms into which it evolves.

Of the iterations mentioned, one stands out; an effort to portray the idea of orbiting can be seen here in the Orbit motif (See Fig. 5.5).

\textsuperscript{16} Burt Op. Cit., 35
In this, the movement of the arpeggio figure suggests the orbiting of a heavenly body, and in the contraction of its period, hints at a similarity to Messiaen’s ideas on time dilation and physics, mentioned in Chapter One in the Aesthetic Review.

On the voicing of chords, Jean Boivin, writing on Messiaen’s teaching at the Paris Conservatoire, said of the composer that he could sometimes spend days discovering the appropriate voicing of a chosen chord:

In the vast Catalogue d’oiseaux (1956-58), every chord was conceived- and should be perceived as a resonant and telling “objet sonore”, almost in the Schaefferian sense of the word [referring to Pierre Schaeffer, Messiaen’s student and inventor of Musique Concrete]. It sometimes took the composer days to find the right combination of tones to represent most vividly dusk on the Atlantic shore or sunset on the Dauphiné Mountains.  

To intuit the ‘objet sonore’ Orion Chord, and then the transforms of it, which are used in SzyzygyS, indeed required a thorough process of experimentation and choice by fiat, though there was a conscious decision to employ a seven note chord voicing, with widely spaced elements, in order to reference the seven stars of the constellation Orion, hence another connection to the chosen labelling of the Orion Chord leitmotif, and to establish a wide sonic space within which to operate.

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\[\text{Refer to Pierre Schaeffer, Messiaen’s student and inventor of Musique Concrete.}\]

\[\text{These stars, Alnitak, Alnilam, Mintaka, Saiph, Rigel, Rasalhague, and Betelgeuse, are the most luminous to the naked eye, though where one draws that distinction is obviously arbitrary.}\]

\[\text{Ibid., 24.}\]

Chapter Six

Blackwater: A piece for Solo Guitar

Blackwater is a work for Solo Guitar which utilises some of the vast array of techniques available on the instrument to recreate a connectivity with the ebb and flow of a river. The river in question, the Blackwater River, is a large and storied tributary of the River Boyne. The river accumulates at the Lough Ramor watershed in Virginia, Co. Cavan, and carves its wend through the fertile rolling hills of Northern Meath to bypass Kells and, at last, to join the Boyne at Navan. The theme of landscape, story, and a personal significance carries through the work from the other works of the portfolio. Indeed, the name of this composer, a homonym for the Irish word for ‘river’ (Amhainn), provides a further intrinsic connection to this childhood waterway.

The Guitar is subjectively conceived to be an inherently introspective and self-contained instrument. Though it is oftentimes versatile, warm, pure, and responsive, at other times it can seem moody, disagreeable, and temperamental. Therefore, it seems natural that the piece is conceived as a proximal personal thought-process made audible. With the personification of the character of the river linked, through the Impressionistic style adopted here, with the evolution of an emotive idea, it is hoped that the music conveys that implied connectivity.

This piece is profoundly influenced by the aesthetic of the music of Tōru Takemitsu (1930-1996). Its gestural qualities are reminiscent of some of the works written by that master composer in a number of ways: in the rhythmic variance within the gesture, and the relative parameters; in the use of a structural-silence element of Ma; in the focus on refinement in the extended techniques used; in the modality of the musical language employed; in the use of elements of spatial notation to convey the gesture; and in the focus on timbral qualities possessed of a sound.

Burt, in defining the aesthetic evolution of Takemitsu’s style, contends that:

The modally based non-functional harmonic idiom was eminently adaptable for use with the scales of traditional Japanese music, and both traditions [Japanese traditional music and French Impressionism] shared a fondness for timbral finesse and, on a broader level for extra-musical reference to picturesque, naturalistic subject matter.19

It could be argued that this provides an apt description of the music of *Blackwater* quite closely.

Burt (2001) further identifies and defines the Japanese concept of *Ma*, describing it as the space between, as the silence, or the ambience of an environment; an attribute of that which derives from what Takemitsu referred to as the *Stream of Sound*.20 *Blackwater* employs this concept as somewhat of a reflective space; time in which to absorb and incorporate the preceding musical figuration. It also exhibits the quality of unformed emergence from the *Stream of Sound*, and its dissipation by the same method. This influence is clear through this work. The work also displays the ‘fluidity of tactus’ labelled so by Burt, in referring to Takemitsu’s Garden series.21

*Blackwater* also employs some of Takemitsu’s composition strategies; that of the exact repetition of material immediately after its first hearing; in the use of anchor chords to provide a structural frame; and in the use of the structural device of fading in and fading out to connect to the continuity formed by the piece with the mood of the time, as if it is somehow always there. This aesthetic scaffold is evident throughout this work in the gestural evolution of the material.22

It is envisaged that the music, like the river, should never be the same at any two instants of time. Though the river flows through the same topological landscape, it changes course, force, and volume as time and environment change. The waters, like the gestures of the music, are fleeting and journeying, and somewhat capricious, ranging from drips, to rivulets, to brooks, and torrents.

Through the gestural progress of the music, and its inherently varied interpretability, the composition is designed in such a way as to avoid the strict reproduction of a pre-imagined sonic space, but instead, to allow for some of the qualities of the music to be varied according to the whim and fiat of the performer. For example, accelerandi and de-accelerandi are entirely subjective and unmetered to afford the maximum freedom in expressivity to the performer (see *Fig. 6.1*).

As can be noted from the above figure, clefs, being understood by the performer at any rate, are consciously omitted after the first treble clef. This is a necessary omission to avoid interrupting the visual flow of the piece.

Rhythms, too, are proportional and relatively free, with gestural connecting feathered beams suggesting variance, though not from an explicitly marked tempo (see Fig. 6.1 above). Other than the musical cues of minims and crotchets, there is no requirement that the relationship between rhythms should be exactly metered, but only a requirement that they be proportionally approximate; a minim is longer than a crotchet, a quaver is shorter. This rhythmic variance can reside with the yen of the performer; indeed, each gesture, ideally, can retain its own meter if so desired (see Fig. 6.2). This quality of rhythmic variance and proportionality can be seen in such complex works as Tree Line (1988) and Cassiopeia (1971) by Takemitsu.

The music, by allegory to landscape, is framed by an intangible time-fabric, which, too, is flexible and changeable in nature. This quality is encoded in the music in its overall, loosely defined duration, and in the punctuated, though unmeasured silences that stratify the gestures; returning to the concept of Ma referred to above. The proximate representational device, of landscape as silence, is somewhat of a negation to expectations of the solidity and presence of this landscape backdrop. Although, in this
instance, the abstraction is apt, as the canvas on which the musical gestures wend and
dance serves as a contemplative psychological space in which to digest the gestures,
akin to the role of landscape and the river. The silence may have different functions in
this scheme. It can by turns be a relaxed or a tense silence; a loud or a quiet silence; a
coloured or a bland silence; or be possessed of many other flavours, or none. At a
remove, any of these colouration phantoms maybe afforded a narrative poignancy,
though that may stretch the point too far as a refinement in a narrative which is actually
entirely intrinsic in the audition. This Cageian concept of the role of silence was shared
by Takemitsu in his design process; it is another variable in the experience of the
listener which further enhances the conceptual framework.23 Evaluating the influence of
Cage on Takemitsu’s stylistic choices in the late 1960s and early 1970s, Burt suggests
that:

Of particular importance amongst such ideas were: the concept of a pluralistic, many layered,
spatialised music; the idea of silence as plenum rather than vacuum; and the preference for the
individual timbre of the single sound-event over and above the syntactical relationships between
such events which have traditionally formed the discourse of Western music.24

Another of the prominent features of this work is in the use of effects and atypical
techniques on the instrument. Quite often extended techniques on many instruments
can manifest as gimmicks without purpose or reason. It is often perplexing to hear
music with tacked-on effects which neither add musical quality, nor aesthetic
enjoyment to a composition, that are merely included as a nod to the prevailing
fashion. A cautious and thorough approach to this parameter is therefore necessary in
order to further the aesthetic integrity of a piece rather than detract from it. In this
piece, effects are used advisedly and only with a view to refining the sound quality and
conceptual integrity.

Here, too, a Japanese musical concept adopted by Takemitsu is apt to mention. The
concept of Sawari is the touch or the timbre or the quality of a sound in Japanese
traditional music. This quality of a sound is considered to be more important to the
personality of a sound than its pitch, rhythm, or harmony.25

23 Ibid., 96.
24 Ibid., 96.
25 Ibid., 238.
For an example in *Blackwater*, the opening gestures of the piece are at first unpitched, evolving to pitched, though undefined, material, thence to defined pitch material (see Fig. 6.3). This evolution of gesture is intended to illustrate a rain shower falling onto the lake surface. There are residual sounds from the hammer-on of the guitar strings that speak from the *sopra-mano* fretboard side of the string, as if the octave node was treated as a distorted mirror. Thus, the effect can be demonstrated to enhance the aesthetic qualities of the music through a rigorous attention to the defining reasoning for the piece, and an active engagement with the narrative.

*Fig. 6.3* The opening gestures evolve from unpitched to pitched material

This reflective nature can be discerned again from the gesture quoted below (see *Fig. 6.4*). It is conceived as a ‘reflective’ chord; this chord is played on both sides of the string as echo and as unison. It is intended to encapsulate the idea of a reflective pool of slowly whirling water.

*Fig. 6.4* ‘reflective’ chord

*Blackwater* utilises modal and quartal harmonic and melodic devices, as befits the tuning and technique, if not the repertoire, of the guitar. The pitch material, it should be noted, will vary slightly between different instruments, and so may not match, on the *sopra-mano* side at least, exactly those pitches written. This befits the concept of *Sawari*, in the individual instrumental personality. Though on a quality guitar, the pitches should be expected to be close, this potential flaw element in the piece adds to the uncertainty sought of some of the parameters of the music, as discussed above.
Other riverine features can be gleaned similarly from the opening gestures of the music. For example the portrayal of the origins of rivulets and eddies, which are expanded later in the work, can be traced from the definitive start of the pitch material through to the complex gestures contained on page four of the work (see Fig. 6.5). In the notation of harmonics there is a preference for notating the actual pitch, as guitarists often find a more idiosyncratic formulation for a given harmonic, though, when the pitch is introduced for the first time with a diamond notehead, it is accompanied by a suggestion. Some can only be convincingly found on one string, though others may be in multiple places. In subsequent repeats of the gestural elements the harmonic location, having already been identified, is omitted for ease of reading. This system enables the diamond note-head to be additionally used for the Sopra-Mano figurations, as they are akin to harmonics in sound.

Fig. 6.5 The complex gestures on page four

Here, (see Fig. 6.6) it can be seen that the pitch material starting to emerge has a flow and directionality in the repetition of particular pitches and harmonic duos.

Fig. 6.6 Flow and directionality in the repetition of particular pitches and harmonic duos
A reference to an octatonic scale can be discerned in this example (see Fig. 6.7), absent the F#, (though this could also be seen as a mode of A harmonic minor with an extra C# and D# either). Its inclusion is reminiscent of the frequent use of this scalar pattern, as one of Messiaen’s modes of limited transposition, in the harmonic and melodic language of the works of both Messiaen and those of Takemitsu. To hide the obvious modality of their music, both composers sought to confound expectations by the inclusion of odd notes. In this example the inclusion of F in the following cell provides the same break in the expected modality.

Though through-composed, this piece, through the utility of modal and quartal harmonic and melodic devices, demonstrates the influence of Takemitsu’s Rain Tree (1981) and also River Run (1984). However, it must be emphasised that this connection is an intrinsic aesthetic quality and not a conscious intent. There are no quotes or conscious efforts to imitate, though, in retrospect it seems that the influence is clearly there, and thus must be acknowledged.

Other features of the style of Takemitsu can be discerned from the return to certain chords as a structural device. Burt notes Takemitsu scholar Alain Poirier in surmising this to be a definitive characteristic of an analysis of several of the works of Takemitsu. These anchor chords provide that unity very pleasingly.

In the refinement of the sound and timbral qualities of the sound, this piece expands on the Takemitsu practice in detail, if not in effectiveness. Blackwater employs a numbered referencing system to indicate the approximate location on the string from which the performer attacks the sound. This system manifests as an arbitrary division of ten point degrees from ordinary position to Sul Ponticello (SP 1-10) and from ordinary position to

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Sul Tastiero (ST 1-10). This gives twenty-one attack positions and a large timbral variety. In addition, attention has been paid to the articulation of certain elements to add a further depth and variety to the music. These include, variously, the rhythmic Tambora effect, the Bartók pizzicato, the right-hand hammer-on, the Golpe attack, and the Rasgado and the Stirring Rasgado attack, as well as the more conventional types (see Fig. 6.8).

Fig. 6.8 Timbral techniques

A further comparison may be made in the spatial organisation of gesture in certain scores by Takemitsu, such as in that of Rain Tree (1981). A spatial organisation consisting of dashed lines between instruments, to indicate voice-leading in ensemble gestures, is devised to complement aural cues. These effective indicators compliment the lack of barlines in the score and are provided to enable a linear flow in the performance. The resulting integrity of the music would necessitate a more controlled approach by a lesser composer than Takemitsu, and in addition, his embrace of silence as a buffer, and indeed as a quality in its own right, adds a poignancy to the gestural qualities of his music.

In Blackwater this free spatial quality is provided for by separating the music into islands of gesture. Since it is for only one performer, the ensemble solutions devised by Takemitsu are unnecessary, and a freer approach to the gesture is possible. It is intended that these elements should be read sequentially, as would a traditional score, though the nebulous unmeasured silences, the gaps between the gesture islands, enable a breath to enter the performance, and also a responsiveness to the acoustic of the performance venue. The lack of a stave connection between most of these elements is deemed important to allow for timbral distinctions and the differentiated nature of the gestures to be made visually apparent. A possible refinement could be to allow a free interpretation in the sequential performance of the gestures, in the manner of the ‘mobile’ cell espoused by Cage, Ligeti, Łutosławski, Xenakis, and many other
composers, though, for this piece, this approach is deemed insufficient as all gestures would by necessity require the same treatment, and here, the gestures are rooted in a firm sequential narrative. A further exploration of these techniques may be warranted.
Chapter Seven

Sigil: a diptych for Harp, Vibraphone, and Double String Quartet

A sigil, in the context utilised in this piece, is a very basic type of cryptography, a kind of spell, or a wish traced onto paper or just into the air.¹ It encodes a message in the shape of the trace, which is drawn from a cypher text or pattern. This cypher, it is surmised, is then decoded by the receiving party. The sigil thus gesturally generated could then be communicated to other planes of existence in the unseen realms of the spirits and ancestors. The two movements of this piece imagine a sigillic communication in somewhat of a feedback loop, transmitted out into the world and received back in sound. It is a personal meditation on the words of a poem by Patrick Kavanagh entitled Canal Bank Walk. The words employed form the subheading of each of the two movements. (See Appendix H p.109)

Like many of the other pieces of this portfolio, such as Brú na Sidhe, Bog Bodies, O Unworn World, and SzyzygyS Trio, it is based on a concept of duality. The idea generation used here is similar to the generation of the music for the large Orchestral piece, Brú na Sidhe (see Chapter Two), in that it originates with the chief God of the Túatha dé Dannan, the Dagda. This God was reputed to be a Harper in the old legends, whose Harp was imbued with magical healing qualities.²

The idea for the work centres around the wind-blown Aeolian Harp of ancient Greek legends in which the strings of a Harp are allowed to sing through the agency of the wind, and thus were thought to be played by the Gods. In this instance, there are conceptually two Harp types taken as imaginary models in the work, both of which form either symbolic or actual bridges: viz., a tunnel of Willow trees at the Grand Canal in Rathmines, that canal of the musing of Patrick Kavanagh, and a recently built bridge on the River Liffey designed by Spanish architect Santiago Calatrava, which forms the shape of a Harp connecting the North and South sides of the city of Dublin, and is near the confluence of the river and the referred to canal. (See Appendix I p.110)


The Willows, in this imagined connection, form a natural bridge across the artificial waterway. These trees were known to the ancient farmers of Ireland to be imbued with magical healing qualities, and in fact are the original source of the chemical compounds used in the painkiller family that became aspirin. As they lean into the water, their reflections form the other half of the bridge disappearing into the other world, the reflected world. The shapes formed by the trees are reminiscent of the shape of the Harp, while the trailing limbs resemble strings blown in the wind. Whereas, by contrast, the Harp bridge (officially called the ‘Samuel Beckett’ bridge) forms an artificial connection on the natural waterway of the river. In the twenty-five stanchion cables of this suspension bridge, there lies the connection to the generative idea of the wind-blown Harp, a connection elaborated below. These two dualities form the basis for the conceptualisation of each of the two movements of the piece.

First, in reference to the idea of reflection of the Willow ‘bridge’; the music of the first movement encodes this idea in the ensemble and in some of the musical material. The spacing of the instruments mimics the shape of the Harp so that the ten instruments are arranged in a shallow ‘V’ shape with each string quartet at an angled line on stage left and stage right, with the two ‘celli at the rear. The Harp and Vibraphone form the apex of the ‘V’ shape, with the Harp at centre-stage right, and the Vibraphone at centre-stage left. This arrangement should allow for the full effects of the music to be realised, creating a sense of depth and movement through compositional techniques such as the use of mensural canon and echo, dynamic grading, and timbral shift. The outlined scheme above accounts for the appearance and layering of the instruments in the score. There is a conscious effort to separate the two string quartet entities in the score in order to illustrate this spatial scheme.

This style of proto-encryption has been employed by religious societies throughout the world, in order to communicate with the Gods or with ancestors. From Pagan spells cast with divining wands, Shamanic ritual dances, to Buddhist prayer flags fluttering in the high Himalayas, this desire to commune with the unseen planes of the spirit would seem universal. Perhaps, speculatively, there is a connection too in the habit of Christians to trace a cross-shape on their bodies.
Indeed, it could be argued that, in addition, the Ogham writing system, one of the oldest writing systems in Europe, is drawn from this idea. It transmits information to those who can decipher it, about boundary markers, directions, and other information that was necessarily transmissible to travellers in the laneways of ancient Ireland. Perhaps even the carving on the stones of Newgrange, Knowth, Loughcrew, and Dowth among other ancient sites contained transmissible information in this manner; archaeologists and historians, unable to definitively pin down the intended message, can only speculate on this matter. It seems logical that the development of writing itself, in this context at least, contains a germ of fealty to this generative communication imperative.³

One must begin, then, with a source collection on which to trace a sigil message. Since the music is derived from set sources, this piece can be considered to be of the Deductivist kind mentioned in the introduction. For the function of starting point, a so-called magic-square is chosen.⁴

The magic-square (See Appendix J p.111) is a mathematical curiosity whereby the numbers are sequentially arranged on a grid square in such a fashion that all of the columns, rows and diagonals sum to the same number, in this case sixty-five. In a square grid of five times five cells, that which is chosen here, it is possible then to replace the numbers with letters of the alphabet,⁵ and from there to convert the letters into musical notes in a semi-tonal patterning, a similar manner to the system of transliteration used by Messiaen.⁶ This system yields a patterning of notes which correspond to letters and numbers; hence the term Deductivist. In notes, it yields two replacements for each letter. The number of elements here demonstrated ties neatly into the number of cable stanchions of the aforementioned Harp bridge.


⁵ With the notable exception of ‘Z’: as an uncommon letter, it is deemed unimportant if omitted from the scheme.

Transliteration of a text, of the sort used in this piece, is essentially a superficial device. Though, it may be argued that any system, numerological or otherwise, which relies on an order based on the alphabet is deficient in the same manner. This must include even the alphabet itself, as the order is essentially arbitrary and unconnected to the frequency of usage or any other obvious ordering principle (at least in so far as it relates to modern English). This reasoning, it should be noted, must exclude numerical series, as the logic behind any particular number order is grounded in a relationship based on a pattern. The patterning is integral to the ordering system. Therefore, an intermediate step is deemed necessary in the transition from numbers, to letters, and then to notes. The ordering of the numbers in the magic-square grid clearly has a patterning reason (that all of the vertices sum to sixty-five in this case), whereas a simple linearity in converting the alphabet to notes, does not encode that desired extra dimension of significance; that is, the desire to encode a hierarchical wholeness inherent in the numerical magic-square and its notional physical enactment in two dimensions rather than one, obviates the extra step.

It may be splitting hairs to pursue this process. Though, in truth, this route provides additional material in the form of the chords formed by the sums of the grid. By following the patterns of notes as the associated numbers add to sixty-five, one can form additional chordal arrangements and scalar patterns. For example, in this work there is a significance attached to the central row of the grid and the intersecting diagonal. This material provides a pitch-class set yielding the Conjuring chord and the Dagda theme (see Fig. 7.1). Though generated in a different way than the pitch-class sets of the composers Vincent Persichetti,\textsuperscript{7} Alan Forte,\textsuperscript{8} and Elliot Carter,\textsuperscript{9} and used by, among others, Takemitsu, this particular pitch-class set provides a connection into the music generated using the methods of those theorists.\textsuperscript{10} This pitch-class concept of generation is explored in the SzyzgyS Trio, another of the pieces of the portfolio (See Chapter Five).

\textsuperscript{10} This particular pitch-class set is listed in Forte’s book as the 5-22 set. It is a mirror or palindrome set; the ‘Persian Pentamirror’.
Fig. 7.1 The Conjuring Chord in the Harp.

The Dagda theme can be heard introduced by a process of addition from the beginning of the work, and enters fully formed at bars 28 and 29 at figure D in the Harp treble stave (see Fig. 7.2). The theme is echoed in the vibraphone as a reflection.

Fig. 7.2 The Dagda theme on the Harp; Bb. 28 to 31

There is a generative theme, referred to above as the Conjuring chord, used in the preceding bars which is a derivation of this Dagda theme. Since the Dagda theme consists of fourths above and below the D (also important as the starting point of the magic-square), the chord here comprises a major and minor third either side of D. This yields a B-flat augmented triad and a B diminished triad. Used in inversion here, these compounded triads, with the common note D, provide a five note pitch-class set. As mentioned above, this chord material can also be traced in the magic-square (see Appendix J p.111). For example, one can see the rudimentary form of the Conjuring chord pitch-class set as well as the Dagda theme in the central row of the above grid (F, G, D, A, B), and in the intersecting diagonal one can see the augmented triad used (F#, D, & B-flat). This is another example of the generation of material from the ordering principle of the magic-square in this work, and also used in O Unworn World (see Chapter Eight) and in the Wodwo String Quartet (see Chapter Nine).
In transliterations of poetry into music, one could argue that, since letters and phonemes are heard in direct proportion to the frequency of their usage, in music that will translate into an audition of phonemic elements in proportion to their relative import in the text. Thus, this would seem to nullify the problem of arbitrary pitch choices. Musically, this poetic and sigillic stimulus can work as a starting point. Through the inherently poetic qualities of rhyming, alliteration, and phonemic themes, the music can be similarly imbued with those intangible qualities, so as, for example, to emphasise some tones over others if those letter-associated tones or phonemes are common in a text. This can imbue a composition thus generated with a tone centre-of-gravity, and a grounding. Takemitsu, Burt notes, on repeating a chord, would change just one note in order to rhyme the music.11 This change of form provides a memory element with a surprise on the repeat, thus enhancing its rhyme.

In the first movement the words used in this sigil generation are: ‘Leafy with love, and the green waters of the canal’.12 The transliteration of these words is provided in short score in Fig. 7.3 below. The poem can be read in a number of ways. It can be read as a paean to nature, or to some spiritual element in the response of Kavanagh to the stimulus of the colours of the environment of the canal. The poet communicates a ‘redemption’ in its waters, and an enrapturement in the persistent newness of the world.

Fig. 7.3 Transliteration of ‘Leafy with love, and the Green waters of the Canal’

These attractive sentiments are elaborated in the subsequent lines used in the second movement. This movement, forming a connection with the Harp bridge and the River

11 Burt, Op. Cit., 35: Burt notes that, throughout his career, Takemitsu continually uses a particular scalar pattern derived from Messiaen’s Mode III, the whole tone collection, but with an additional note. This collection is identified as the ‘7-33’ pitch-class set, the name of which comes from Allen Forte’s theoretical system of Pitch-Class sets.

Liffey in the counterpane to the duality, meditates on the words ‘Pouring redemption for me that I…grow with nature as before I grew’; (See Fig. 7.4 below). The poem has been selectively edited (see full text in Appendix H p.109).

Fig. 7.4 Transliteration of ‘Pouring redemption for me that I… grow with nature as before I grew’

The music thus generated using the system of transliteration is freely though sequentially composed, following the order, though not the frequency of the words of the poem. So, once a particular phoneme or word is introduced in the linguistic order necessary, it can then be freely repeated or paired with other words of the system. This results in word and phoneme concoctions such as ‘Leafy with love’; ‘Leafy green’; ‘Canal waters’; ‘Green canal’; and so on. For instance in movement one, the combination ‘Leafy Love’ can be found in the notes of bar 47 at letter H. In movement two, the term ‘Pouring redemption’ is transliterated into the notes of bar 1, and the combination words ‘I grow with’ could be read from the notes in all parts of bar 91. These word and phoneme combination generation techniques are common to both movements.

The contrast between the two movements is illustrated in the relative activity of the instruments, particularly at the beginning of each movement. The first movement relies more on the interaction between the Harp and the Vibraphone for linear movement, with the two flanking string quartets providing the desired reflective qualities of water through techniques such as the use of glissandi, harmonics, and close canon, and in
addition, providing a spatial depth for the principal protagonists. In the second movement, the double quartets are afforded the more active lines, with the roles somewhat reversed in the Harp and Vibraphone. The principals provide a chord, and the string quartets then take the notes in arpeggios and harmonics to illustrate the rippling, mirroring, and patterning effects on water, among other things.

This different treatment reflects another concept explored in this piece, one which is also explored in the quintet Bog Bodies: the treatment of different instrumental timbres as proxies for physical elements. In this piece, there are three main treatments of timbral texture broached; the Wind, the Water, and the Willow. The Water texture is mostly assigned to the Vibraphone in its reflective role to the Willow proxy, the Harp, while the Wind character is portrayed on the double string quartet. The textures employed in the first movement illustrate the characterisation of these elements in the musical material, with the Willow represented on the descending arpeggiated figures of the Harp part, the glassy harmonics and tremolos on the strings approximating a characterisation of the Wind element, and the reflective and resonant nature of the Vibraphone illustrating the element of Water in the various forms that it takes, which can be seen in the score from bars 32-47, at rehearsal marks E to H (see Fig. 7.5 for a short example).

Fig. 7.5 Harp and Vibraphone illustrate water; Bb. 35 - 7

This style of characterisation holds true throughout both movements of this work. For example, in movement two, the Willow textural movement of the Harp, is initially replaced with block chords and broken chords, while the Wind and Water elements are afforded more motion. This is meant to reflect the solidity of the Harp bridge over the
more ‘natural’ river-course, and the stronger winds one encounters on the larger waterway. This textural contrast can be heard in bars 1-57 of movement two. Musically this section has somewhat of the Aeolian Harp concept inherent in the orchestration: the Harp, in dialogue with the double String Quartets, sets the ‘message’ in the form of the sigillic chord or note pattern generated in phonemes, and the ‘Wind’ receives and transmits the ‘message’.

An interesting conceptual parallel with this work is Takemitsu’s ‘Far Calls, Coming, Far!’ for Violin and Orchestra (1980). Burt notes that one of Takemitsu’s fixations in the 1980s, was ‘Finnegan’s Wake’ by Joyce. The title of ‘Far Calls, Coming, Far!’ for Violin and Orchestra, is taken directly from the book. He liked the dreaming aspect of the narrative; reflections in water and dreaming. Takemitsu imagined that the words here are, according to Mr Masayoshi Oshawa, ‘the song Anna Rivia [sic.] (the Liffey) sings on joining Father Sea’. The Far here, is perhaps a play on the word fear, Irish for man, or perhaps an abbreviated form of father. Whichever is considered, this duality, as well as the featured river, its song on joining the larger body of water, and the implications in the text of animist actors in the river and the sea, chime well with this work.

However the work may be perceived in the meaning and messaging aspects attempted of it, the overall effect can be considered to be a flow of music in proxy to words. In referring to a long list of connections to concepts in Messiaen’s ‘Quartet for the End of Time’ (1941), Fabbi opines that:

[T]he relationship between music and underlying concept is not always one of such obvious analogy; this is only to be expected of a symbolic mechanism, since such a mechanism does not necessarily have to allude, as it is sufficient for it to substitute.  

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Chapter Eight

*O Unworn World*: A work for Large Choir

This work, for ten-part large choir, is conceived in three parts, each named for the ancient Irish Goddesses who were considered the embodiment of the phases of the moon. Though in three parts, and performable in those parts separately, the bar numbers of these parts are sequential in order to keep with the prevalent conceptual framework of triunity employed in this work, comprising a flexible one movement work.

The triune goddesses, Banba, Eriú, and Fódhla, were worshipped by the Celtic peoples of Ireland as three sides of the same Goddess: the Maid, the Mother, and the Crone.¹ This Janus-faced deity is one of many divinities around the world for whom triunity is an integral part of their identity (see Appendix K p.112). Most obviously, this concept of triunity is evident in the Christian Trinity of the Father, the Son, and the Holy Spirit; and in the Triune Hindu gods of Brahma, the Creator; Vishnu, the Maintainer; and Shiva, the Destroyer.²

The wonderful poem *Canal Bank Walk* by Patrick Kavanagh provides the text used (See Appendix H p.109). This text is the same as that used for the chamber dectet piece *Sigil*, explored in Chapter Seven. The imagery in this poem is that of a magnificently manic protagonist pleading for commune with the ‘web of fabulous grass and eternal voices by a beech’. The sentiments expressed here fire the imagination with yearning and ‘enrapture(ment)’.

Three chords form the fundamental basis for the harmonic language of the piece. These chords are intriguing as they are the tonics of keys which form a triangle on the circle of fifths. Each is related to the others by major third relationship; the tonics form an augmented triad. These tonics, C, E, and A-flat, are used in the melody of the introductory section of the first part, and afterwards are formed into the pentads of major ninth chords. The properties of these chords are such that, in order to modulate from one to another of the tonics, one must simply move some of the notes of the chord by a semitone. Thus, for example, the chord consisting of the C major pentad,

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moves seamlessly into the chord formed of E major pentad by simply holding the perfect fifth E/B and moving the G to G# and F#, the D to a D#, and the C to a B. The seeming distance between the chords in traditional tonal harmonic terms is revealed to be but a shadow away (see Fig. 8.1).

The idea here is similar to that used by Takemitsu in his Requiem (1957). Burt notes that Messiaen’s Mode III contains ‘three augmented chords a semitone apart’. He reports that this is the form of the last chord of the Requiem. These pentads are similar in nature, too, to those used by Takemitsu in his landmark piece A Flock Descends into the Pentagonal Garden (1977). Indeed, as noted in the Aesthetic Review Chapter, this piece is based almost exclusively on the number five and on the pentatonic based on F#. Rhythmic cell values sum to five in the analysis of Akiyama, as mentioned in that chapter.

The piece begins and ends with a phased melody (See Fig. 8.2). This phasing represents the slow unveiling of the light of the moon from its waxing phase, to its retreat to shadow in waning. The slow reveal of the chord enables a chiaroscuro style painting of sound onto silence. It is conceived in somewhat the same manner as Takemitsu’s idea of the stream of sound; that his music joins the ever present sound of

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3 Burt, Op. Cit., 54 - 5, 172
4 Akiyama, Op. Cit., 471
background sound seamlessly, and captures, colours, or amplifies what he thinks of as the mood of the consciousness of a space.⁵

Fig. 8.2 cont.,

More structural elements are imposed on the material in the form of stricter rhythmic durations in the following music, all the while remaining cognisant of the word-painting potential of the lush language of the poem. So, for example in part one, Banba, the word ‘enrapture’, repeated in the Kavanagh poem, is treated with an intensification in the polyphonic density of the texture from bar 32, to segue into the phrase ‘in a web’ which employs a dynamic and rhythmic intensification of texture from bar 55.

In part two, Éirú, a rhythmic ostinato (see Fig. 8.3) is built up in a close-canon phase from the altos up through the tessitura to the sopranos, providing a spatial ripple through the ensemble. Again, the words here begin with the same phrase expounded in the first part ‘in a web of fabulous grass by a beech’. The intention here is that the altered melodic pattern of an oscillating second interval, and a phased interaction of the voices, suggests the movement of a tree in a breeze against the light of the waxing gibbous to full moon. Though this concept is clearly uncommunicable in the medium of sound alone, as is the case in nineteenth century programme music, the music here can evoke a response in the aesthetic senses, which may be of a kind with this subjective perspective.

Fig. 8.3 Rhythmic ostinato in part two, Éirú

⁵ Burt, Op. Cit., 238, discusses the concept of Ma and the Stream of Sound, broached earlier in these commentaries.
A model example of this concept can be heard in Debussy’s *La Mer*. The music itself, without relying on a programme beyond the simply evocative title, suggests the motion and mood of the sea; this is a simpler solution to the quandary of musical storytelling that, previously, had required an extensive programme to accompany the audition.

With that said, and though admittedly a tenuous connection, the music displays some of the characteristics that are commonly associated with trees in metaphor: the strong bole of a large tree can be associated with the rhythmic unison chordal melody of the lower voices from bar 104-9 (see Fig. 8.4); this, set against the phased ostinato mentioned above in ascent and descent, may suggest the shape and bearing of the imagined large beech tree.

*Fig. 8.4 Lower voices rhythmic unison chordal melody Bb. 104-9*

The reveal of the moonlight through the canopy, to follow through on the metaphor, can be discerned in the dappled contrast in texture between the upper and lower voices throughout this second part. In the gradual addition to the ostinato of the rhyming phrase ‘and eternal voices with overflowing speech’, the texture is intensified, as the profile of the tree in silhouette becomes clearly revealed with the increasing luminosity of the full moon (see *Fig. 8.5*).
If this metaphor resists the rigours of scrutiny in the musical context, then at a minimum, the conceptual integrity of the piece is not compromised, as it still retains the interplay of common elements and referential sonorities, regardless of the communicability of the extra-musical originating material. As is the case in so much of creative practice, the connections and communicability of originating material is somewhat subjective, and indeed even anecdotal.

These attempts at word- and sound-painting continue for the remainder of the part, utilising techniques introduced previously, such as the close-canon phasing of a short melody and the building up of a textural density through sustained notes.

Part three of this work, Fódhla, models, after a fashion, the light of the waning moon. The words ‘to pray unselfconsciously with overflowing speech’ are built into an ostinato rhythm beginning in bar 172 (though finding their origin earlier in part one). This ostinato, now on the single pitch E, is intensified in a similar way to the previous usages referred to above (see Fig. 8.6). From the initial secundal chords at the outset of this part, the harmonic language morphs through various iterations of the initial three pentad chords to include references to the ‘Harmonic Major scale’ tonality at, for example, bar 177.

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6 This label refers to a major scale with a flattened supertonic and submediant defined as such by George Russell. Russell, George: The Lydian Chromatic Concept of Tonal Organisation for Improvisation, (New York: Concept Publishing, 1959).
At bar 197, led by the alto voices, the circularity of the work begins to become apparent with the revisiting of the phased melody from the opening section of the work. This melody is treated with an antiphonal polyphony that expands throughout the ensemble in a gradual replacement of the foreground focus from the ostinato on E, which itself retreats into the background and disappears at the end of bar 203. This emergent texture is then dissipated to a single C pentad chord at bar 215 - 218 (see Fig. 8.7).

Fig. 8.7.1 Alto 1 bb. 195 -7

Fig. 8.7.2 Soprano 2 bb. 198 - 9

Fig. 8.7.3 Alto 2 bb. 200 - 2

The new phased texture of the coda from bar 219 recalls the phased introduction of part one, and has a similar function in reverse. The versions of the melody used here are all derived from the original melody of part one, through use of retrograde and inversion, as well as of major third transposition. Through three iterations of this tutti ensemble phased melodic section the work is brought to a close on a final chord of A-flat major #11.
Chapter Nine

Wodwo: A String Quartet

The final work of the portfolio is the String Quartet entitled *Wodwo*. This name comes from an Old English word referring to the wild man of the woods; a reclusive character of popular imagination whose hermetic life in the impenetrable woods of Northern Europe in the early middle ages, led to the caricature of the man who, upon surrendering to nature, becomes feral. This character is cognisant with the God Cernunnos encountered elsewhere in the portfolio. Different parts of Europe had different names for this figure, including Herne, Pan, and, in Ireland Conal Cernach, the step brother of Cú Chulainn (a figure possessed of the same attributes).\(^1\) His wild bearing and his countenance of free agency, as a hunter, a life-force, and an unfiltered id, is intrinsically connected to the internal voice tempting humanity back into the unblushing, uncensored freedom of the wild, providing somewhat of an antidote to anodyne civility. This desire to return to this liberated state is explored in poet laureate Ted Hughes’ short story ‘Going Wodwo’, and in author Neil Gaiman’s ‘Greenman’.\(^2\)

The piece is somewhat programmatic in the titles chosen for each of the five movements. As is so often the case in this portfolio, the number five plays a very important role in the structural and compositional processes. The *Prologue*, *Fugue*, *Arcadia*, *Arborea*, and *Wodwo* movements are all based, again, on the generative idea of the ‘*magic-square*’, which also forms one of the fundamental generative tenets of two of the other works of the portfolio expounded upon in the previous chapters; on the Harp, Vibraphone, and Double String Quartet *Sigil* (Chapter Seven) and on the Choral work *O Unworn World* (Chapter Eight).

In this work, the process of generating pitch material is approached from a different perspective than those other works. The starting point for this piece is the composition of a short poem which contains the first name and middle initial of this composer as the first letter of each of the lines of the poem.

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\(^1\) Porter: *A Sculpture at Tandragee*, (Burlington Magazine 65, 1934), 227; as mentioned and referenced in the Chapter on *Brú na Sídhe*.

Enter the woods
On my own
Into all-wild places
Never look back:
Wodwo enters me.

Fig. 9.1 Sigil phonemes for the above poem

This signature is a final personal mark in this portfolio, as important as an artist signing a canvas. The words chosen are somewhat palindromic, the last line being a compliment to the first in reverse, the second line being notionally palindromic in and of itself, while the third line begins with a word rhyming with the first word of the first line, followed by rhythms of the letters ‘L’ and ‘K’ in the third and fourth lines. In addition, each line of the poem is possessed of a prime number of letters (a particular preoccupation of this composer, as mentioned previously).

This style of poem composition is of a kind with the Japanese concepts of poetry, such as, famously, the Haiku; though, it must be noted here, that this particular format is not rooted in the methods or forms of traditional Japanese poetry writing, but merely resonates with that aesthetic in its adherence to sophisticated numerological and phonetic connectivity, as well as a hint at a significance on multiple levels.
Treated in such a manner the words here provide musical material imbued with repeating elements, given the repetitions and rhyme of letters and words. The poem itself is conceived in sonata form; this touches on Classic compositional styles, in that the forms of letters yield almost-recognisable thematic material in a sonata form of words. It cannot be said that the strict adherence to sonata form is present in the music here, though the word material, as explored, provides something of that element at the abstraction.

The words above, as traced through the aforementioned *magic-square*, form the music for the first movement, the *Prologue*. The textures used are imagined to represent a pillared edifice, such as a cathedral, abandoned to reintegrate into nature. Thus the pitch-class unison gestural statements, are balanced in a Classic Beethoven-esque form of masculine and feminine short gestures. The feminine answer contains allusions to the bird-song of the woods, a technique used extensively by Messiaen and also, in response, by Takemitsu.

Parallels in this music can be teased out from descriptions of the rhetorical style of Messiaen provided by Boivin. He writes that: ‘United in the same breath were reflections on plainchant and birdsongs, harmony and colours, series of durations and the splendours of God’s creation’.³

The reference here to *plainchant* and *birdsongs* is particularly apt to this work, as it contains elements of both. In addition, in *Wodwo*, there is an effort to achieve a synthesis of sorts connecting the terrestrial and the divine. Something of this element, that of a connection between the natural and the divine in Messiaen’s music, can be discerned from the composer’s attitudes towards bird-song. Fabbi, paraphrasing writings by Messiaen in ‘*Musique et Couleur*’⁴ thought that: ‘the birds hovering between the Earth and Sky become, in this cosmology, intermediaries between the terrestrial and the divine’.⁵

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The latter, in particular, supplies a poignant comparison with the approach to this piece. Takemitsu, especially in his *Garden* series of compositions, considered the formal Japanese Garden when structuring his works of this period. Each harmonious element in such a garden relies on a compliment with other parts of the garden, and each of the separate features, including rocks, sand, grass, water, and trees, is imbued with its own speed, texture, life, proportion and existence. Thus, in the style of Takemitsu, a composition can be considered to be a walk through a garden, where elements change and become visible, or recede.\(^6\) In addition, *In an Autumn Garden* (1973) - in six movements - contains ‘birdsong’-like interjections in movements entitled Echo I and Echo II.\(^7\)

*Wodwo* contains a similar concept of perambulation. The second movement, *Fugue*, plays on the dual meaning of that word: a musical compositional style; but also a mental state implying a confusion and loss of memory (a Fugue State). It, too, contains the signature of this composer in full this time, as the material for the fugal theme (see *Fig. 9.2*), and also in the notes generated for the forename, a series which contains all intervals, or their inversions.\(^8\)

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\(^7\) *Ibid.*, 161

eleven bars of a calmer rhythmic unison texture using lush harmonies, as if to suggest a becalmed mind entering the woods.\[^9\]

Movement three, *Arcadia*, begins with a combination of the birdsong element from the first movement in the first and second Violins, the open fifths harmonies elaborated upon from the end of the second, and the *Composer’s Signature* theme derived from the second movement and used in the first Violin part from bar 84 - 89. The restatement of the theme in the ‘Cello from bar 90 - 95, is accompanied by a new harmonic palette also derived from open fifths, while the birdsong mobiles are transferred from the second Violin to the first Violin. These disparate elements are conceived to be a comment on the *Garden* series style of Takemitsu; each element is imbued with its own periodicity and perspective on the harmonic language; its own different rate of life.\[^10\]

The fourth movement, *Arborea*, uses words of the first and last lines of the initial poem again, though instead of octave harmonisation, here the melody is harmonised as a lush parallel major seventh chord. This technique of using parallel chords was used extensively by Takemitsu, who in turn took his guidance from Debussy, though, in this piece, there is octave displacement used in addition in order to obtain a textural density shift.

At the end of the statement of each musical word, a period of aleatoricism in boxed sets of instrumental effects, is bled from the resulting chord (see Fig. 9.3). This style of disintegration has been explored earlier in the music for the Quintet *Bog Bodies* (see Chapter Three), though here, the attempt is to imitate the random sounds of the forest.

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*Fig. 9.3 Boxed pitch-set example from movement 4, Arborea; Violin 2 b. 99*

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10 Burt, *Op. Cit.*, 103 notes the technique in discussions of Takemitsu’s *Garden* series, and in relation to the work *Coral Island* (1962)
Takemitsu requires something similar in *Tree Line* (1988): like *Wodwo*, this work contains ‘mobile’ materials over pedal notes on B♭, D, & F#. The score also contains a direction for the flute to ‘counter improvisation to the strings as bird’s calling, not periodical with many spaces [*sic.*].”\(^{11}\)

Prime number durations are used for the time periods of each of the boxed sets (see Fig. 9.4). These numbers are common to those of the quantity of letters in each of the lines of the poem, though, admittedly not exactly the same in all cases for the reason that the convergent silences would contain the remainder. So, for example, the sum total of all of the letters in the poem is 63; of the seconds duration in the boxed sets, 53. The 10 remaining seconds expected of this scheme can be accounted for in the silent bars 101 and 104. However tenuous a connection, or indeed however tenuous the communicable effect of the connection, it is demonstrable therefore, that these numbers are not merely arbitrary, but in fact derive from that earlier observation.

*Fig. 9.4* Boxed pitch-set example with prime number duration from movement 4, *Arborea*; Violin 1 b. 106

This movement seamlessly segues into the last movement, *Wodwo*. In this movement the boxed effects become dominant in the texture, while the words of the last line of the poem yield a shortening pattern of notes. The music in the boxed sets consists of the names of trees of the woodlands of Northern Europe, as traced through the ubiquitous ‘*magic-square*’ and freely interlinked using prime number durations (see *Fig. 9.5*). The options of a particular duration are to be chosen by the individual performer. A point of repose and collection precedes the final harmonisation of the final words of the poem.

\(^{11}\) Burt, *Op. Cit.*, 194
The commonality can, perhaps, be seen here between the treatment of the sonic envelope as described from the Introduction: Philosophical Prologue, and as discussed in both the commentaries for *Brú na Sídhe* (Chapter Two) and *Bog Bodies* (Chapter Three). Some elements, though not all, are allowed to be left to chance: the rhythms, durations, and specifics of the timbral quality of the sounds are not as clearly defined here, as a way to hint at a parallel reality. These unknown qualities add an element of frisson to the performance and can allow certain freedoms to the performers.

As mentioned for the other commentaries, the aesthetic blue-print for this work is imagined to be of the variety identified in the Aesthetic Review as being the *Deductivist* compositions, for the reason that the musical material is derived from the ‘magic-square’, and therefore the pitch decisions are thus deduced from that source. That
categorises this composition together with the *Sigil* diptych and with *O Unworn World*, as these works contain that feature in common, although the music resulting is vastly differing in all of these diverse pieces. The observation can provide an aesthetic wholeness and insight into the analysis of the compositional style.
Chapter Ten

Conclusion and further research

It has been shown that works of this portfolio are devised to fall into three broad categories: those constructed from first principles; those derived from an Impressionist aesthetic; and those whose origins are deduced from a set of principles or ideas. In this, the influences of the lodestar composers of this work, Takemitsu and Messiaen, are demonstrated. It should, however, be noted in passing, that the ordering of these commentaries is not reflected in the chronological order in which the works were written.

In the genesis of the works, the aesthetic principles derive from two broad categories of sources: the Scientific, whether derived from quantum physics or relativistic physics, or from Mathematical source material, whether in the use of prime numbers, or the use of the ‘magic-square’; and additionally, in the crux of Myth and Legend in explaining natural phenomena in Irish Paganism, as evinced from the preponderance on the sites of the Ancient Boyne Valley, and the storied underlay of the solo Bass/Contrabass Clarinet piece, Gáeth Ard Úar. The synthesis of these disparate elements forms the underlying rationale in the composition of the pieces of this portfolio.

As has been shown, some of these works rely heavily on the role of Myth and Legend in the generative material. The constructivist pieces mentioned, Brú Na Sídhe and Bog Bodies, though not composed in very close chronological order, share in common the techniques applied to the discovery of the sounds and features. These works are built up from first principles; in the case of the Orchestral piece, from the archeo-horns in the custody of the National Museum of Ireland; and in the case of the Quintet, built from the characterisation of the elemental forces exerted on bog-preserved cadavers. In addition, as has been demonstrated, the Orchestral piece incorporates ideas related to the Large Hadron Collider at Geneva on the Swiss French border, as well as the concepts in accord with the burial ground at Newgrange in the Boyne Valley.

In the Impressionist category, are included three pieces: viz. Gáeth Ard Úar, SzyzygyS, and Blackwater. With these pieces, there are more musical freedoms permitted and explored. Formal structures are demonstrated to be quite different between all three of these works, and indeed it could be argued that they share little in common.
aesthetically. Furthermore, the works are not chronologically connected in the time of their composition. Each has its own quite separate form, employing techniques such as immediate repetition and departure, to through-compose the form; so, for example in Gáeth Ard Úar, and also in Blackwater, the forms are very different, with the former work more strictly barred and metred; the latter is quite the opposite, employing mobiles of similar thematic material in successively different organic formulations. Each of these can in turn be seen to be very different. By contrast, the trio SzyzygyS is consciously in twelve sections to reflect the sidereal month, and represents somewhat of a hybrid of these structural varieties. Still, in the compositional departure points, and in the aesthetic rationale, these pieces share a common originating attitude. The music contained within these structures displays some culturally ingrained minimalist influences in, for example, the repetition of some elements, though, on the whole, the Impressionist label is apt in that the other elements of colour, rhythm, and tessitura expounded in each, is executed in an impressionistic-style manner.

Into the third category of works, as explored, fall the three remaining pieces of this portfolio: Sigil I & II, O Unworn World, and Wodwo. The Deductivist style of composition is demonstrable in these works in that they all have a common origin; in being derived from the set pattern of the Magic-Square, to varying degrees, and in the overlapping origins of each in the poem Canal Bank Walk. These works permit a lesser degree of compositional fiat than those other works mentioned above. Certain parameters, in particular the pitch-class material, are predetermined through the transliterative process, while other elements, including variously, rhythms, ornamental features, and so on are, to varying degrees, allowed compositional freedom, or indeed performer freedom. These freedoms within the strictures of the process are somewhat of a departure in the works to date of this composer, and as such, represent an intriguing avenue of possible future focus.

There are multiple points of overlap in the generation of all of these works, though it is considered appropriate to quarantine the pieces thus so as to provide a theoretical framework under which may be provided a logical analysis.

In considering the broader issues surrounding the subject matter engaged in these disparate works, a study such as this must, by necessity, circumscribe a limited remit. As such, this thesis cannot exhaustively substantiate all of the topics touched upon in
all possible detail. Therefore, this work is consciously not either a treatise on the works of Takemitsu, or of Messiaen; those composer’s respective outputs are the subject of many more detailed assessments and analyses. Nor is it an attempt to explain the intricacies of quantum physics, or indeed, those of musical archaeology in all of the ramifications that those complex subjects suggest. It is, however, essential to alight on each of those topics in order to adequately portray the iterative processes undertaken in the formation of each of these works, and in the methods employed in their conceptualisation. As such, it is necessary to draw a logical and definite horizon on the examination of these fields, insofar as they relate to the music, or to elements in its’ creation. To go further would be digression.

In insightfully contrasting the styles of Messiaen and Takemitsu, Burt observes that:

If Messiaen is the theologian, offering a commentary on his spiritual beliefs in terms of rigidly pursued and often descriptive arguments of an architectural solidity, Takemitsu is simply giving meaning to the stream of sound around him, and in consequence reflecting something of the chaotic and ineluctable fluidity of that medium.¹

In engaging for comparison the two composers mentioned above, the attempt is not being made to suggest anything of a stylistic aping, or otherwise quoting or copying, of the resultant music of these composers, but instead merely to suggest an affinity in the concept-processing and the preoccupation on certain muses in the evolution of a composition. However, the above quote resonates as an illustration of the hybridisation in the rhetorical devices used to describe the works of this portfolio, and in the assertion that the comparison is apt.

Furthermore, in continuing the analysis of the differing approaches to music between Messiaen and Takemitsu, Burt concludes that:

‘[…] while Messiaen’s rich sonorities are used as fundamental units to present syntactical constructions of a precise, implacable rigour, Takemitsu - less interested […] in the syntactical dimension of music than in the stuff of sound itself - uses certain of the precision mechanisms of Messiaen’s technique only as another means of generating sonorities which he considers interesting per se.’²

The attempt, to draw comparison with the works of this portfolio, requires not a small degree of self-analysis and -realisation. In the chimeric approach to stylistic features explored in this essay, both of the philosophical tactics identified above, are shown to

² Ibid.
be melded together to produce a music whose aesthetic rationale can be said to derive from both viewpoints.

As an introspective analysis progresses, one finds hidden layers of the unconscious made manifest in the work. In this process, too, one finds revealed that others have shared the intrinsic philosophies discovered hidden therein. The means by which the comparison can be made could be described in technical terms alone, though that would be a derogation of that element which words alone cannot suffice to define; that spiritual, intrinsic communicability of music defies adequate description. In the internal journey to discovery, the recognition of fellow travellers finds a ready satisfaction.
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• Far Calls, Coming, Far! for Violin and Orchestra (1980), Takemitsu: Visions November Steps, Denon, Wakasugi, Hiroshi cond., COCO-73083, Track 3

• From Me Flows What You Call Time for Five Percussionists and Orchestra (1990), From Me Flows What You Call Time, Pacific Symphony Orchestra, St Clair, Carl cond., Sony Classical, SK 63044, Track 1

• Garden Rain for Brass Ensemble (1974), Takemitsu, Tōru: Ensemble 2e2m, Mēfano, Paul cond., Assai, 222182, Track 2

• I hear the Water Dreaming for Flute and Orchestra (1987), Takemitsu: Orchestra Works III, Tokyo Metropolitan Orchestra, Numajiri, Ryusuke cond., Denon, CO-18032, Track 3

• In an Autumn Garden for Gagaku Orchestra (1973, 1979), Takemitsu: In an Autumn Garden, Music Department, Imperial Household, Deutche Gramaphon, 471 5902, Track 1

• Les Yeux Clos for Piano (1979), Takemitsu: Piano Music, Fukuma, Kotaro, Naxos, 8.570261, Track 9

• Litany/Lento for Piano (1950, 1989), Takemitsu: Piano Music, Fukuma, Kotaro, Naxos, 8.570261, Tracks 15 & 16

• November Steps for Biwa, Shakuhachi, and Orchestra (1967), Takemitsu: Visions November Steps, Tokyo Metropolitan Symphony Orchestra, Denon, Wakasugi, Hiroshi cond., COCO-73083, Track 2

• Orion for Cello and Piano (1984), Takemitsu: Between Tides and Other Chamber Music, Fujita Piano Trio, ASV Digital, Track 9

• Orion and Pleiades for Cello and Orchestra (1984), NHK Symphony Orchestra, Iwaki, Hiroyuki cond., Sony Music Japan International Inc., SICC-541–2, Tracks 3-5 CD 2

• Quatrain for Clarinet, Violin, Cello, Piano, and Orchestra (1974-5), Quatrain, A flock Descends Into The Pentagonal Garden, Boston Symphony Orchestra, Ozawa, Seiji, Deutche Gramaphon, 2531 210, Track A

• Rain Coming for Chamber Orchestra (1982), Takemitsu, Tōru: Rain Spell, Knussen, Oliver, Yamash’ta, Stomu, and Ozawa, Seigi, cond., HMV Classics, hmv 5738612-UK, 2000, Track 2

• *Rain Spell* for Flute, Clarinet, Harp, Piano, and Vibraphone (1982), Takemitsu, Tōru: *Rain Spell*, Knussen, Oliver, Yamash’ta, Stomu, and Ozawa, Seigi, cond., HMV Classics, hmv 5738612-UK, 2000, Track 3

• *Rain Tree* for three Percussion players (1981), Toronto New Music Ensemble, Naxos, 8.555859, Track 2

• *Rain Tree Sketch* for Piano (1982), *Takemitsu: Between Tides and Other Chamber Music*, Fujita Piano Trio, ASV Digital, Track 6

• *Rain Tree Sketch II in Memoriam Olivier Messiaen* for Piano (1992), *Takemitsu: Between Tides and Other Chamber Music*, Fujita Piano Trio, ASV Digital, Track 11

• *Requiem* for Strings (1957), *Takemitsu: How Slow the Wind*, Kioi Sinfonietta Tokyo, Otaka, Tadaaki cond., BIS, B00005ALI2, Track 4

• *River Run* for Piano and Orchestra (1984), *Takemitsu: Orchestral Works*, Knussen, Oliver cond., Virgin, 759020-2, Track 1

• *Star-isle* for Orchestra (1982), Takemitsu, Tōru, (Tokyo: Schott Japan, 2005)

• *Tree Line* for Chamber Orchestra (1988), Takemitsu, Tōru: *Rain Spell*, Knussen, Oliver, Yamash’ta, Stomu, and Ozawa, Seigi, cond., HMV Classics, hmv 5738612-UK, 2000, Track 4

• *Twill By Twilight* for Orchestra (1988), *Takemitsu: Orchestra Works III*, Tokyo Metropolitan Orchestra, Numajiri, Ryusuke cond., Denon, CO-18032, Track 2


• *Voice* for Flute (1971), Toronto New Music Ensemble, Naxos, 8.555859, Track 8

• *Waterways* for Violin, Cello, Clarinet, Piano, two Harps, and two Vibraphones (1977-8): Takemitsu, Tōru: *Rain Spell*, Knussen, Oliver, Yamash’ta, Stomu, and Ozawa, Seigi, cond., HMV Classics, hmv 5738612-UK, 2000, Track 1; *Takemitsu: Orchestral Works*, Knussen, Oliver cond., Virgin, 759020-2, Track 2

• *Waves* for Clarinet, Horn, two Trombones, and Bass Drum (1976), Takemitsu, Tōru: Ensemble 2e2m, Méfano, Paul cond., Assai, 222182, Track 4
Appendix A: Newgrange (Sídh in Bróga)¹

Appendix B: The contrails of fundamental particles from LHC experiments²

² Image from CERN website; Accessed 20 May 2018, https://home.cern/topics/large-hadron-collider
Appendix C: Ancient Bronze Age Horns

**Appendix D:** Frequency chart for notes (Boxed region references pitch of approximately 79 Hz. as E-quarter-flat)\(^4\)

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<th>Octave 8</th>
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Appendix E: Leonardo Da Vinci’s 1490 drawing of *The Vitruvian Man*\(^5\)

### Appendix F: Translation of Scél lem Dúib by Máiréad Perron

<table>
<thead>
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<th>Scél Lem Dúib</th>
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<tr>
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<td>Here's my story:</td>
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<tr>
<td>Dordaid dam:</td>
<td>Winter's come:</td>
</tr>
<tr>
<td>Snigid gaim:</td>
<td>Sad stag roars:</td>
</tr>
<tr>
<td>Ro faith sam:</td>
<td>Summer's gone;</td>
</tr>
<tr>
<td>Gáeth ard úar:</td>
<td>High cold wind;</td>
</tr>
<tr>
<td>Ísel grían;</td>
<td>Low cold sun;</td>
</tr>
<tr>
<td>Gair a rith:</td>
<td>Swelling seas;</td>
</tr>
<tr>
<td>Ruirthech rian:</td>
<td>Strongly run;</td>
</tr>
<tr>
<td>Ro gab úacht;</td>
<td>Birds don't sing</td>
</tr>
<tr>
<td>Etti én;</td>
<td>Songs of glory;</td>
</tr>
<tr>
<td>Aigre ré:</td>
<td>Ice wrapped wings;</td>
</tr>
<tr>
<td>É mo scél.</td>
<td>That's my story.</td>
</tr>
</tbody>
</table>

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Appendix G: Picture of Orion Constellation

Photo credit: Akira Fujii

7 Image unaltered (by terms of use) from Esa/Hubble website, Accessed 20 May 2018, https://www.spacetelescope.org/images/opus0205b/
Appendix H: Canal Bank Walk by Patrick Kavanagh

Leafy with love banks and the green waters os the canal
Pouring redemption for me, that I do
The will of God, wallow in the habitual, the banal,
Grow with nature again as before I grew.
The bright stick trapped, the breeze adding a third
Party to the couple kissing on an old seat,
And a bird gathering materials for a nest for the Word
Eloquently new and abandoned to its delirious beat.
O unworn world enrapture me, enrapture me in a web
Of fabulous grass and eternal voices by a beech,
Feed the gaping need of my senses, give me ad lib
To pray unselfconsciously with overflowing speech
For this soul needs to be honoured with a new dress woven
From green and blue things and arguments that cannot be proven.

---

8 Martin, Augustine: Soundings: poems we did for our Leaving Cert. (Dublin: Gill & Macmillan, 1969 and 2010, 196
Appendix I: The Samuel Beckett Bridge⁹ & Willow Grove at Portobello Bridge¹⁰


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Appendix K: The triune goddesses, Banba, Eriú, and Fódhla