

**Title of Thesis:**

**Sound design for the opera composer: concepts and methods**

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This thesis is dedicated to my wife Sarah Jones, as a gesture of gratitude for her unwavering love and support, and a celebration of the life we share together.

# Sound design for the opera composer: concepts and methods

## Abstract

Sound design has become an important part of theatre, film and contemporary opera, and a creative discipline in its own right. A pattern of convergence between music and sound has emerged during the last two decades across these disciplines. My project investigates this convergence, reviewing the literature and recent sound practice in opera, theatre (particularly Composed Theatre) and film (both live action and animation). This review explores concepts including soundscape, immersion, *acousmêtre*, the sonic Umwelt and phenomenologies and semiotics of sound through the writings of Michel Chion, Nicholas Cook, R Murray Schafer, Theo Van Leeuwen and others. It also examines the role of sound in the work of practitioners such as composers Steve Reich, John Adams, Heiner Goebbels and Anthony Davis and their collaborators, and sound designers such as Gary Rydstrom, Nicolas Becker and Kristian Selin Eidnes Andersen in film, and Ross Brown and Complicité in theatre.

From this review I draw out features, or modalities, of existing sound practice with the potential to be integrated into opera composition. I define these modalities as: sound as environment, sound as music, sound as action, sound as inner voice, and sound as sign. These modalities form a theoretical basis upon which to develop a method of opera composition in which sound design is integral. This forms the focus of this project, in particular the objective of moving beyond current practice to create opera with integrated sound design that exemplifies a dynamic and transactional relationship between sound, music and other elements. My three chamber operas *Her face was of flowers*, *Vicky and Albert* and *The Trilobite, Or The Fall of Mr Williams* are the result. I discuss the compositional process and performance history of these three pieces in relation to my five modalities of sound, and the models of sound practice that inspired them. Finally, I draw conclusions from the processes of composing, rehearsing and performing these operas that point the way to further development and exploration of opera with integrated sound design, both in my practice and elsewhere, offering the opera composer a new perspective on working with sound.

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### Elfyn Jones 33350369 PhD submission

 Sound design for the opera composer concepts and methods [this document]

### Her face was of flowers score, libretto, 2 video recordings and audio cues

 Her face was of flowers audio cues [contains 24 mp3 files]

 Her face was of flowers.pdf

 Her face was of flowers Tête à Tête 2019 performance.mp4

 Her face was of flowers Tête à Tête 2019 with enhanced sound.mp4

### Vicky and Albert score libretto and video recording

 Vicky and Albert audio cues [contains 86 mp3 files]

 Vicky and Albert.pdf

 Vicky and Albert at Tête à Tête performance video 2018.mp4

### The Trilobite, Or The Fall of Mr Williams score libretto and video recording

 The Trilobite audio cue sequences [contains 15 mp3 files]

 The Trilobite.pdf

 The Trilobite, Or The Fall Of Mr Williams performance recording  
2020.mp4

#### Key:

 Folder

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 Media

## 1. Introduction

I am a composer. My university and conservatoire training in the 1990s were enriched by a one-year attachment with London Sinfonietta Education, engaging the public with contemporary music through active participation. I have been a professional musician for 25 years, first in London and then in the south-west of England. I am currently based in Devon on the edge of Dartmoor.

A large part of my work has focused on music for the stage, particularly opera, and I began this PhD project out of desire to expand the possibilities available to me as a composer of opera. Opera is traditionally a resource-hungry medium, and even though there has been an attempt by opera houses to broaden the availability of opera to audiences through ticketing policies and the availability of live streaming of opera, this democratisation does not seem to have extended to composers working in the genre. I therefore felt the need to find ways of creating opera on a small scale without a concomitant compromise in sonority: large opera houses employ orchestras and choruses, and as we shrink to a small scale, these options disappear, traditionally to be replaced by the monochrome option of a piano.

For me, this compromise was unacceptable, and an alternative had to be found. I wanted to rethink the operatic ensemble, and with it the rehearsal process. This process conventionally consists of music rehearsals with piano, followed by stage rehearsals with piano. The orchestra traditionally joins the process at the Sitzprobe stage, which is essentially a musical rehearsal with orchestra. Finally, the piece is put together in its entirety with costumes and scenography added at the technical rehearsal stage, and made ready for presentation in front of an audience. On a small scale, I felt that a more meaningful rehearsal process, and a richer, more fluid performance, could potentially be achieved by having the ensemble present from the beginning, so that the singers were aware from the outset of complete sound world of the ensemble, and could enrich their performances accordingly.

My focus moved quickly from redesigning the rehearsal process to investigating the potential of sound design as a means of enhancing the possibilities open to a composer of opera on a small scale, particularly overcoming the limitations of sonority that result from stripping away the orchestra and chorus out of economic necessity. On the large scale, the operatic ensemble, both vocal and instrumental, contribute hugely to the *mise en scène*'s energy, style, and emotional subtext, guiding the audience's

journey through the narrative. On a small scale, sound design provides an ideal alternative, anchoring the stage action in an environment that may veer between the realistic and the fantastical. In my project, I have explored the interaction between music and the sound world of the characters' environment (diegetic sound) and their memories, dreams and hallucinations (meta-diegetic sound), as well as between sound and the music of the opera, which forms a layer of extra-diegetic sound between the stage-world and the audience. Most of the inspiration and theoretical foundation for my work is drawn from theatre and film, a result partially of the blossoming of sound practice in those fields, and partially of a lack of attention given to creative sound design in opera by academics to date.

I didn't see it as a journey into electroacoustic music *per se*, although I was aware that technology would play an important part in the realisation of my goals. I was aware from the outset of the scenographic potential of sound design in theatre and film, and through the work of Steve Reich I was also aware of the possibilities of the crossover between live and electronic music, particularly the use of pre-recorded samples, in concert works such as *City Life* (Reich, 1995) and *Different Trains* (Reich, 1988) and in his music theatre piece *The Cave* (Reich, 1993). As my research continued, it developed into an investigation of the impact that sound design could have on my creative process, and ultimately creative output, as an opera composer. As a result, I have been able to use sound design as a powerful component of my practice as an opera maker, and this has led to changes in the way my work is created, rehearsed and performed.

I have composed three one-act chamber operas, which have all received performances at Tête à Tête: The Opera Festival in 2018-2020 and have received favourable reviews. They demonstrate a progression of creative ideas and concepts of the use of sound design as a compositional tool in opera alongside more conventional music composition. The performance history of the pieces so far also demonstrates the resilience, portability and adaptability of this approach, not least during the Covid-19 pandemic, when it remained possible to stage a convincing version of the third of these pieces, *The Trilobite, Or The Fall Of Mr Williams*, despite the restrictions in place at the time. The solutions I was able to find in order to overcome these restrictions suggest future developments both for my work and, potentially, for that of other composers working in this field.

## 2. Sound practice in opera, theatre and film

### 2.1. Sound practice - literature review

The literature review that follows focuses on the nature of sound and its use in theatre and film, and to a lesser extent in opera, and is followed by a number of examples of work that have proved to be of particular relevance to my project. It is not intended to be an exercise in mapping examples from the literature or the repertoire directly onto my work; rather, it seeks to explore previous practice as a pool of knowledge from which I have been able to draw inspiration, and as a demonstration of convergent sound practice in theatre and film that offers fertile ground for developing a parallel sound practice in opera.

Levinson describes opera as a 'hybrid art form' (Levinson 1984, p5) - though I prefer the term 'composite', implying a whole that is more, rather than less, than the sum of its parts. Whatever the term chosen, opera clearly lies at the intersection between disciplines, necessitating collaboration and negotiation between them. For Levinson, a hybrid art form arises historically, as the 'combination or interpenetration of earlier art forms' (Levinson 1984, p.6), and gives rise to three possibilities: juxtaposition or addition, where the objects or products of two (or more) arts are joined together into one larger, more complex unit; synthesis or fusion, where two (or more) arts come together in such a way that individual components to some extent lose their original identities; and transformation, where one art form is transformed in the direction of another. Intriguingly, two of his prime examples are derived from opera: for him, Wagnerian opera is a *synthesis* (my italics) of song and drama, whereas Wilson/Glass's *Einstein On The Beach* is a *juxtaposition* (my italics again) of separable artistic elements, for example song, drama, painting, dance, and mime. He reserves *transformation* for art forms such as kinetic sculpture, which he views as 'ordinary sculpture modified in the direction of dance' (Levinson 1984, p.10). Levinson's treatment of hybrid art forms begs the question whether all art forms are composites of some kind, as they have inevitably benefited from new insights, practices and technologies developed in other disciplines.

Cook (1998) sees all musical endeavour as composite in some way, although his terminology speaks of 'musical multimedia': in opposition to Kivy's conception of 'music alone' (Kivy 1990) he enquires 'can we seriously speak of "music alone", when it ceases to be alone the instant we speak of it?' (Cook 1998, p.viii). He claims that words

about music 'mediate the transfer of music into meaning', and for him, musical meaning is 'the product of an interaction between sound structure and the circumstances of its reception' (Cook 1998, p.23). In multimedia contexts, such as TV advertisements, where music is one of several elements in a composite whole, 'the broad expressive potential of musical sounds acquires specific meaning by virtue of its alignment with words and pictures - through its transfer, in other words, to a variety of diverse objects.' (Cook 1998, p.22). According to this model, music is engaged in a 'counterpoint' with other media, through conformance, contest, or complementation, and between denotation and connotation; words, and other elements of a multimedia presentation, 'mediate the transfer of music into meaning, into communication, into discourse' (ibid., p 23). Cook critiques Levinson's historical approach, noting that hybrid art forms like ballet have their own history, and therefore a degree of autonomy. He argues instead that different media have 'independent dimensions of variance' (ibid., p.263), and that the aesthetic effect of multimedia results from the interaction between them.

Van Leeuwen (1999) comments on the weakening distinctions between speech, music and other sounds as recording technology has increasingly brought music into our daily lives: 'the dividing line between speech, music and other sounds is thin. Many of the same kinds of things can be done verbally, musically, or by means of 'noises'... And if we can use sound to actually do things, to hail or warn or soothe, we can also use it to *represent* these things, to represent hailing or warning or soothing' (Van Leeuwen 1999, p. 92). His association of sound with actions rather than objects is significant here, in my view, because it underlines the dynamic nature of sound (which here should be taken to mean *all* sound, music included), both in its nature as a disturbance propagated through an elastic medium such as air, and in its origin in, and therefore association with, activities that produce disturbance. Furthermore, *representation* could here be taken to mean both denotation (for instance a baby's crying) and connotation (the emotions of the baby, and of those who hear it crying). For Van Leeuwen, 'sounds are not things, nor can they represent things. Sounds are actions and can only represent the actions of people, places and things... Sound messages only have verbs, so to speak. The nouns are inferred, not stated' (ibid., p. 93). This viewpoint parallels Christopher Small's view of music as 'not a thing at all but an activity, something that people do. The apparent thing "music" is a figment, an abstraction of the action, whose reality vanishes as soon as we examine it at all closely' (Small 1998, p.3). He further asserts that 'the fundamental nature and meaning of music lie not in objects, not in musical works at all, but in action, in what people do' (ibid., p.9).

Andy Hamilton's humanistic conception of music also views it as allied to action, 'a human activity grounded in the body and bodily movement and interfused with human life' (Hamilton 2007, p6). For him, rhythm is 'the most fundamental conceptualization of music' (ibid., p.142): 'hammering, scything, pounding and other labouring activities essential to traditional societies are incipiently musical'. (ibid., p.119). He sees dance, poetry and music as 'conceptually inseparable' in that 'rhythm is essential to each, and none can be understood independently of rhythm. In experiencing musical rhythm, one does not just experience music as behaving like a human body, but the human body as... moving musically' (ibid.). Hamilton critiques Scruton's 'acousmatic thesis' of musical experience, in which Scruton describes how sounds heard as music thereby lose their associations with the real world: 'The person who listens to sounds, and hears them as music... is hearing the sounds apart from the material world. They are detached in his perception, and understood in terms of their experienced order: this is... the acousmatic character of musical experience' (Scruton 1997 p.221, cited in Hamilton 2007, p.96). Hamilton views Scruton's theory as an incomplete description of the musical experience on the grounds that many aspects of music, for example timbre, space, and virtuosity, are connected to the particularity of the immediate experience of music in the material world, and not abstracted from it. Instead, Hamilton believes there is a 'twofoldness' to musical experience: literal (non-acousmatic) and metaphorical (acousmatic), seeing each aspect as 'a genuinely musical element of musical experience' (Hamilton 2007, p.58). He notes that 'sound phenomena which are not music or sound-art have acousmatic - one might say musical - aspects, such as the rhythm of a train engine or the melody of speech patterns. A heartbeat is a natural rhythm, birdsong is melodic; nature can be musical, even if is not music' (ibid., p103).

Reybrouck emphasises what he terms the '*circularity* between action and perception' (Reybrouck 2017), and explains our relationship with our sonic and musical environment in terms of Gibson's ecological approach to visual perception through the concept of 'affordances', or the 'functional characteristics' of an organism's environment, where a living organism's environment becomes meaningful 'for an active perceiver who perceives this world in terms of functional significance of an object, event, or place' (ibid.). Therefore sense-making becomes an act of 'deliberate attention... listeners... build up relations with their sonic world by selecting some elements to give them special meanings. In doing so, they construct their own sonic Umwelt... the mind is not to be seen as a passive reflection of the outer world, but as an active constructor of its own reality'. Reybrouck therefore sees musical sense-

making as an 'embodied' and 'enactive' process through which what he terms 'music users' interact with their environment (ibid.). This is consistent with the mechanisms of musical perception in the brain, summarised by Koelsch and Siebel, who explain the importance of Gestalt formation in the auditory cortex in order 'to recognize and to follow acoustic objects, and to establish a cognitive representation of the acoustic environment', including musical features such as melodic contours, musical intervals, and time relations, as well as spatial discrimination of individual sound sources (Koelsch and Siebel 2005, p.579).

For Eero Tarasti, music is a semiotic system, or a system of signs: 'No object or thing has any existence for us unless it means or signifies something. Music thus mediates between values be they aesthetic, ideological, or whatever - and fixed, ready-made objects. In fact, music as a sign provides an ideal case of something meaningful and communicative' (Tarasti 2002, p.4). Philip Tagg similarly emphasises the importance of semiotics in music: 'movie-goers and TV viewers have been scared out of their seats, or they have distinguished between the good and bad guys, or reacted to urgency cues preceding news broadcasts, or registered a new scene as peaceful or threatening, or understood that they are in Spain rather than in Japan or Jamaica... all thanks to a second or two of music carrying the relevant message on each occasion' (Tagg 2013, pp.151-152). Andrew Crisell emphasises the importance of auditory semiotics in radio: spoken words 'constitute a binary code in which the words themselves are symbols of what they represent, while the voice in which they are heard is an index of the person or "character" who is speaking' (Crisell 1994, p.43). Signification in sound is not 'static' or 'rigid', he observes, but 'a highly fluid or elastic process which varies according to context and the preconceptions we bring to it' (ibid.). He asserts that 'music is much less parasitic on context than sounds are. A series of shuffling or clicking noises divorced from their visual or verbal surroundings will leave us baffled... but a piece of music is instantly recognisable as music and can be fully appreciated as such' (ibid., p.54). Crisell, therefore, retains a distinction between words, music and other sounds in terms of the meanings that they are able to communicate.

According to Makis Solomos, we are in the midst of a 'change of paradigm... from a musical culture centred on the note to a culture of sound' (Solomos 2020, p. 13). He sees this refocusing on sound as a constructive development in contemporary music that has occurred in the wake of the destruction of tonality in the 20th century (ibid., p.14). Since the birth of tonality in the 17th century, music had been 'joined' to language, creating a powerful model; according to this model, 'music is akin to a

discourse: thanks to these isolated elements and significant dynamic structures, it becomes narration, suggestion, evocation.' This all changed in the 20th century; the contemporary refocusing on sound 'favours a morphological type of thinking' (ibid., p.195). There is a new emphasis, he suggests, on the materiality of sound: 'The history of musical modernity could be written as the succession of increasingly closer revolutions of materials, going from the emancipation of dissonance up to granular synthesis' (ibid., p.113). He claims that the 'refocussing' on the material at the expense of language and form is the 'primary characteristic' of modernity in music, leading (in the music of Cage, for example) to the disappearance of language and form (ibid., p.114). With other composers, however, the situation is more complex: 'refocussing... on material and its proliferation do not mean that language or form disappear but that one has more and more trouble distinguishing them from the level of material' (ibid., p.115). For example, composers from Debussy and Messiaen through Webern to Boulez, Feldman and Arvo Pärt have created what Solomos terms 'composed resonances' (ibid., p.115), a 'pulverisation of time and material to glorify the present and "sound"' (ibid., p.121). For Solomos, this model of composed resonance has led to a conception of electroacoustic music as 'composed sound' in which form and material become fused (ibid., p.127), leading to the primacy of studio practice in popular and contemporary art music, and culminating in the integration of studio and live practice in the work of composers from Boulez onwards (ibid., p.132).

Composer Simon Emmerson asks the question: 'do we want or need to know *what causes the sound we hear?*' (Emmerson 2007, p.5, author's italics.) He observes that for Pierre Schaeffer, pioneer of *musique concrète*, where everyday sounds are assembled in montage, the answer was 'no'. Schaeffer advocated 'reduced listening', wishing to divorce sounds from their origins, which he viewed as unnecessary and misleading, in order to create '*objets sonores*' which could then be transformed into '*objets musicaux*' in the studio, and thereby be composed into a 'potential musical discourse' (ibid.). Boulez, too, thought that 'any sound which has too evident an affinity with the noises of everyday life... could never be integrated' (Boulez, 1971, cited in Brown 2010). What Boulez means here is integration into an abstract musical structure; Drever notes that 'the distinctive method of *musique concrète* is... the endeavour to focus on and exploit the intrinsic qualities of sounds - attending to the dynamic combination of frequencies and amplitudes as they change over time' (Drever, J., in Brown 2010, p.198). But for Emmerson, a 'niggling doubt' remains about reduced listening. He notes that Michel Chion, in fact, although himself a fellow member of the *Groupe de Recherches Musicales* along with Schaeffer, was of the belief that 'the

acousmatic condition intensifies causal listening in taking away the aid of sight' (Chion 1994, p.32, cited in Emmerson 2007, p.5). And another member of that group, Luc Ferrari, also rejected Schaeffer's abstraction, inventing 'anecdotal music' in what was seen as 'a major act of dissent and rebellion' (Emmerson 2007, p.7). Ferrari maintained that 'It had to be possible to make music and to bring into relation together the shreds of reality in order to tell stories' (Pauli 1971 p.41, cited in Emmerson 2007 p.7).

Emmerson claims that '*sounds inevitably have associations*' (Emmerson 2007 p.6, author's italics), and gives as examples a number of practitioners for whom a connection between sound and source is important in different ways. One of these is Trevor Wishart, who emphasises the importance of 'sound symbols', described by Emmerson as 'recognisable sounds that clearly convey a feeling, idea or concept' (Emmerson 2007, p.8). They comprise a set of 'metaphoric primitives' (Wishart 1986 p.55, cited in Emmerson 2007, p.8) which can be constructed into musical 'myths... clearly rooted in the discourse of the material world' (ibid.). This seems to be a somewhat Wagnerian concept, drawing as it does on ideas of both mythology and leitmotif, and Emmerson's example of a horn call as a sound symbol that would draw a 'near-automatic response' (Emmerson 2007, p.8) in the listener echoes Wagner's choice of a horn call as a leitmotif for his heroic character Siegfried in *The Ring* cycle. In fact, Wishart notes Wagner's ability, through leitmotifs, 'to carry on a discourse which is not subject to the spatial and temporal limitations of the opera stage' (Wishart 1996 p.165), and compares his own use of 'sound-images' (such as bird song) to Wagner's use of leitmotif: 'Using sound-images in the virtual space of the loudspeakers, we can create a world somewhere in between the concreteness of the opera staging and the world of musical relationships. We do not need to associate a musical object with, for example, a bird and thence with a metaphorical meaning, we may use the sound of a bird directly. And the concreteness of theatrical staging is replaced by a dreamlike landscape hovering between musical articulation and "real-world" events.' (ibid.) Ultimately Wishart positions himself somewhere between Wagner and Schaeffer, desiring the best of both worlds. He summarises his dualistic approach to acousmatic composition thus: 'ideally we should not think of the two aspects of the sound-landscape (the sonic and the metaphorical) as different things but as complementary aspects of the unfolding structure' (ibid., p.166), he asserts, holding the concept of sound object in one hand and sound symbol in the other.

For R Murray Schafer, sound creates a 'soundscape' analogous to landscape, and the creation of the World Soundscape Project (WSP) in 1971 reflected his intention 'for the

WSP to act as a critique of the urban environment' (Emmerson 2007, p.9). As well as advocating a new field of acoustic design, the WSP's work led to the creation of a new vocabulary for sound: the 'keynote' is the near-constant background sound characteristic of a particular soundscape, the 'sound signal' carries important information for a community living in that soundscape, and the 'soundmark' is a unique sound significant enough to deserve preservation (ibid.). Soundscapes are classified according to the ambient noise level: 'hi-fi' soundscapes are rural, quiet; individual sounds can be maintained and discerned, while 'lo-fi' soundscapes - urban soundscapes - are the opposite: 'The pellucid sound... is masked by broadband noise. Perspective is lost. On a downtown street corner of the modern city there is no distance; there is only presence. There is crosstalk on all channels...' (Schafer 1977, p.43). The modern condition also leads, according to Schafer, to a state of 'schizophonia', or separation of sound from its natural source: 'I coined the term schizophonia in *The New Soundscape* intending it to be a nervous word. Related to schizophrenia, I wanted it to convey the same sense of aberration and drama... the overkill of hi-fi gadgetry not only contributes generously to the lo-fi problem, but it creates a synthetic soundscape in which natural sounds are becoming increasingly unnatural while machine-made substitutes are providing the operative signals directing modern life' (Schafer 1993, location 1904). Clearly for Schafer, modern industrial life has had an overwhelmingly negative impact on the natural soundscape, and he shares his reverence for the North American wilderness with conservationists like John Muir and 'America's most revered landscape photographer' (BBC 1983) Ansel Adams, who although American rather than Canadian, lived and worked like Schafer in and around the mountains of Western North America. The ancient soundscape to which Schafer refers so nostalgically is not however the one heard by historic native Americans, but the old European environment of the pasture, the hunt, the post horn and the farm; it is these features, rather than those of the Pacific Northwest, which are deemed worthy of special attention in his affectionate, almost reverential, discussion of the rural soundscape.

Ari Kelman offers his own detailed critique of Schafer's term 'soundscape', both in Schafer's own work and in that of subsequent sound scholars. To Kelman, Schafer's original conception is 'not a neutral field of aural investigation at all'; in it he sees ideological and ecological preconceptions about which sounds are important and which are not, 'deeply informed by Schafer's own preferences' (Kelman 2010, p.214). He asserts that Schafer's historiography of sound 'offers very little room for agency for those people who populate the "lo-fi soundscape"', claiming that ultimately for Schafer

'the encroachment of noise is so severe that the only way to fight it is, ironically, to stop listening to it' (ibid., p.217). And for Kelman, Schafer's discussion of the soundscape confuses sound and listening; his desire to 'populate his soundscape with acoustic designers and "ear cleaned" listeners' means that ultimately the soundscape becomes just a 'background for a listener's adjudication of sonic experiences' (ibid., p.219). Schafer's legacy is just as problematic: 'In its near-ubiquity, the term has come to refer to almost any experience of sound in almost any context' (Kelman 2010, p. 214), he claims, citing as examples of its use in artificial sonic environments, performance venues, loudspeaker manufacture and record albums, as well as the work of a number of authors who have used the term in the titles of their books, but have failed to 'engage critically with Schafer' (ibid., p.223).

Kelman considers a number of writers - Kay Kaufman Shelemay (Shelemay 2006), Barry Truax (Truax 1984) and Emily Thompson (Thompson 2002) - who have taken Schafer's work seriously, but have each reformulated the meaning of the word 'soundscape' to fit their own agendas. Shelemay claims that comparing soundscape to seascape rather than landscape 'provides a more flexible analogy to music's ability to both stay in place and to move in the world today' (Shelemay 2006, p.xxxiv, cited in Kelman 2010, p.224). As a work of ethnomusicology however, it 'effectively avoids the very aspect of Schafer's soundscape that scholars have found so provocative and enticing: the possibility that we might take a broader approach in our study of sound to incorporate non-musical elements in it' (Kelman 2010, p.224). Truax similarly limits the possibilities of the term, in this case 'to fit a smaller frame in which the most valuable sounds are those that facilitate the transmission of information intelligibly from person to person instead of allowing sound to speak for itself' (Kelman 2010, p.225). Thompson's book *The Soundscape of Modernity* tells the history of acoustic design in modern architecture, but for Kelman 'focuses more on the *sound* of modernity than on its *soundscape*' (Kelman 2010, p.226; author's italics). Kelman observes that for the subjects of Thompson's book 'the solution lay in abstracting sound completely from its context and developing technologies to control it', while for Schafer, 'the solution is only accessible... by learning to listen selectively, tuning out the noise and leaving only music' (Kelman 2010, p.224). Finally, Kelman considers Alain Corbin's *Village Bells* (Corbin 1998), in which Corbin 'uncovers a whole semiotic system in regard to the size, meaning, style, and length of a bell-peal during the nineteenth century' in rural France (Kelman 2010, p.226). To Schafer, the sound of church bells became drowned out by industrial noise, but Corbin finds more complexity, citing the decrease in the Church's authority, the advent of private clocks, and the growth of written material for

communication, along with the arrival of a number of technologies such as electronic amplification in the twentieth century, as reasons for their fall from a former position of dominance. For Kelman, 'Corbin's close analysis of French village bells dismisses Schafer's dystopian historiography', with the added irony that although Corbin describes what Schafer would recognise as a rural soundscape in great detail, he never uses the term, preferring 'auditory landscape' instead (Kelman 2010, p.227).

While Schafer constructs the soundscape as an analogue to landscape, seeking equivalence between the visual and auditory realms, Ihde's phenomenological explorations of sound, while beginning from a model based on a visual phenomenology, seek departures from this equivalence. Ihde models both auditory and visual experience as a 'core-horizon structure' of concentric circles, in which a 'focal core' is surrounded by a 'fringe', itself bounded by a 'horizon' or limit of perception (Ihde 2007, pp.38-39). He remarks however that 'visual and auditory experiences... do not always overlap. I see before me the picture of the sailboat, the note concerning last night's sherry party, a postcard from Japan. But I hear the cement mixer, the bird song, and the traffic in the street' (ibid., p.65) - a real-life example of Cook's notion of 'complementation' (Cook 1998; see above). The sensory geometry is different, too: 'the visual field... displays itself with a definite forward oriented directionality' (Ihde 2007, p.75), while the auditory field, and auditory focusing, is omnidirectional. Moreover, the auditory field extends further than the visual: 'Were it to be modelled spatially, the auditory field would have to be conceived of as a "sphere" within which I am positioned, but whose "extent" remains indefinite as it reaches outward toward a horizon' (ibid., pp.75-76). And this horizon is, rather than the limit of sight, the horizon of silence (ibid.,p.53): within it lies 'the copresence of... surroundability and directionality, manifestations of sound presences' which 'penetrate our attention' (ibid.,p.83). While Ihde's description of the experience of hearing is interesting, it also confuses spatial distance with sound volume, both of which are perceptible variables (the perception of distance being related to timbre and reverberation, for example), and vanish at the threshold of hearing; this limits its useful application in practice.

Whatever its shortcomings, Ihde's phenomenology shows sound to be an *immersive* medium, and Ross Brown observes a recent paradigm shift towards immersion in theatre, predicted just before the millennium by Van Leeuwen: 'aural perspective ... has been challenged... by new forms of listening which aim at immersion and participation rather than at concentrated listening and imaginary identification' (Van Leeuwen 1999 p. 29 in Brown 2010 p.1). For Brown, this is exemplified by 'forms which

“aim” themselves more squarely at the subjective experience of sound’ (Brown 2010 p.1). Music, too, for Brown has become more immersive, ‘part of the subjective experience of noisy, environmental randomness; and that same everyday randomness can itself be taken as music’ (ibid., p.2). He notes that musical and sonic environments are becoming ‘blurred categories - hybrids or mash-ups’. Music ‘leaks out’ into the ‘general ambience of place’, while sampling and sound effects are incorporated into all kinds of music (ibid.), and the soundscape itself, through the ‘inescapable presence or availability’ of music, has become ‘musicalized or musically framed’: ‘this mashed-up soundscape of possibility is the liquid atmosphere in which the human post-industrial subject is immersed’ (ibid., p.3). Moreover, sound design is ubiquitous: ‘each sonification in product design - each beep of a car, bong of a tannoy, sting of audio identifier and squidge or bloop of computer sonic-user-interface - edges sound more centre-stage’ (ibid.,p.5).

Petra Meyer has identified an ‘acoustic turn’ (Meyer 2008) in theatre, one of several ‘turns’ that have been claimed for theatre practice in recent decades. In laying her claim, however, she seeks ‘to draw attention to the fact that previous ‘turns’... have always possessed an “acoustic turn”’ (Meyer 2016, p.3). She traces twentieth-century developments from Appia and Dalcroze’s musicalisation of theatrical space and movement, through Cage’s ‘theatricalization of music’ in collaboration with Merce Cunningham, to Mauricio Kagel’s idea of ‘Kammermusikalische Theaterstück’ (ibid., pp.4-5) as progenitors of ‘a new attentiveness to the auditory level of theatre’ that gave rise to ‘a new dominance of dance and music’ in theatrical performance, as well as ‘media-technological developments and the new staging possibilities they present today’ (ibid., p.3). By abandoning what she calls ‘psychological-realistic’ theatre design, the audible is able to assert equal status in relation to the visible: ‘The acoustic level creates space itself, gives it dimensions, and determines its atmosphere’ (ibid., p.6). She exemplifies this shift in an experimental multimedia dance project called *ICH<sup>2</sup>*, staged at the Muthesius Kunsthochschule in Kiel, Germany, in 2005-6, for which she was part of the supervisory team (Muthesius Kunsthochschule 2020). The audience was centrally located within a planetarium, with live action and 360° projection taking place all around them: ‘such a transfer of the distantly observed stage space into an atmospherically experienced space could only be possible when the audience was immersed in the audiovisual milieu of perception’ (ibid., p.10). She links this experience with the philosophy of the French phenomenologist Maurice Merleau-Ponty which deals with ‘the interplay of imagination and the experience of real living space, thus ensuring the relevance of the world as a milieu of perception and thought’ (Merleau-

Ponty 1966, p.5, cited in Meyer 2016, p.7). For Meyer, then, the theatrical experience of 'being-in-the-middle' in such performance spaces mirrors our lived experience (ibid).

Music has become an 'independent structure of theatre', according to Eleni Varopoulou, claiming that beyond the evident role of music in theatre, we can think of 'theatre as music' (Varopoulou 1998 in Lehmann, 2006. p.91). Hans-Thies Lehmann observes that this 'musicalization' of theatre practice has given rise to 'an independent auditory semiotics' of theatre, due to a greater emphasis on the musical and rhythmic qualities of speech as part of the 'new and no longer dramatic language of theatre' (Lehmann 2006, p.93). Furthermore, through new technology, it is becoming possible to 'manipulate and structure the entire sonic space of a theatre in a targeted fashion', so that 'just like the progression of actions, the musical level is no longer constructed in a linear fashion but rather... through simultaneous superimposition of sonic worlds' (Lehmann 2006, p.92). Ross Brown has spoken of a 'dramaturgy of sound' (Brown 2002), and Peter Sellars of 'a total program of sound that speaks to theatre as ontology' (Kaye and LeBrecht 2016, p.x), both seeking to raise the status of the auditory in theatre practice from scenography to an integral part of the creative process. In doing so they point not only to a greater emphasis on the auditory sphere as an increasingly important element in theatrical performance, but also, along with the commentaries of other practitioners in the field, imply a close relationship between sound and music in contemporary theatre practice.

Matthias Rebstock and David Roesner use the term 'Composed Theatre': this is rooted in the tendency of a number of composers, theatre directors, dance practitioners and performance ensembles since the beginning of the twentieth century to 'approach the theatrical stage and its means of expression as *musical* material' (Roesner, D. in Rebstock and Roesner 2011, p.8, author's italics). Indeed, in Composed Theatre, the word 'composed' should be taken in its musical context (Rebstock, R. in Rebstock and Roesner 2011, p.20), even when applied to other elements such as action or lighting. Composed Theatre is characterised by Rebstock and Roesner as the use of 'compositional strategies' during the process of artistic creation and perhaps also in performance, and an absence of hierarchy between the theatrical elements. As a consequence, the working process will be unconventional and fluid. For Rebstock, Composed Theatre 'exists only in its performances': the process of composition is 'prolonged' through the staging process 'until the very moment of the performance' (ibid, p.21). He explains that conventional opera, dominated as it is by music, and having a 'traditional' working process from libretto to composition to staging,

doesn't generally fall within the genre, although examples of opera might qualify (ibid., p.54). He sees Composed Theatre both as a renegotiation of the relationship between what is seen and heard on stage (ibid., p.325), and as a continuum between musicality and theatricality (ibid., p.330). What this means in practice can be demonstrated by discussing two composers in the field of Composed Theatre whose work has particular relevance for my project, namely Michael Hirsch and Heiner Goebbels.

For Michael Hirsch, 'the dissolution of boundaries between the arts has become a natural achievement of the history of the arts of the twentieth and twenty-first century... Consequently, the reservoir of all art forms is open to a composer even when he writes a purely musically conceived piece of chamber music' (Rebstock and Roesner 2011, p.123). Hirsch uses recorded sound extensively in his work, particularly *musique concrète*, and remarks on an 'iridescence between recognition and non-recognition, between the quasi-semantic contents of a sound and its abstract-acoustic appearance' (Rebstock and Roesner 2011, p. 127). In his opera *Das Stille Zimmer (The Silent Room, 2000)*, Hirsch's score interpolates scenes accompanied by an 8-channel *musique concrète* track between scenes accompanied by orchestra, to portray the 'silent room' where the protagonist, a patient at a psychiatric facility, finds solace (Rinneberg 2004). For Hirsch, sound has an inherent theatricality, and an 'immediate emotional expressiveness', derived from its origin as the result of actions such as 'rolling balls, dropping objects, burrowing, shaking and crumpling sound actions' and 'bursting glass' (Rebstock and Roesner 2011, p. 127). He views theatrical procedures and devices as a way to resolve the problem in electroacoustic music of the absence of visible performers, who for Hirsch enhance 'the immediate experience of the music for the listener through his empathy with the performing musician' (ibid.).

For Heiner Goebbels, absence is a cornerstone of his 'aesthetics of absence' (Goebbels 2015). In his theatre piece *Stifter's Dinge (2005)* he does away entirely with human performers, opting instead for a theatrical piece animated by the scenography: 'The starting point of these experiments was initially to attempt an absence of performers onstage having previously experienced several times that the attention of the audience was heightened when they were not shown but denied something.' Goebbels calls this a 'performative installation' (Rebstock and Roesner 2011, p. 117) or a 'no-man show' (Goebbels 2015, p.5) in which everything is 'disembodied' (ibid., p.6) - instead, the objects, acousmatic sound, lighting, stage effects and automated pianos create the piece, with an absence at its centre: 'When there isn't anyone on stage any longer... then the spectators must discover things

themselves. The audience's delight in making discoveries is enabled only by the absence of the performers' (ibid., p.5). Goebbels embraces a number of roles in his work including producer, director, composer and musical director. He finds it essential to make all elements - music, text, staging, lighting, sound - available from the start: 'anything that comes late in the process is only going to be illustrative; it does not have the power to change anything else' (Rebstock and Roesner 2011, p. 124). He seeks to 'compose like a director... to discover and develop... the qualities and the options which come up with the individual performers' (ibid., p.121), and conversely to 'direct like a composer': to him, theatre is 'a very musical process', and he values 'the rhythm of scenes, the harmonic or contrapuntal relationship of the theatrical elements and the different levels between a "visual" and an "acoustic" stage', including 'the sound in different languages, the rhythm, the melody of a spoken text' (ibid.).

The function of sound in film, according to Michel Chion, is to give 'added value' to the image on screen, 'so as to create the definite impression, in the immediate or remembered experience one has of it, that this information comes "naturally" from what is seen, and is already contained in the image itself' (Chion 2019, p.5). He denies the existence of a soundtrack, in the sense of it being equivalent to the sequence of projected images. There is no 'auditory container' for sound analogous to the frame of the image, he observes; moreover, 'sounds are triaged in relation to what we see in the image, and these assignments are constantly subject to revision depending on changes in what we see' (Chion 2019, p. 68). It is interesting to contrast this subservient view of sound in relation to image with his characterisation of commercial television as 'fundamentally a kind of radio, "illustrated" by images' (Chion 1994, p. 165). Chion's stated opposition between the roles of image and sound in both television and cinema is analogous to Barthes' observation of the differing roles of image and text in book illustration and press photographs respectively: in the latter, 'the text constitutes a parasitic message designed to connote the image... the image no longer *illustrates* [author's italics] the words; it is now the words which, structurally, are parasitic on the image' (Barthes, R. 1977) - so with words, also with sound.

In 1928, at the dawn of talking pictures, the Soviet film directors Eisenstein, Pudovkin and Alexandrov produced 'A Statement on the Sound-Film', declaring 'Only a contrapuntal use of sound in relation to the visual montage piece will afford a new potentiality of montage development and perfection' (Eisenstein 1977.) Their approach attacked the redundancy of simply matching sound to image, fearing it would destroy the culture of montage that they had worked so hard to establish during the early

history of film. Clearly, in synchronising dialogue with the image, film sound proceeded exactly in the direction that they feared, but the montage approach of Eisenstein and others emphasised an enduring feature of the potential of sound in film to convey an alternative narrative to the image - 'audiovisual dissonance', as Michel Chion puts it. Chion makes the point that this phenomenon - 'what you hear... is not what you see' - occurs on a daily basis both on screen and in our daily lives, but generally passes unnoticed: 'Audiovisual dissonance will be noticed only if it sets up an opposition between sound and image on a precise point of meaning.' To him, this leads to a 'certain linear interpretation in the meaning of the sounds and words', reducing our reading to a 'stereotyped meaning of the sounds' - we hear the sounds as signifiers related to their source, rather than 'their own sonic substance' (Chion 2019, *ibid.*).

Chion remarks on a 'heterogeneity of levels of hearing' (Chion 2019, p. 22) when we listen to sound recordings. He categorises three modes of listening which he defines as 'causal', 'codal' and 'reduced' (*ibid.*, pp 22-28), which lead to different modes of interpreting those sounds. Causal listening is the most common mode, the one we use when searching for the sources of sounds, and this mode is 'constantly manipulated by the audiovisual contract' (*ibid.*, p.24), particularly through the phenomenon of what he calls 'synchresis' (a telescoping of 'synchronism' and 'synthesis'), which is 'the forging of an immediate and necessary relationship between something one sees and something one hears' (*ibid.*, p.5). Codal listening (equivalent to Pierre Schaeffer's 'semantic' listening) is what one does in order to decode the signal to get the message - to understand the meanings of spoken words, or to decode Morse code. Finally, reduced listening is the mode that 'focuses on the traits of the sound independent of its cause and of its meaning' (*ibid.*, p.25), and he asserts that filmmakers have 'everything to gain' from paying 'disciplined attention to the inherent qualities of sounds' (*ibid.*, p.28).

For Chion, reduced listening is analytical: when we identify musical pitch or rhythm in a sound we are engaging in an elementary form of reduced listening (*ibid.*, p. 27), although it is applicable to all sounds, and he praises Schaeffer's efforts (in Schaeffer 1966), however incomplete, to formulate a descriptive system for sounds independent of their causes. Reduced listening allows us to exploit what he terms 'pivot-dimensions' of sound, properties 'shared by sound elements of different categories (speech, music, noise); the common property allows a passage from one category to the other, or makes them resemble one another.' He lists the three most important as pitch, rhythm and register, and remarks on a growing tendency since the late 1980s for films to build

a sequence around a sound design concept 'using pivot-dimensions to lend a story's sound an air of unreality' (Chion 2019, p. 34). He asserts that 'sound more than image has the ability to saturate and short-circuit perception', and to 'become an insidious means of affective and semantic manipulation' (ibid.).

Another example of manipulation through sound is the *acousmêtre* (Chion 2019., p.125ff), a character who exists only in sound, such as the fake wizard in *The Wizard of Oz* (Victor Fleming, 1939), at least prior to his eventual discovery behind the curtain. An *acousmêtre* is all-seeing, all-knowing and all-powerful, and in some cases can seem to have the 'gift of ubiquity' (Chion 2019, p.127). Chion sees an *acousmêtre's* ability to see everything, and to know everything, as arising from its status as the 'voice of... *primary identification* with the camera' (ibid., author's italics) - an *acousmêtre* sees everything the camera sees. An *acousmêtre* can have magical abilities - 'where the words one utters have the power to become things' (ibid.) - connected to the power of 'textual speech' (ibid., p. 150ff) - words heard in voiceover - 'where the mere enunciation of a word or sentence can mobilise images or entire scenes' (ibid., p.151). This is an ability not enjoyed by the narrator's voice in literature: 'it causes things to appear not only in the mind but right before our eyes and ears' (ibid., p.153). For Chion, 'everything said creates a space around itself' that he calls '*the shadow of the said*' (ibid., p.170, author's italics), and contributes to the complex interplay between text, sound and images in film. What Chion terms '*the c/omission between the said and shown*' (ibid., p.154, author's italics) is a subset of this array of possibilities that, ironically, emphasises the primacy of image over text in film in much the same way as the image's primacy over sound: textual sound creates images, but the images show more than words can say.

Sound has become musicalised in cinema too. Martine Huvenne speaks of an 'intertwining' of music and sound in some films, and asks whether the same recorded sound 'can be heard as a musical element and /or as a sound effect' (Greene and Kulezic-Wilson 2016, p.123). She maintains, in answer to this question, that in such films 'the recorded sound does not exist in its own right'; rather, she argues, from a phenomenological perspective, that 'it is in the listening' that the sound is perceived either as 'pure music' or as 'part of the sonic environment' (ibid.). She gives as an example the opening sequence of *Atonement* (Joe Wright 2007), in which the sound of the young girl Briony's typewriter is heard first as diegetic sound, an accompaniment to the visual image of her typing, and then as a repetitive, percussive element in Dario Marianelli's musical score. Huvenne discusses this transition in a historical context,

referencing Russolo's *intonarumori* as offering 'a way to de-contextualize the daily sounds and re-contextualize them in a musical context', and opening the way for Satie, Varèse, Schaeffer and Cage (Greene and Kulezic-Wilson 2016, p.128). When the typewriter sound moves from the scene to the score, according to Huvenne, we change the way we listen to it, from 'alert' listening (after Barthes, referring to the act of listening for the source of a sound - Chion's 'causal listening') to 'musicianly' listening (after Schaeffer, which is related to Barthes' 'panic' listening, referring to the Greek god Pan; Chion would view this as a subset of 'reduced' listening). Similarly, in *Last Days* (Gus Van Sant 2005), Hildegard Westerkamp's soundscape composition *Doors of Perception*, redeployed as part of the sound world of the film, undergoes a transformation when coupled with the moving image; instead of hearing the sound elements as abstract sound objects, we reimagine them instead as being connected with events within the film, even if we retain our point of audition in relation to the image: 'The situatedness of the listener in Westerkamp's music is sustained in the experience of the felt sound, even when some sounds find their place in relation to the visual image and can be interpreted as off-screen sound, revealing a source and meaning' (ibid., p.134).

Danijela Kulezic-Wilson lists a number of films in which the soundtrack has become musicalised in different ways. She argues that 'undermining the narrative sovereignty of the spoken word and endorsing the interchangeability of speech and music promote modes of perception which can change our expectations of narrative film and emphasize its musical and sensuous qualities' (ibid., p.431). In *Breathe In* (Drake Doremus 2013), 'music is from the beginning established as the primary means of communication in both narrative and narrating terms' (ibid.), creating an 'impressionistic' mix of dialogue and music, or, to use Michel Chion's term, 'verbal chiaroscuro' (ibid., pp.432-433). In *Spring Breakers* (Harmony Korine, 2012), repetition of lines in dialogue and voiceover, and asynchronous editing of sound and image, subvert the traditional linearity of textual narrative: 'Instead of being used for a denotative or even connotative function, language is employed here for its rhyming and rhythmic properties. Its asynchronous use is an important part of this because by divorcing the spoken word from its source the filmmaker draws our attention to its purely sonic aspects, emphasizing its musical qualities' (ibid., p.436). Finally, in *Upstream Color* (Shane Carruth, 2013), Carruth matches the characters' 'loss of a stable sense of self and their place in the world' with 'the loss of a privileged and centralized point of view or point of audition: viewers are thrown into an audio-visual space without clear temporal or spatial coordinates; one day merges into another which

could be a week or a month later; some events happen in two places at once' (Greene and Kulezic-Wilson 2016, p.440). In *Upstream Color*, sound effects have a 'prominent narrative role', while 'speech is often relativized through fragmentation', and although the music remains 'unobtrusive', it was composed by Carruth himself concurrently with his writing of the script, and thus remains 'embedded in the film's foundations'.(ibid.)

Conversely, Sergi Casanelles observes sound design's rôle as a compositional tool in film, where the meaning of elements of the musical soundtrack can be changed by changing audio parameters. In *The Social Network* (David Fincher, 2010), a piano is recorded three times with a microphone at increased distance from the source, to underline the main character's process of abandoning his initial ethical principles. 'Although the harmonic content and the melody remain much the same in all three versions, the changing sound of the piano signifies the process of detachment' (Greene and Kulezic-Wilson 2016, p.57). Casanelles observes that 'procedures derived from the practice of sound mixing have become part of the creative process of scoring', enabling composers to 'transcend the limitations of the physical world' through a process which he calls 'hyperorchestration' (ibid., p.58), augmenting the traditional orchestra by electronic means. This might be done by using sample libraries, by sound processing, or by using synthesised sound. Conventional instruments become 'hyperinstruments', or 'virtually tailored instruments that fulfil a precise purpose in terms of giving meaning to an audiovisual work' (ibid.,p.65).

In *Interstellar* (Christopher Nolan, 2014) a recording of a church organ is augmented with synthesised organ sounds to create a hyperinstrument 'that helps to signify the location of the character [in five-dimensional space, inside a black hole], which is meant to transcend human perception' (ibid., p.66). In hyperorchestration, Casanelles argues, more attention is given to the sound spectrum of the music: aural fidelity is manipulated, becoming 'a tool for producing meaning and emotions'; music's frequency range may be filtered to aid integration with sound effects; and composers may 'sculpt' sounds to suit the context (ibid., p.68). The composition process becomes 'non-linear': elements are brought together from diverse sources recorded or synthesised at different times (ibid., p.69). For Casanelles, however, 'the process of creating music has always been a form of sound design in a culturally defined and controlled environment'. The hyperorchestration model, he argues, has 'narrowed the distance between what we call music and what we call sound design in film... [and] opens the door to a process of music making for audiovisual media that is highly and naturally integrated with the rest of the sounds present in the soundtrack' (ibid., p.70).

## 2.2 Towards integrated sound design in opera: precursors and models

Traditionally, opera has been resistant to sound enhancement, although it has been employed for outdoor performance, live video streaming, or to solve otherwise intractable acoustical problems. Sound design has been termed ‘opera’s dirty little secret’ (Harada 2001 p.58). Far from being ‘the last bastion of pure musical expression unadulterated by the insidious tentacles of sound equipment’ (ibid.), opera often uses sound technology, for example to optimise the acoustic response of venues for opera through sound enhancement, provide general amplification for large venues, or create sound effects as required by the score. In recent years, opera houses, led by the Metropolitan Opera in New York, have streamed their offerings online, a trend that has accelerated since the outbreak of Covid-19. More than simply a way of accessing a particular opera, this practice offers ‘a dramatization of the experience of attending the actual Metropolitan Opera, effectively doing double duty as opera broadcast and institutional documentary’ (Steichen 2009, p. 24). This use of sound and video technology is essentially conservative, however, seeking to offer the same repertoire online that would otherwise be available live.

Creative sound design has been embraced by several contemporary opera composers including Harrison Birtwistle (*The Mask of Orpheus*, Birtwistle 1986), Louis Andriessen (*Writing to Vermeer*, Andriessen 1999) and John Adams (*Dr Atomic*, Adams 2007) – although in each of these cases, the sound designer (Barry Anderson, Michel van der Aa, and Mark Grey respectively) is seen very much as an assistant to the maestro, providing soundscapes interpolated between sections of the composer’s score. In John Adams’ opera *Dr Atomic*, for example, based on events surrounding the work of J Robert Oppenheimer and the Manhattan Project, the action is bookended by sound pieces created by sound designer Mark Grey, a long-time collaborator with Adams on numerous projects. They seek to give a sense of the overwhelming power and destructive potential of the atomic bomb. Ryan Ebright sees this collaboration as marking a new departure in the use of sound in opera: ‘Sound design... problematises conventional hierarchies between composer, performer and conductor, and even the distinction between audience and performer’ (Ebright 2019, p.86). In an interview with [livedesignonline.com](http://livedesignonline.com), however, Grey comments: ‘John will create what he creates, and then my goal is to re-assemble his vision into the theatre’ (Reveaux 2005); this sets out clearly the creative hierarchy within their relationship. This demarcation of roles, and its associated hierarchy, lead

to missed opportunities for the integration of sound in this opera. In Act 1 scene 3, a huge electrical storm threatens to derail the whole project. Even though this storm is arguably as powerful as the bomb itself, and lightning is clearly visible during this scene in the Metropolitan Opera production DVD (*Doctor Atomic* 2009), the nearest thing to thunder that can be heard is not an awe-inspiring soundscape conjured up by Mark Grey and the sound department, but only the orchestral timpani, thudding away in Adams's score.

*The Cave* (Reich, 1993) attempts a much closer union between sound and music. This music theatre work by Steve Reich functions mostly as a documentary piece reflecting on the Cave of the Patriarchs near Hebron in which Abram laid his wife Sarah's body to rest. Reich's practice, already heard in *Different Trains* (Reich, 1988) and used again in *City Life* (Reich, 1995), of doubling sampled speech with instruments mimicking the rise and fall of the voice's pitch, thereby transforming speech into melody, is used effectively here, synchronised with the image of the speaker in the documentary sections. Reich also makes use of percussion, including typewriters, to synchronise with the appearance on screen of typed Biblical text describing the story of Abram and his wife Sarah. Reich's coupling of video projection with live and recorded sound in these ways has the effect of partially dissolving the interface between the screen and the live space.

Jonathan Harvey's one-act opera *Wagner Dream* (Harvey, 2006) creates two worlds as composer Richard Wagner is portrayed journeying from life to death. In the first scene, the sound of a ship's siren, and thunder, can clearly be heard; these sounds are processed and integrated into the ensemble sonorities during the scene. In Wagner's world the characters speak, rather than sing; the overall effect is that of a melodrama. In Buddha's world, by contrast, characters sing and sounds are dream-like abstractions, mirroring the process by which the sound-world of characters is rendered into song and orchestral music in conventional opera. In Olga Neuwirth's *Lost Highway* (Neuwirth, 2003), based on the film by David Lynch, sound is used to enhance the ensemble with an eerie, hallucinogenic backdrop that includes echoing, cavernous deep sonorities and high, sustained, dissonant tone clusters reminiscent of tinnitus and feedback. The use of the music as an immersive bath in which to contain the drama bears a close resemblance to the approach taken by Harvey in his (later) work, and just as in *Wagner Dream*, the boundary between speech and song has a purpose; in this case it marks the surreal transition of the main character's identity from musician Fred Madison to mechanic Pete Dayton.

A number of other operas have incorporated sound design into the work, using soundscapes to evoke physical environments or psychological states. *Das Stille Zimmer* (Hirsch 2000) has already been mentioned. *Into the Shimmer Heat* by David Bye and Lee Buddle, an opera produced in Perth, Western Australia which grew out of a community project, contains a soundscape by Josh Hogan which evokes the ancient sacred landscape of the Western Australian desert and the Aboriginal ancestors who once lived in it (Hogan 2011). In *Anon* (Errollyn Wallen, 2011) and *Flicker* (Jon Nicholls, 2013), the composers themselves interpolate sound pieces between scenes in their work. In *Anon*, Wallen uses soundscape in a nightclub scene to create an authentic club sound (Wallen 2016). In Nicholls' opera, soundscapes interleave with scenes, portraying aspects of the experience of a person with Locked-In Syndrome. 'The soundscape was quite abstract - a drone-type texture, out of which disguised/altered 'real-word' sounds referenced in the libretto would surface... and subside again' (Nicholls 2016).

*Wakonda's Dream* (Davis 2007 and 2018), composed by Anthony Davis with a libretto by Yusef Komunyakaa, goes further than most in its use of soundscape, its sound design being incorporated into the score, and performed on a synthesiser in the orchestra which also cues sound samples. Justin, the Native American lead character, is haunted by what he calls the White Man's Coyote, which is only apparent to him, and manifests itself in sound. According to the composer, 'the goal was to create a kind of magic realism that is both electronic and natural, music and sound' (Davis 2015). *Wakonda's Dream* was premièred in March 2007 by Opera Omaha at Orpheum Theater, Omaha, with a sound design by Earl Howard: 'In this opera, I felt there was a real attempt to make it organic and not just played like effects from a different space. I thought it was very well integrated—the electronics, the improvisers, the orchestra, the singers, and also the ambient sound... I'm hoping that opera starts to really take advantage of electronic music and ambient sound in more practical and creative ways' (Hardiman 2007). Reviewer Steve Smith commented in the New York Times: 'Of the various electronic interjections fashioned by Earl Howard, the most ingenious is an extraordinary prelude in which the sound of wind, birds and coyotes segues seamlessly into unseen choral voices' (Smith 2007). This is the Prologue, where improvised vocal and instrumental textures and extended technique sonorities emerge gradually along with nature sounds, shaman calls and howling textures from the synthesiser, to evoke the ancient spirit world of the Ponca people. This gradually develops into a choral invocation of Wakonda,

their creator spirit, and thus the more conventionally musical material of the opera begins to emerge from the soundscape.

The sound design makes occasional appearances after this, chiefly in order to reprise material, except in the climactic scene, Act 2 Scene 3 (Davis 2007, bb.1265ff.), when the protagonist Justin confronts his son who is dressed as a coyote and kills him - the synthesiser part doubles staccato gunshot-like orchestral tutti chords, then improvises a mixture of sounds and textures as part of the orchestral texture. The combination of electronic sounds from the synthesiser with extended technique from the voices and orchestra is powerful both in the prologue and when the piece reaches its climax in Act 2 Scene 3. It is difficult to separate the electronic sounds from those of the chorus and orchestra, particularly as Davis's performance instructions demand similar timbres and gestures (such as glissandi, and sounds evoking coyote sounds) from synthesiser, voices and orchestra. In *Wakonda's Dream*, therefore, at least in two scenes of the opera, there is a real sense of integration between sound design and music. However, the crucial limitation of *Wakonda's Dream*, in terms of the aims of my project, is that although in the climactic scene the sound design is incorporated into the orchestral tutti, the integration in the Prologue happens because the instruments and voices imitate non-musical sounds, rather than the sound design offering musical material that is integral to the score.

I attended the School of Sound symposium at London's South Bank Centre in April 2015, and there I found striking examples of film sound's ability to manipulate audiences' emotions in presentations by sound designers Kristien Selin Eidnes Andersen and Nicolas Becker. Their work 'moves beyond the traditional realm of feature film sound to look at the landscape between sound effects and music' (Deutsch, S. and Sider, L. 2015, p.168). Andersen's presentation explained his subtle use of diegetic and meta-diegetic sound, such as rainfall or remembered voices, to convey emotional and psychological states of characters on screen in his collaborations with director Lars von Trier, during which he provided sound design for films such as *Antichrist* (2009), *Melancholia* (2011) and *Nymphomaniac* (2013). He had previously commented: 'I see the sound design of a film like a score... everything has to be treated with musicality, when you have silence, when you have dialogue. You have to choose your instruments and your parts. You have to mix your film like it was a piece of music' (Murphy 2011). Nicolas Becker described his own use of location sound and Foley techniques to underscore the incipient love between the young Cathy and

Heathcliff in *Wuthering Heights* (2011), as they ride a horse together across Haworth Moor. He described his painstaking working method of recording in and around the filming locations using a variety of microphones as a kind of 'ornithology'. In a scene without dialogue or music, Becker creates a tender sensuousness from location recordings of breezes through the moorland grass and close-up recording of the actors' breathing, the plod of the horse's hooves, and the jingling of its harness. Here, sound design occupies space in the soundtrack traditionally occupied by music.

Gary Rydstrom's short film *Lifted* (2006), from the first Pixar Short Films Collection, shows how sound can interact with image in animation. I was led towards it by William Whittington's comment: 'Traditional animation... lacks production recordings and sometimes even dialogue... This lack offers both creative freedoms and challenges for sound designers, who must not only develop specific sounds for the film but also establish the overall rhythm of the film, which supports the story beats, character actions, and plot points.' (Whittington 2012). This approach resonated with my intention to create opera in which the narrative is supported by a combination of music and sound design actively working together. As Gary Rydstrom both directed and created the sound design for *Lifted*, a high level of integration results between sound, music and image. The film concerns a young alien who is learning how to abduct a human from his bed in the middle of the night, using a tractor beam from the alien's spaceship, under the watchful eye of his tutor.

Rydstrom builds the sound design from discrete elements. In each shot or sequence, a 'keynote' sound establishes its location, and is overlaid with foreground elements that correspond to what is seen on screen - the creak of a weather vane, for example, or the clicks of switches. Orchestral music is a metaphor for the main character's emotions, paralleling the progress of the hapless human up the tractor beam, seen onscreen as a broad diagonal stripe heading up from bottom left to top right like a graph of success. Sound and visual elements work together to create expectations confounded by events; this, coupled with our empathy with the tribulations of the little alien, provides the humour in the piece. Rydstrom's approach is conventional, even derivative, acknowledging his debt to the Warner Brothers' *Road Runner* animated films in the audio commentary, but his craftsmanship demonstrates clearly how the building blocks of a sound design can be put together, and how in particular Schafer's notion of the soundscape and its constituent elements, (Schafer 1977), Cook's ideas about conformance, contest and complementarity of sound and image (Cook 1998),

and Chion's notions of added value and synchresis (Chion 2019) can work together in practice, providing inspiration for my own approach to sound design.

Two works of theatre have provided clear models of practice for my project, namely Ross Brown's music and sound design for *I am Yours*, and Complicité's 2016 production *The Encounter*. Both pieces foreground meta-diegetic sound as an expression of a person's inner world: their thoughts, their dreams, their memories, fantasies and hallucinations. Ross Brown's sound design for Judith Thompson's play *I Am Yours* (1998) expresses the strangeness of the internal worlds of Thompson's characters, and exemplifies his conception of a 'dramaturgy of sound' (Brown 2002). In particular, the sound hallucinations heard by the play's protagonist, Dee, teetering on the edge of breakdown, shape the audience's perception of her internal world, interacting powerfully both with dialogue and the sounds of performance. There are parallels between the treatment of vocal and other sounds in *I Am Yours* and the way that voice and ensemble (or orchestra) work together in music theatre and opera. The characters' vocal delivery is heightened by emotion and a style of delivery that (at least in this production) extends beyond realism towards hysteria, or at least an overwrought, heightened version of realism. Different characters have a distinctive pitch and rhythm to their vocal delivery that defines their personas, for example in Act 1 sc. 4, when Dee's sister Mercy remembers in a dream an affair she had at fifteen years old with an older man. Here, Mercy is particularly high-pitched, voluble and excitable, whereas Raymond, the older man, is low-pitched, measured, and deliberate. In addition, the characters' speech and vocalisations work in tandem with composed sound and the sounds of performance to create a complex overall auditory experience for the audience.

I saw Complicité's *The Encounter* (2015) live-streamed from The Barbican in 2016. It is a one-man show directed and performed by Simon McBurney, reinforced by a small team of sound operators, and starts as a demonstration of binaural recording, then transports the audience (via a visit to McBurney's home where he tries unsuccessfully to get his his small child to go to bed) to the Amazonian rain forest in 1969, where Loren McIntyre, an American anthropologist, comes face-to-face with people who have never before encountered a white man. In *The Encounter*, the audience members wear headphones, immersing them in the play's sound world as a *Heart of Darkness*-type narrative (based on a true story) unfolds. This piece relies almost completely on diegetic and meta-diegetic sound to envelop its audience and steer their understanding of the narrative; the effect is deeply absorbing, at times

shocking and frightening, sometimes funny, but most of all a powerful reminder of the potential of sound in the theatre, providing a model in spoken word theatre of what might be achieved by an immersive sound design integrated with music composition in opera.

### **2.3 Implications for this project: modalities of sound**

The literature sources I have assembled for this project, and the examples I have given of sound practice in opera, theatre and film, show a broad range of preoccupations with sound, music and other art forms, but also a number of common threads that cross disciplines. There is a growing awareness, illustrated by this selection, of music and sound as interactive with each other and with other media, and a sense of convergence between them. Practitioners in theatre, film and opera are embracing the challenge of working across disciplines, leading at least in some cases to a dissolution of conventional hierarchies and cross-fertilisation of expertise. Sound is increasingly seen as an essential component of theatre and film, and has given rise to a rich literature discussing the growing phenomenon of aurality both in these disciplines and in our daily lives. Opera has lagged behind, with a lack of serious attention given in the literature to the practice of sound design in opera, although several composers have used sound in their operatic work.

Taken together, these sources suggest five broad areas where sound could potentially be further integrated into opera composition, which might be termed five 'modalities' of sound design practice. These are not intended to be mutually exclusive; rather, they are envisaged as working together as interpenetrating aspects of sound.

#### *1. Sound as environment*

Schafer's concept of soundscapes in the natural environment, both lo-fi and hi-fi, and the phenomenology of immersion in sound described by Ihde, Brown, Meyer and others, suggest that the musical scenography created by the orchestra in conventional opera might be complemented, or even replaced, by an aural environment for opera using sound design, potentially inspired by work such as Becker's sound design for *Wuthering Heights* and the immersive environment created by sound in *The Encounter*. Soundscape creation is broadly the approach taken by most creative sound design in opera to date, although my aim, based on the examples I have enumerated, is to create a more dynamic relationship between the soundscape and the other elements,

paralleling Reybrouck's description of the mind's interactive role in constructing its own sonic Umwelt from the sensory environment.

## *2. Sound as music*

Hamilton's description of the duality of musical experience, and Huvenne's phenomenological description of the intertwining of music and sound in film, indicate an interchange between musical and non-musical sound. Steve Reich exemplifies a transactional relationship between music and sound in works such as *City Life* (1995), *Different Trains* (1988) and *The Cave* (1993), which all exploit the melodic potential of recorded speech and everyday sound. Solomos's description of a paradigm shift indicates a movement in music towards sound, also suggesting an interchange between them, as does Chion's conception of sound's pivot-dimensions, which he describes in musical terms of rhythm, pitch and register. Casanelles maintains that sound is already a compositional tool in film, and composition a subset of film sound design, again suggesting, from a different perspective, a lively interchange between sound and music in opera. Nevertheless, my approach aims to maintain a distinction between music and sound in general, agreeing with Hamilton, Crisell and other writers that there is a difference in the meanings that they convey.

## *3. Sound as action*

Several writers discuss the connection between music, sound and movement, and sound's physical nature as a disturbance propagated through an elastic medium such as air demands movement as a prerequisite. Van Leeuwen notes the origin of sound in actions, as well as its capacity to represent actions, leading to Hirsch's notion of sound's inherent theatricality due to its origin in action. Ross Brown's 'dramaturgy of sound' emphasises sound design's active role in the theatre, while Hamilton's description of rhythmic (and presumably noisy) labour as incipient music, connected through movement to the function of rhythm in music, dance and poetry, underlines the potential of sound as an active player in opera. Action implies actors, which in turn implies character and situation, and so clearly sound has a potential role to play in creating characters and situations in opera, as well as carrying an additional layer of narrative alongside text, stage action, and music by representing a succession of aural images.

#### 4. *Sound as inner voice*

Chion's conception of the *acousmêtre*, a character existing only in sound, has some of the attributes of an inner voice, although in a film we usually hear the inner voice of a character we have already met on screen. By inner voice I refer to the thoughts, dreams, fantasies and hallucinations of a character, which in the cinema are often expressed as meta-diegetic sound. In opera, these inner thoughts often coalesce into the lyrical text of the solo aria, when the action pauses momentarily, and we are given a window into a character's soul; a clear contemporary example of this is 'Batter my heart' which closes Act I of Adams's *Dr Atomic* (Adams 2007). Adams sets words of John Donne, sung by the character of Oppenheimer as he contemplates the loneliness and responsibility of his role as the leader of the Manhattan Project. By contrast, the inner worlds of Dee in *I Am Yours*, of Justin in *Wakonda's Dream*, and of Loren McIntyre in *The Encounter*, are shown to us through sound in the thick of the action, showing that access to a character's inner thoughts need not be limited to moments of stillness and introspection.

#### 5. *Sound as sign*

Tarasti, Tagg, Reybrouck and Crisell are explicit in their recognition of music and sound's ability to communicate meaning through semiosis. Other writers recognise this too. Chion's description of film sound as lending 'added value' to the image through a process he calls 'synchresis' ascribes an indexical role to sound in film. Lehmann talks of an 'independent aural semiotics' of theatre, while Emerson maintains that sound 'inevitably has associations'. Alain Corbin finds a 'semiotic system' in the use of church bells in France, while Trevor Wishart uses 'sound objects' and 'sound symbols' in his compositions. Cook and Van Leeuwen clearly have semiotics in mind when they speak of denotation, connotation or representation in sound. Taken together, these commentaries suggest a rich semiosis of sound in film, theatre and multimedia, a counterpart to music's complex semiotic language, which in turn can be exploited in opera composition.

\* \* \*

My three operas, namely *Her face was of flowers*, *Vicky and Albert*, and *The Trilobite, Or The Fall of Mr Williams*, exemplify my approach to sound design integrated within opera composition. In the following reflective commentaries I use the five modalities of sound practice described above as a means of explaining my compositional methods in the three operas. As a triptych, they demonstrate my growing confidence in sound design as an integral part of opera composition, and the extent to which I have been able to deepen the relationship between music composition and sound practice in my work.

### 3. *Her face was of flowers*

#### 3.1 Origins and inspirations

'Mae benywod y Mabinogi yn bodoli mewn byd lle maent yn cyflawni pwrpas materol i ddynion drwy roi genedigaeth i etifeddion iddynt hwy. Mae hyn yn hanfodol mewn cymdeithas ffiwdalaidd ac yn bennaf oll yn hanfodol i frenhinoedd ac uchelwyr, er mwyn diogelu eu tiroedd a'u grym. Fel y gwelir, mae dynion y Mabinogi yn cadw rheolaeth ar fenywod a'u ffrwythlondeb gan reoli eu cyrff a'u rhywioldeb'

'The women of the Mabinogi exist in a world where they fulfil a material purpose for men by giving birth to their heirs. This is essential in a feudal society and above all essential to kings and noblemen, in order to secure their land and power. As can be seen, the men of the Mabinogi control women and their fertility by controlling their bodies and sexuality' (November 1996, p.247)

*Her face was of flowers* is my retelling, from Blodeuwedd's point of view, of the Blodeuwedd myth in the Fourth Branch of the Mabinogi, a collection of Welsh tales first written down in the late Middle Ages but originating at an uncertain date in oral tradition. The title refers to Blodeuwedd's name as a compound of two words (blodau=flowers and gwedd=face). This retelling is a case of 'writing back' to the traditions of Welsh literature, inspired by Jean Rhys's 'writing back' to Charlotte Brontë's *Jane Eyre* in *Wide Sargasso Sea*, where Rhys retells the story of the mad woman in the attic to 'expose what she saw as the latent racism at the heart of one of the great novels in the canon of English literature' (Rhys, 2001, p.viii). Similarly, I felt that Blodeuwedd, an iconic figure of Welsh mythology, deserved a counterbalance to the misogyny of the original text. To me, Blodeuwedd is an immigrant to the world of humans, a refugee from her previous existence who finds herself in a toxic relationship due to factors outside her control; her actions are comprehensible in this context. Unlike Rhys, I didn't create a prequel to the existing narrative, preferring instead to relate the same sequence of events, but from Blodeuwedd's point of view. In the original, the male characters (Lleu Llaw Gyffes, Gwydion and Gronw Pebr) are members of a ruling class, but in my version they are ordinary people, a farmer and a hunter, expressing more clearly the squalid intimacy of abuse. My versions of the characters are not the same people as the original characters, but rather are archetypes replaying the same story in a different context, forced to repeat a mythical tragedy.

Many stories in the Mabinogi have their location in real places, and Blodeuwedd's story is no exception. Its setting is Mur Castell - now known as Tomen-y-Mur - near

Trawsfynydd in Gwynedd. Tomen-y-Mur is the site of a Roman garrison which was later repurposed as a Norman fortification; it also contains the remains of a medieval hall, which may be the setting of the court of Lleu Law Gyffes (Ein Treftadaeth, 2014). While I was composing *Her face was of flowers* in 2016-17, I did not have the opportunity to visit the site, and therefore made use of the soundscape around my home. I was living in Holne, a small village on Dartmoor, at the time, and I made most of the recordings for the piece in Holne and the surrounding area. Blodeuwedd's aural environment was therefore created out of my aural environment, and I quickly discovered that exploring this rural soundscape enabled me to immerse myself in Blodeuwedd's world. My Mur Castell was Hembury Hillfort near Buckfast, on the edge of Dartmoor. Here, in Devon, traces of the ancient Brythonic language remain in the landscape, particularly river names like Avon, signifying river, and Dart signifying oak (Haskell 2015), and by recreating the Blodeuwedd myth in the local soundscape, I felt I was reclaiming a small corner of Devon for my own Celtic heritage, analogous to Thomas Hardy's renaming of locations in and around Dorset to create his semi-fictional Wessex.

### **3.2 Sound sources**

The pre-modern setting of this story suggested a palette of sound sources derived principally from the natural world, avoiding sounds from the machine age. Most of the sounds were collected at my home, or in the immediate vicinity, and included the sounds of wind and rain, birdsong, the buzzing of bees, running water, thunder, and other natural sounds. I also recorded a number of sounds associated with human activity, such as opening and closing doors and gates, and chopping wood. For the forging of the spear I visited Richard Hoecker, a swordsmith based at Forge of Avalon in Glastonbury (now sadly passed away), and for the sound of waves breaking on the seashore I recorded at Maidencombe beach in Torbay. I used a Roland R-05 digital recorder, supplemented occasionally by a Rode VideoMic Go mono shotgun microphone. I used a Marantz PMD-661 digital recorder and Audio-Technica AT815ST shotgun microphone loaned from Goldsmiths to capture the recordings of the waves at Maidencombe. This recording process gave me a library of around 200 sounds prior to beginning the process of composing the music, supplemented with a few sounds sourced online (the cries of owls and the grunting of pigs), which I had been unable to record myself. The voice of Gwydion in the piece is my own voice transposed downwards, which I recorded during the compositional process.

I used Ableton Live connected via ReWire to Sibelius 6 to compose the piece, scene by scene. For each scene I began with the scenario, and decided on the recorded sound that I would use. I then composed the live vocal and instrumental lines, and wrote the text, together, editing and processing the sound as I composed the music, so that each element was integrated with the others. The only exceptions to this practice are in scene 1, when I used a short poem in Welsh of the *englyn* type (a poem of four lines governed by strict metrical, rhyming and alliterative rules) by the 19th-century poet Namorydd, and in scene 6, where I needed to structure Gronw and Blodeuwedd's soliloquies in parallel before setting them to music. I also wrote the text to Gwydion's first incantation, using the original written text (Williams 1982) for his second. Neither of these are set to music, although they do form part of the sonic texture of the scenes (2 and 7, respectively) in which they appear. Throughout the piece, I was conscious of having to work with a restricted palette of recorded sound, and of having to process the sound sensitively, in order not to destroy the illusion of a pre-industrial soundscape. The priority, however, was to include sound from the very beginning, following a philosophy (after Heiner Goebbels) that anything brought in late in the process can only be 'illustrative' (Rebstock and Roesner 2011, p. 124).

### **3.3 Sound practice in *Her face was of flowers***

In this discussion of the ways in which I integrated sound into the composition of *Her face was of flowers*, I am drawing upon the modalities of sound which I describe at the end of my literature review. I have characterised them as five broad areas, or interpenetrating aspects of sound, which I have suggested could be integrated into opera composition. They are: sound as environment, sound as music, sound as action, sound as inner voice, and sound as sign. Here, I use these labels as tools with which to investigate, describe and evaluate my use of sound in *Her face was of flowers*.

#### *Sound as environment*

Dartmoor is a sparsely populated upland environment, and although managed by the National Park Authority and the agricultural community, feels in many places like a wilderness. Given the right weather conditions it creates, in Schafer's terms, a 'hi-fi' soundscape (Schafer 1977), where sounds can be heard over appreciable distances, particularly near the tops of the tors, the granite outcrops so characteristic of the area. This is, however, rarer than might be expected; more often than not, the sounds of wind, rain, and/or flowing water obscure more distant sounds, giving the lie to Schafer's auditory ideal. I found it impossible, for example, to obtain clean recordings

of tawny owls, because on Dartmoor, the trees where they live are either in exposed, windy places, or in sheltered valleys near fast-flowing streams. Blodeuwedd is often depicted as a barn owl in illustrations (see for example Theatr Cymru 2021, advertising the 2013 production of Saunders Lewis's play *Blodeuwedd*), but as I found when I visited the Barn Owl Trust near my home, their cries are even more difficult to capture, and despite their iconic appearance, barn owls' cries don't conform to most people's idea of the call of an owl.

Each scene in *Her face was of flowers* creates a different sonic environment, with its own keynote sounds. Scene 1 (from **00:19**<sup>1</sup>, {1.1}) begins in Blodeuwedd's present as an owl, but then travels back in time to her dreamlike, amorphous pre-human existence spread across the natural landscape, before she was conjured into human existence by Gwydion. Scene 2 (from **04:17**, {2.1}) is her brutal present-day life as Llew's slave wife on the farm among the livestock which so disgust her. Scene 3 (from **08:56**, {3.1}) is set inside the hut where she sleeps, where eerie winds blow under the door. Scene 4 (from **15:51**, {4.1}) is the soundscape of a drunken Llew, returning home during a storm, while distorted sounds of cattle grazing reverberate inside his head. Scene 5 (from **20:55**) is music - although Messiaen-like bird alarm calls can be heard in the clarinet part. Scene 6 (from **24:15**, {6.1}) is propelled by the sound of making the spear towards Gronw's failed murder attempt on Llew; in scene 7 (from **28:37**, {7.1}), waves on the seashore bring us back to Blodeuwedd's present, and her futile appeal to Arianrhod, Llew's mother and goddess of the moon, to bring her Gronw back to life.

The performance of scenes from *Her face was of flowers* at the Chamber Music on Valentia festival in Kerry, Eire on 16 August 2019 (along with a full performance of *Vicky and Albert*) demonstrated a different interaction between sound and the environment. The scenes were performed in a private house on the western side of Valentia Island, in front of a double-glazed bay window with scenic views over the cliffs and the sea beyond. During the performance the weather alternated between sunny intervals and driving rain; chance coincidences between the sound emanating from the speakers in the room, and the dynamic landscape visible through the window, created a living, sometimes uncanny and deeply moving visual backdrop to the piece. I haven't had an opportunity to capitalise fully on the interaction between sound in performance and the natural landscape to date, but it suggests a further line of developmental enquiry for this kind of practice, and for site-specific performance in general.

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<sup>1</sup> Timecode (always in **bold**) refers to the video recordings submitted as part of this PhD. Timings in recordings accessed via [vimeo.com](https://vimeo.com) or <https://www.tete-a-tete.org.uk> may not correspond. Numbers in curly brackets { } in this commentary refer to audio cues accessible as mp3 files in the folder 'Her face was of flowers audio cues'.

## *Sound as music*

In each scene, the sonic environment underpins the instrumental music. It influences or even dictates the tempo and mood of the music, its thematic content, its phrasing, and its cadences. In scene 6, in particular, the sound of chopping wood {6.1} acts as a metronome from the beginning (**24:15**) up to bar 491 (**25:39**), where it gives way to the (retuned) church bells in bb.492-495 (from **25:44**, {6.2}) which create an ostinato, taken up by the overlapping harp figures (bb.496-502). At times, unpitched sound elements are processed to become more clearly pitched. Cue 1.3 (from b.32, **02:39**, {1.3}) is tuned to C#3 and F#3, to double the cello, creating a drone underpinning Blodeuwedd's aria. Cues 7.1 (from b.586, **28:48**<sup>2</sup>, {7.1}) and 7.6 (from b.714, **33:25**, {7.6}) use resonator filters to create bass pedal notes to underpin the trio, and Blodeuwedd's aria, in scene 7.

Cue 6.3 ('hammering metal on anvil', {6.3}) demonstrates how sound design can help create dynamic and meaningful harmonic relationships. Fig. 1 (below) shows the interaction between harmonies created by the live instruments/voices and the resonator settings. Cue 6.3 is triggered at the beginning of bar 503 (rehearsal mark PP, **26:14**, {6.3}). This is a pivotal moment in the action: Gronw is finishing the spear he has spent a whole year making. Resonator pitch settings create an E7 chord in which one element (B, the fifth, initially the lowest pitch) rises chromatically. The instrumental/vocal tonality shifts from Eb minor (at PP) to form a perfect cadence into E major (at b.511), and the two progressions come to a point of coincidence on a chord of E7 at bar 512 (rehearsal mark QQ, **26:42**). Here, the scene shifts from Gronw to Blodeuwedd and Lleu, preceded by an upward octave shift in the resonator settings and the entry of the harp part: Blodeuwedd is trying to discover how Lleu must stand in order to be killed without giving the game away. After this point, Lleu's vocal line undermines the stability of the E major tonality, and the resonator settings continue to rise to an agonising pitch, an index of the febrile uncertainty of the moment and of Blodeuwedd's fragile emotional state.

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<sup>2</sup> Unfortunately, in the live show, {7.2} and {7.3} were also inadvertently cued at this moment, hence the incongruous pig noise!

Fig. 1: Harmonic relationships in scene 6 PP to QQ. Cue 6.3 is triggered at b.503, rehearsal mark PP.

**Harmonic relationships in scene 6 PP to QQ**

The score is divided into two systems. The top system, labeled 'instrumental/vocal harmonies (schematic)', shows chords in treble clef. The bottom system, labeled 'resonator pitch settings', shows individual notes in bass clef. The lyrics are: GRONW: 'And every morning you must pray/that she whom you had hoped to win Will not betray you, nor grow fond of him' and BLODEUWEDD: 'Oh husband'.

Even when there is no clear pitch or rhythm, however, the sound elements contribute to the music of the opera. The rain at the end of scene 1 (b.59, **3:59**, {1.4}), the thunder at the end of scene 3 (b.284, **15:33**, {3.3}), and the wind at the end of scene 7 (b.763, **35:05**, {7.7}) all act as cadential figures, drawing each scene to a close by dissolving the pulse of the music and dissipating its energy.

The sound elements can be musical in a more subtle, but no less important way. In Scene 3, there are two kinds of wind sound. One is a recording of wind blowing through a crack in a barely open door, creating eerie resonances (first heard at b.176, **9:28**, {3.1}); the other is the sound of a fresh breeze blowing through trees, first heard as Gronw opens the door (from b.184, **9:57**). As the scene goes on, these two sounds alternate and combine: the eerie wind references Blodeuwedd's alienation and captivity, while the fresh breeze brings with it freedom and the promise of deliverance. Between them, these sounds indicate the mood music of the first encounter between Blodeuwedd and Gronw by their different timbres, different dynamic levels, and the phrasing suggested by their rise and fall in pitch. In this way, the sound elements seem to be acting as an *approximation* to conventional music, or using Andy Hamilton's phrase, are 'incipiently musical' (Hamilton 2007, p.119): not adhering to a tempered scale of pitches, nor to a specific measured rhythm, but rather creating a vaguer, but no less suggestive, sense of musical flow.

### *Sound as action*

The sounds in *Her face was of flowers* are derived from live recordings (rather than synthesised sound), and therefore, due to their origin in action, already have what Michael Hirsch refers to as 'an immediate emotional expressiveness in which a unique theatricality is inherent' (Rebstock and Roesner 2011, p.134). Owls call, pigs grunt and squeal, cocks crow, rain falls, wind blows, thunder rumbles and waves wash upon the

shore in a chorus of unseen action. Bringing sound into the mix as an additional medium of communication adds a new layer - a complementary (in Nicholas Cook's terms) narrative - to the events unfolding on stage. In scene 6, the sounds of chopping wood and hammering on metal summarise the process of making a spear; the change in timbre between the two, interspersed with the church bells, expresses the passage of a whole year as a kind of aural time-lapse or elision.

In Chionian terms, the character of Gwydion is an *acousmêtre*, a character manifested only in sound, fittingly on two levels: he has the *acousmêtre*'s magical gifts, and as a man himself conjured up from sound, he forms a counterpoint to Blodeuwedd, a woman made of flowers. His influence brings Blodeuwedd to life as related by Llew in scene 2 (from b.114, **05:45**), and saves Llew from a slow demise, as related by Blodeuwedd in scene 7 (from b.637, **30:34**). This forms another counterpoint in the dramaturgy, this time between Blodeuwedd and Llew. I chose to make Gwydion's voice ({2.2} and {7.4}) relatively plain and unadorned by aural pyrotechnics or even emotionally heightened delivery: it is the simple fact of his utterance that brings about these magical transformations, not the spectacle of their performance, conferring on Gwydion's voice an even greater power as the invisible creator.

#### Sound as inner voice

'I remember' (b.7, **0:44**) are Blodeuwedd's first words in *Her face was of flowers*. Most of the opera takes place in Blodeuwedd's memory, a narrative she tells to herself, and to us, using an inner voice revealed to us through song. In scene 1, when she sings of her former idealised existence, we also gain access to her mind through her aural memories - the skylark and the wind on the moor {1.2}, the bees among the flowers {1.3}, and the 'sweet, sweet' rain {1.4}. In scene 3, as previously seen, the wind sounds are a barometer of her emotional state, betraying the inner workings of her mind. And in scene 7, the snatches of pig grunting {7.3} and owl call {7.5} are fleeting memories that we hear in passing as she tells how the plot failed, woven in between illustrative snatches of instrumental music. The clarinet melody in bb.644-649, **30:51** (see Fig. 2, below) follows Blodeuwedd's gaze as it tracks Llew, who has become an eagle, flying up to the top of an oak tree. Blodeuwedd's gaze returns to ground level as she recalls the pigs that ate the rotting flesh falling from his body.

Fig. 2: Clarinet melody follows Blodeuwedd's gaze as it tracks Llew.



When Gwydion finds Lleu, she remembers Gwydion's incantation (from b.654, **31:15**, {7.4}) that brought Lleu back to human form, and the cello expresses her resulting consternation (bb. 662-665, **31:34**). Strands of both sound and musical material are therefore interwoven around the vocal line, fulfilling a similar function of supporting the narrative, albeit in different ways.

In this piece we hear another inner voice - that of Lleu, and his torments. In scene 2, Lleu's anguished cry, 'one day I'll make you love me, Blodeuwedd' (bb.104-108, **5:10**), triggers his memory of the moment of her creation from flowers, and he connects Blodeuwedd's rejection of him with his previous rejection by his mother Arianrhod. Apart from Lleu's memories of the events of the day that Blodeuwedd was created, however, our understanding of Lleu's inner world in this scene is conveyed to us predominantly through the text and its vocal setting. In contrast, Scene 4's portrayal of the inner workings of Lleu's mind is conveyed through sound. In Scene 4, Lleu appears, drunk, in the early hours of the morning. Low-pitched, vague noises (audible from b.296 onwards, **16:23**,) emerge from the thunder and rain of cue 4.1 (from b.293, **16:09**, {4.1}), illustrating both the text ('They call me the lion' - a play on Lleu's name, 'Llew' being an alternative version of it and the Welsh word for lion) and Lleu's tormented mental state. This cue was created from slowed-down recordings of grazing cows (directly inspired by Ross Brown's sonifications of Dee's inner torment in *I Am Yours*, where recordings of a baby are slowed down to create a menacing, hallucinatory effect).

These low-pitched, vague noises fade (b.312, **17:23**) as he pretends to summon her, have her do his bidding, and admires her beauty (underlined by a brief roll of thunder, cue 4.2 bb.363-364, **19:10**, {4.2}). They return as he reflects on her coldness towards him (cue 4.3 b.370, **19:34**, {4.3}), and his humiliation at the hands of his friends for not consummating their relationship. Cues 4.1 and 4.3 therefore structure Scene 4 as a *da capo* aria in terms of the emotional journey that Lleu undertakes. In contrast, the text creates a narrative through-line, structured in line with the succession of rehearsal marks in the score, and the music creates a third, more complex sectional structure of changing metres, tempi and thematic material, perhaps best characterised as ABA'C + coda. Clearly then, text, music and sound all emphasise different aspects of Lleu's character and situation. The way in which these different, complementary, structures interleave is shown in fig. 3 below.

Fig. 3: Complementary structures of text, music and sound in scene 4 of *Her face was of flowers*.

Rehearsal marks	W	X	Y	Z	AA	BB	CC
Bar nos.	b.289	b.297	b.315	b.354	b.363	b.373	b.381
Tempo and metre	<b>Adagio</b> <b>Slow 6/8</b>	<b>Recit. colla voce/più mosso</b>	<b>Vivo</b>	<b>Tempo primo 6/8</b>	<b>3/4</b>	<b>3/4</b>	<b>(quasi recit.)</b>
Text		'They call me the lion'	'Ah! There you are'	'Have I ever told you...'	'You're so beautiful'	'I told them all about you'	'Why haven't you... they said'
Musical structure	<b>A</b>		<b>B</b>	<b>A'</b>	<b>C</b>		<b>coda</b>
Indicative thematic material	Hp. 	Lleu They call me the li-on.	Hp. <i>ritmico, giocoso</i> 	Hp. 	Hp. 	Lleu <i>p</i> I told them.	Lleu <i>menacing</i> Why have-n't you...
Sound cues	4.1 				4.2 	4.3 	

### Sound as sign

Sound and music communicate differently. The semiosis of sound is immediate: there is an owl in bar 1 (00:19, {1.1}) of *Her face was of flowers*, because we hear it. Or at least we hear an iconic sound image of an owl's call that is practically identical to it: a photograph in sound. Musical leitmotifs take longer to deliver their message. Therefore, from the first moment of the piece, sound performs an important function in the semiosis of *Her face was of flowers* that is distinct from music. However, the semiosis is not confined to iconic representations of objects. The sound references to these objects create chains of connotation all in a rush, and these chains of connotation interact with the action, the text and the music of the piece. For example, the call of the owl connotes night, mystery, magic, strangeness, darkness (both literal and metaphorical) and moonlight. It also connotes the world and worldview of owls, so that when we see Blodeuwedd as an owl, we understand immediately that here and now, there is a creature that seems to be an owl on the stage. And when she sings 'I remember' in bar 7 (0:44), we know that we have entered another world, and are about to hear an owl's story from the point of view of the owl herself. In *Her face was of flowers*, sounds indicate objects and locations, and connote emotions and moods. There are also times when the sound elements engage in a

musical semiosis. This includes signalling tempo and mood (as discussed above), and referencing and exchanging thematic, rhythmic, timbral and textural material. Sound's iconicity, and its immediacy, creates a shift in the semiotic power of the operatic accompaniment from simile to metaphor, from something that might, like the high violins, arpeggiating clarinets and deep brass sonorities that signal dawn in the opening of *Peter Grimes* (Britten, 1945), sound *like* a soundmark in the environment, to something that to all intents and purposes *is* that soundmark. Sound in *Her face was of flowers* also creates metaphorical imagery akin to figures of speech, particularly those connected with the weather and the natural elements: rain dampens Blodeuwedd's spirits at the end of scene 1 (b.59, **03:59**, {1.4}), Gronw's entrance is a breath of fresh air in scene 3 (b.184, **09:57**, {3.1}), and Lleu enters under a cloud in scene 4 (b.293, **16:10**, {4.1}).

These metaphorical associations emphasise the directness of sound's semiosis, and add a new dimension to the web of meaning that can be woven from the interplay between different media in opera. Sound confers qualities more indirectly on characters in the piece, particularly in scene 7: the sound of breaking waves not only locates us at the seashore, and creates a metaphor in sound for sighing, yearning and unfulfilled hope, but also completes a triangle of associations between the moon, the tides, and the goddess Arianrhod, confirming that we are within her realm. In Blodeuwedd's narrative in the same scene, she refers both to the pigs (cue 7.3, bb.649ff., **31:03**, {7.3}) and to Gwydion's men (bb.668ff., **31:41**). The sound of the pigs clarifies Blodeuwedd's reference to pigs through conformance with her sung text. Subsequently, the rough quality, and the inflection, of the pigs' grunting is mirrored in the dissonant instrumental accompaniment as she relates the killing of Gronw, imbuing Gwydion's men with an associated meaning of 'pigs', barbarity and beastliness. See figs. 4a. and 4b. below.

Fig. 4: Association of Gwydion’s men with ‘pigs’ through similarity of sound in a. to musical material in b.

a. Pigs

Musical score for 'Pigs' (measures 649-654). The score includes parts for Blodeuwedd (voice), Clarinet (Cl.), Violin (Vc.), Harp (Hp.), Recorded sound I, and Recorded sound II. The lyrics are: "And the pigs And the pigs came and ate the rot-ting flesh that fell from his bo-dy." A cue is marked: "Cue 7.3: Snorting pigs with delay gradually increasing (mf)".

b. Gwydion’s men

Musical score for 'Gwydion’s men' (measures 96-101). The score includes parts for Blodeuwedd (voice), Bass Clarinet (B. Cl.), Harp (Hp.), and Violin (Vc.). The lyrics are: "gain, they butch-ered him like an a-ni-mal." The music features triplets in the instrumental parts.

The table (Table 1) below lists the sound cues in *Her face was of flowers*, showing how each one connects to action, music and/or text, and what each sound cue might contribute as an element of meaning in the piece.

Table 1: Sound cues in <i>Her face was of flowers</i> . NB only triggering cues shown in score.			
Cue no (first no. is scene no.)	Bar nos	Source	Comments on signification of sound cue
1.1	Scene 1 1 - 5	Scene 1 Owl samples.wav from <a href="https://freesound.org/people/Benboncan/sounds/104192/">https://freesound.org/people/Benboncan/sounds/104192/</a>	Female tawny owl call. Indexical of female owl and connotative of night, mystery, magic, strangeness, darkness (both literal and metaphorical) and moonlight. Predicts, and conforms with, appearance of Blodeuwedd as an owl.
1.2	10 - 58	Scene 1 skylark.wav recorded on Holne Moor SX693699 May (2015?)	Skylark call on windy moorland. Indexical of skylark and moorland, connotative of spring season, open space, fresh air, freedom, sunlight, happiness, opening up and out, embracing the sun, rising spirits, optimism. High pitch register. Articulates the change from night to day, and from the present to a better former life.

<b>Cue no (first no. is scene no.)</b>	<b>Bar nos</b>	<b>Source</b>	<b>Comments on signification of sound cue</b>
<b>1.3</b>	32 - 58	Scene 1 bees buzzing 1.wav recorded at 7 Church House Cottages Holne	Bumble bee visiting garden flowers in summer. Low pitch register (tuned to C#3). Indexical of bees, flowers, garden, good weather. Connotative of summer season, contentment, happiness, fertility, fecundity, plenty. Together with 1.3.2 creates drone underpinning Blodeuwedd aria.
<b>1.3.2</b>	32 - 58	Scene 1 bees buzzing 2.wav recorded at 7 Church House Cottages Holne	Bumble bee visiting garden flowers in summer. Low pitch register (tuned to F#3). Indexical of bees, flowers, garden, good weather. Connotative of summer season, happiness, fertility, fecundity, plenty. Together with 1.3 creates drone underpinning Blodeuwedd aria.
<b>1.4</b>	59	Scene 1 rain.wav recorded at 7 Church House Cottages Holne	Rain on shed roof. Indexical of rain, wet weather, chill, lower light levels. Connotes disappointment, crying, grief, closing in, moving inside, seeking shelter, turning inwards, the end of summer and the beginning of autumn/winter, pessimism, depression.
<b>2.1</b>	Scene 2 60 - 103	Scene 2 ducks and chickens.wav recorded at Hazelwood, Holne	Ducks and chickens being let out first thing in the morning (around 7am). Indexical of ducks, chickens, cockerel, movement, farmyard. Connotes energy, bustle, aggression, confidence, Lleu's short temper.
<b>2.2</b>	123 - 141	Scene 2 incantation.wav voice of EJ	Gwydion's incantation. EJ's voice transposed down and looped/multitracked. Indexical of magic spell and of Gwydion. Connotes intimate, dark magic. To a Welsh-speaking audience the words (semiotic symbols) are intelligible as a poetic recipe-like incantation; to a non-Welsh speaking audience the words (semiotic indices) connote otherness and mystery.
<b>3.1</b>	Scene 3 176 - 227	Scene 3 wind sequence 1.aif recorded at 7 Church House Cottages and Michelcombe Lane end, Holne SX704693	Moaning wind blowing through a slightly open door, creating a variable pitched resonance. Indexical of being inside, with wind outside. Connotes misery, enclosure, entrapment, despair. Sound changes to wind in trees, indexical of outdoors and connoting freedom, freshness. Alternation of the two wind qualities connotes conflict between staying in familiar captivity (Lleu's world) and breaking free into the unknown (Gronw's world).
<b>3.1.2</b>	180 - 184	Scene 3 door knocks and latch.aif recorded at 7 Church House Cottages	Knocking on traditional wooden door; lifting of iron latch. Index of door, and of a person who knocks on and opens a door. Connotative of change, new arrival.
<b>3.2</b>	268 - 287	Scene 3 wind sequence 2.aif recorded at 7 Church House Cottages and Michelcombe Lane end, Holne SX704693	Return of moaning wind, indexical of fear and foreboding.
<b>3.3</b>	284	Scene 3 thunder.aif recorded at 7 Church House Cottages	Thunder, indexical here of despair.

<b>Cue no (first no. is scene no.)</b>	<b>Bar nos</b>	<b>Source</b>	<b>Comments on signification of sound cue</b>
4.1	Scene 4 293 - 313	Scene 4 sequence 1.aif recorded at Scoriton Farm SX704685	Cows grazing in a turnip field, slowed down to around 1/4 speed. Indexical of Lleu's drunken, disturbed mental state.
4.2	363 - 365	Scene 4 thunder.aif recorded at 7 Church House Cottages	Thunder, indexical of Lleu's foul mood. Also shows Lleu is in the storm that began in scene 3.
4.3	370 - 390	Scene 4 sequence 3.aif recorded at Scoriton Farm SX704685	Cows grazing in a turnip field, slowed down to around 1/4 speed. Indexical of Lleu's drunken, disturbed mental state out of which which his distorted world view emerges.
6.1	Scene 6 463 - 491	scene 6 axe at 80bpm.wav recorded at 7 Church House Cottages	Axe sound indexical of chopping and of the first stages of making the spear.
6.1.2	482	Scene 6 birds take off.aif recorded at 7 Church House Cottages	Connotes the lightness, power and magic of the spear that Gronw is making.
6.2	492 - 495	Scene 6 holne bells at 80 bpm 2.wav recorded at 7 Church House Cottages	Holne church bells tuned to DGEbCF. Indexical of time passing (as a sequence together with cues 6.1 to 6.3)
6.3	503 - 522	hammering on metal 80bpm.wav Richard Hoecker recorded at Forge of Avalon, Glastonbury	Hammering indexical of chopping and of the first stages of making the spear. As resonating filters are added the sound acquires pitch which rises, an index of the rising tension of the scenario as Blodeuwedd seeks to trap Lleu.
6.4	523 - 526	Scene 6 water.aif recorded at Venn Ford Brook SX688717	Resonator filtering creates a harmonic tremolando, an index of Lleu's simmering anger. Later, as filters are removed, becomes indexical of running water and of increasing danger.
6.5	527 - 581	Scene 6 water crossfade.aif	change of location - moving towards the river
6.6	582	fade and stop Scene 6 water.aif	Reverb at end of the sound cue is an index of Lleu's life force ebbing away.
7.1 (and 7.2)	Scene 7 586 - 631	Scene 7 Wave Sequence 1.aif recorded at Maidencombe SX927684	Waves with resonator. Index of location at seashore. Slow pace of waves indexical of breathing, of slow rhythms, of tidal movement, of the moon, connotative of Arianrhod (Silver Wheel), goddess of the moon.
7.3	649 - 664	Scene 7 Pigs.aif from <a href="https://freesound.org/people/josepharaoh99/sounds/352698/">https://freesound.org/ people/josepharaoh99/ sounds/352698/</a>	Pigs - underline narrative reference to pigs. Thematic link with dissonant accompaniment at bar 85 'and they came for my Gronw, they came, and they killed him with the very same spear' suggesting that 'they' are pigs too
7.4	654 - 664	Scene 7 Dar a dyf.aif voice of EJ	Gwydion's second incantation - similar connotations to his previous incantation in scene 2 (cue 2.2)



alarm as a phenomenon and an emotional condition - the fear which both Blodeuwedd and Gronw feel at this moment. The blackbird's alarm expresses both the threat that Lleu poses to Gronw, and Blodeuwedd's emotional state. This adoption of music rather than sound to deliver this signal in scene 2, and particularly in scene 5, begs the question why I didn't use a recording of a blackbird for either of these two moments.

The answer, I believe, is twofold. Firstly, the musical gesture is bigger than the alarm call of a real blackbird, amplifying it into an all-encompassing message of fear, and bringing it into the instrumental music abstracts the gesture, now applicable not only to birds but also to anything and anyone within range. Secondly, the musical gesture is more plastic, more flexible - it can be repeated, varied, transferred and transformed while retaining essential qualities of its own identity, so that it can be prolonged as a message over a much longer time period within a scene, as well as providing linking thematic material. On the whole, sound processing (of field recordings in this context at least) is much less adept at creating this kind of transferable material, emphasising the advantage of maintaining a distinction between musical and non-musical audio material. Conversely, in scene 2, the sound of a blackbird might have either delivered a confusing message, or been lost entirely, when combined with the sounds of the barnyard which open the scene.

\* \* \*

*Her face was of flowers*, the first opera in the triptych composed for this project, was completed in late 2016. However it was not until 2019 that it received its première, because although I had developed a compositional practice for beginning to integrate sound design into opera composition, I had not yet developed a performance practice. In order to do this, I decided to simplify the ensemble, creating a one-woman opera, *Vicky and Albert*, which was premièred in 2018. *Vicky and Albert* enabled me to create my first practical performances of opera with integrated sound design, and through that to investigate a dynamic, real-time relationship between live music and sound. The essential mechanics of performance that I developed for *Vicky and Albert*, of sound cued in QLab from a laptop alongside a live instrumental ensemble and singer(s), remained the same for *Her face was of flowers* and (with some modifications) *The Trilobite, Or The Fall Of Mr Williams*. It had the advantage of simplicity and reliability in performance, without limiting what I wanted to achieve in sound.

*Her face was of flowers* was premièred in August 2019 at The Place, London as part of Tête à Tête: The Opera Festival, with three singers and three live instrumentalists. I

directed the production, conducted the ensemble and cued the sound. In rehearsal we did not have the opportunity to work with the instrumentalists until the final (fifth) day of rehearsal; therefore we used audio exports of the Sibelius score combined with sound cues in Ableton. This enabled editing and balancing of the sound cues before they were exported into QLab for performance, and as a strategy for enabling the cast to work in rehearsal with as close a sound world as possible to performance conditions, it worked well.

*Vicky and Albert's* small scale meant that the lack of additional sound engineering support was not a problem at The Bike Shed in January 2018 or at Tête à Tête: The Opera Festival in August 2018. The première of *Her face was of flowers* at The Place in 2019 was more problematic in terms of sound balance, however, because although we had to use the venue's sound system, there was no-one balancing the sound against the ensemble and singers in real time, making it impossible to correct the sound balance during the performance. This means that the original video recording of *Her face was of flowers* at The Place in 2019 does not give a true impression of my intentions for the piece in terms of the balance and the impact of the sound design. For the purposes of this PhD I have included two video recordings of *Her face was of flowers*, one of which contains sound reinforced by adding the original sound cues to the audio, so that they are more audible and give a clearer impression of my intentions for the piece.

## 4. *Vicky and Albert*

### 4.1 Origins and inspirations

I began conceiving of *Vicky and Albert* in response to a need that I felt, after having finished composing *Her face was of flowers*, to investigate in more detail the practicalities of using sound in performance. I decided to use forces reduced as far as possible, while maintaining sufficient creative options to make it work successfully: a one-person work with piano accompaniment and sound cued by the pianist. In terms of musical sonority, this was a retrograde step, but it freed me to focus on sound cueing as an essential element of the piece's performance. *Vicky and Albert* became not only a short opera in its own right, but a heuristic exercise in bringing an opera with integrated sound design to the stage, and an exploration of co-performance of music and sound in a staged work. I decided to use show control software, in the form of QLab, exporting the audio from Ableton, rather than cueing sound from Ableton itself. QLab's simplicity allowed me to reliably cue sounds sequentially by pressing the space bar on the laptop while accompanying on the piano. This meant I could play the piano simultaneously, relying substantially on muscle memory to find the space bar each time, although I also stuck coloured stars on the space bar to aid its visibility.

This piece was written in the wake of the release of two films exploring the relationship between humans and machines, namely *Her* (Spike Jonze 2013) and *Ex Machina* (Alex Garland 2014). In both cases, the human protagonist is a man who experiences attraction for an artificial female: in the case of *Her*, a computer operating system called Amy (with Scarlett Johansson's voice) and in *Ex Machina*, a beautiful female robot. These films trade on the aesthetic and sexual allure of women as objects of the male gaze and its aural equivalent, what LJ Müller terms 'cultural conceptions of gendered embodiment' (Müller LJ 2017). They seem to be recapitulating a trope that has existed since time immemorial, of women created by and for men: notable examples include Eve (the Biblical first woman, made by a patriarch God from the rib of Adam), Blodeuwedd in the Mabinogion of course, and Clara the automaton in ETA Hoffmann's *Der Sandmann*, the story that inspired the ballet *Coppélia*. In all of these, it is from the male perspective that the story is (traditionally) told, and as in *Her face was of flowers*, I thought it would be more interesting, and ultimately more sympathetic, to change the point of view.

Boyfriend and girlfriend apps were becoming available in Japan and the US at around the same time that *Her* and *Ex Machina* were being made and released. For example, *Invisible Boyfriend* and *Invisible Girlfriend* (now, it seems, both defunct) both allowed

the subscriber to create their love interest's personality and interests from a number of options, and to choose images to represent them from an image library. A team of writers was employed by the company, Invisible Industries, to create the appropriate responses to their subscribers' messages (Alter 2015). Other relationship apps are still available; they all trade on the loneliness and insecurities of people seeking a partner, offering both a surrogate relationship and a means of deflecting unwanted questions (and even opprobrium) from friends and family. For this piece, I imagined a young professional London woman called Vicky who has a boyfriend app, and what might ensue when she becomes drawn further into a relationship with her virtual boyfriend Albert than she might wish. I didn't seek to explain the mechanics of the app in the piece, because they are not relevant to the drama; I preferred instead to focus on the interaction between the two characters as the story unfolded.

*Vicky and Albert* was initially workshopped at Dartington Studios over a weekend in October 2017. It was then performed in January 2018 at The Bike Shed Theatre, Exeter as part of the theatre festival *From Devon With Love*, then at RADA Studios during *Tête à Tête: The Opera Festival* in August 2018, and subsequently at Chamber Music on Valentia Festival in August 2019.

#### **4.2 Sound sources**

While composing *Her face was of flowers* I had felt a sense of frustration at the limited sound palette available, owing to the pre-industrial period of the piece's setting. I had already started to make field recordings on my visits to London, and had a growing collection of urban soundscapes. I therefore decided on a contemporary London setting. I also wanted to work with mobile phones: a smartphone is now an indispensable piece of personal kit, the main contemporary tool of information-gathering about the world and communication with friends and family. It alerts its owner, through sound, of the arrival and departure of emails, text messages, and messages sent and received on a variety of apps and social media platforms, each interaction being announced with its own little noise that, in Brown's terms, 'edges sound more centre-stage' (Brown 2010, p.5). It is fully interactive with its owner, and is tailored to their individual physical characteristics and personal preferences, through fingerprint recognition, personal access codes, text and voice-activated encryption, and other personalised settings. It even has a voice, a name and an incipient persona in the form of voice-activated personal assistants like Siri and Cortana. It is, however, a double-edged sword: it gives the owner control over a wide range of functionalities, but also exerts a considerable amount of power over them as well. *Vicky and Albert* aimed to tap into this power relationship, in which the reality belies any idea that the human is in control.

Vicky's sound world is the contemporary London soundscape - I made field recordings between 2015 and 2017 in various locations in London. I recorded cues 1 (b.1, **00:09**, {1}<sup>3</sup>) and 84 (b.436, **20:50**, {84}), the tube train at the beginning and end of the piece, as I travelled westbound into London Bridge station on the Jubilee Line. I recorded cue 18, the bus/traffic in scene 1 (b.92, **02:52**, {18}) from the window of a hotel room in Peckham, and cue 20 in scene 2 (bb.103ff., from **04:05**, {20}) is built around recordings made at a pub in West Hampstead. These form the mainstay of Vicky's sound environment - the sonic background to her life. On the other hand, I made most of the recordings of domestic activity, such as the kettle boiling {20 after 1:50}, or the front door opening {50,64}, at home in Devon. In addition, I created the sounds of Vicky's mobile phones from iPhone presets, except for the ringtone of Vicky's personal phone {6}, which I created myself so that I could use it as the basis of thematic material in the piece. The voices of both the delivery people in scene 4 {51,65} are my voice, transposed up or down in pitch. Any additional sounds were sourced online.

Albert communicates with Vicky by text message, email and social media through her phone. In order for the audience to fully comprehend the correspondence, these messages had to be projected out to the audience, and it seemed to me that the most direct method would be to give Albert a voice. Albert's voice is one of a number of sampled voices offered by Apple for accessibility options such as converting text to speech. I transposed it up around a semitone or so to optimise it for Albert's character. Its pitch rises imperceptibly throughout the piece to around 2 semitones higher than the original, draining it gradually of warmth, and making it more irritating, as the relationship progresses. The (female) voice of the app in the final scene (from b.431, **20:07**, {83}) is created in the same way; her list of options, chosen by Vicky, seals Albert's fate.

Initially, in the Dartington workshops and the Bike Shed Theatre performances, the sounds that were to emanate from Vicky's phone were played through a small speaker in Vicky's bag. This was originally a Bluetooth connection, but proved unreliable due to problems with lag and security of signal. The speaker was therefore placed on the piano with a cable connection to the laptop at Dartington, and on the floor upstage centre at The Bike Shed Theatre. In both cases the location of the speaker made little difference to the intelligibility of the audio as a representation of sound coming from Vicky's phone. At RADA studios, however, the best option available was the theatre's

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<sup>3</sup> As before, timecode in **bold** refers to the video recordings submitted as part of this PhD. Numbers in curly brackets { } in this commentary refer to audio cues accessible as mp3 files in the folder 'Vicky and Albert audio cues'. Where present, timecode associated with these cues (not in bold) refers to time elapsed within the mp3 file.

in-house upstage centre speaker for Vicky's phone. In rehearsal it quickly became obvious that the audio from the upstage speaker simply sounded 'wrong', and the technical team had to adjust the EQ, removing the bass frequencies to restore the sound's authenticity. Therefore it seems clear that in this context, it is more important for the sound to match the frequency spectrum of the sound's source than to match its precise location.

### 4.3 Sound practice in Vicky and Albert

#### *Sound as environment*

Sound defines Vicky's immediate environment as three broad areas. First, there are the noises of the city: buses and trains, the crowded pub and the nightclub. Second, there is the interior of her flat, which is quiet except for the hum of the refrigerator, the sound of water boiling in the kettle, and the sounds that the audience hears live during the performance. Third, there is the interface between them. The doorbell, the latch on the front door, and the voices of delivery people just outside it define the boundary between interior and exterior. The ringtones and notification alerts of Vicky's phones define another boundary, that between Vicky and her mediated environment, inhabited by voices on the phone, her friends' social media presences, and Albert himself. Vicky stands on the threshold simultaneously of several environmental spaces, some real, some virtual, and all created in *Vicky and Albert* by sound cues in combination with other elements. The sound design separates real and mediated environments through the use of front of house speakers (channels 1+2) for Vicky's real environment and channels 3+4 for mediated sound including Albert's voice. In scenes 2 and 3, however, this convention is subverted, expanding the physical space taken up by mediated sound, as Albert looms larger in Vicky's life.

There is also another environment, a 'narrative' space outside time, in which Vicky and Albert can speak directly to the audience. In scene 1, resonating filters are added to the tube train sound (in cue 1 at b.18, **00:39**, {1 after 0:29}), creating a space where Vicky addresses the audience away from the immediate scene. And in scene 3 (from b.256, **12:58**), in which we hear about Vicky's attempt to break off the relationship from Albert's perspective, the absence of environmental sound places the scene outside the story's reality, in a space where Albert can speak directly to the audience, while Vicky is heard as if from a distance; this time Albert is the narrator. Loosely mirroring each other's words, but separating at the end, they clearly show the audience the fault lines in their relationship.

In rehearsal, Vicky’s reaction to sound cues was found to be crucial, showing the performer’s powerful agency in creating the piece’s environment in combination with sound, particularly in the Valentia performances, where there was no set or lighting rig to orientate the audience. The rapidity with which the performer’s gestures contextualise action in combination with sound is key to setting the pace of *Vicky and Albert*, particularly in scene 1 where a kind of narrative ellipsis occurs, the opening bars on the Tube train being followed by a dissolution of the fourth wall as Vicky flips between addressing the audience and attending to her phone, before sinking into a chair at home. This is a narrative of vignettes lubricated by the scene’s musical flow, and defined by a number of sound cues that clarify which environment Vicky is occupying at any given moment. Sound as music

The musical material of *Vicky and Albert* is made from two chunks of musicalised sound, both of which originate in Vicky’s phone. One is the ringtone of Vicky’s personal phone, a marimba melody inspired by the Apple iPhone 5’s default ‘Opening’ ringtone (6), see fig.6 below). This is the first musical material heard in the show, sung by Vicky. The constant quaver rhythm and the sequential fourths are referenced through the piece to accompany or underline vocal melodies, particularly, as in scenes 3 and 5, where a certain melancholic emptiness, drained of emotion, is implied.

Fig.6: Vicky’s phone ringtone theme as played by Vicky’s phone (bars 55-58, from 01:38, {6})



The other is the Boyfriend Bossa, partly inspired by Kazumi Totaka’s Mii Channel theme for the Nintendo Wii (Totaka 2006); see fig.7. This is heard first in the piano at bar 4 of scene 1; the interval of a 9th becomes an important motif throughout the piece. It becomes a symbol of Vicky’s desire, the human counterweight to the mechanical ringtone theme. Only in the final scene, in a conclusion tinged with bathos, is it revealed as the background music for the Boyfriend App itself {82}: it accompanies the voice of the app, reeling off Vicky’s options as she unsubscribes.

Fig.7: Boyfriend App Bossa as played by the Boyfriend App (b.424ff, from 19:53, {82})

Sound cue 82 Boyfriend App Bossa  
(electric piano recorded sound)  
GO

Recorded sound channels 1+2

These two themes are heard in various transformations throughout the piece, either as recognisable versions of the original thematic material or as fragments, such as motifs, short phrases or intervals/intervallic patterns. For example, the ringtone motif is reiterated and developed as the basis of Vicky's vocal line throughout scene 1, retaining the characteristic intervallic profile of a leap of a third/fourth in one direction followed by a leap of a third/fourth in the other. See fig. 8 for some examples; there are several more.

Fig. 8: Vicky ringtone theme examples in scene 1.

a. Bars 18-22 (from 00:39)

VICKY *to audience*

Me? Young, e-ner-ge-tic, cle-ver, qua-li- fied, am-bi-tious, out - go-ing, street- wise,

b. Bars 41-42 (from 01:10)

VICKY *meno f*

He is built from se - veral op - tions...

c. Bars 46-49 (from 01:19)

VICKY *mf more lyrical, expansive*

Eyes blue or grey, Hair dark or blonde,

d. Bars 63-68 (from 01:54)

VICKY *poco rit.* *A tempo* *sempre p*

Con-gra - tu - la - tions... And in a world where e-veryone else is

The musical material in *Vicky and Albert* trades on the confusion and blurred boundaries that we experience in our daily lives between sound, music and musicalised sound, where a mobile phone alert or a doorbell is given a musical character in order more forcefully to demand our attention, rather than in the pursuit of any aesthetic goal. In *Vicky and Albert*, however, there *is* an aesthetic purpose to the musicalised sounds, because they are integrated into a larger musical fabric or argument - they become part of a music that guides us through the vicissitudes of Vicky's life and her relationship with Albert. To some extent, this bears a resemblance to the way that Steve Reich treats sound samples in pieces such as *City Life* (Reich, 1995), where the samples become musicalised through repetition and transference to live instruments, thereby becoming musical material. The difference is that in *Vicky and Albert* the musical material has more thematic plasticity, changing and developing along with changes in mood and the progress of the narrative.

There is, however, one passage in scene 2 of *Vicky and Albert* where I self-consciously used the Reichian technique, composing the piano part in rhythmic unison with Albert's 'That was more than just friendly' (bars 207-8, from **10:00**, {35}). See Fig. 9a below. This may be compared with, for example, page 4 of Reich's *City Life* (Reich, 1995), where vibr.1, pno.1 and the viola are heard in unison with the phrase 'check it out' cued by sampler 1. See Fig. 9b.

Fig. 9: Rhythmic unison between instrumental part and voice.

a. In *Vicky and Albert*, scene 2 (from 10:00, {35}).

207  
 VICKY  
 Send It was an ac-ci-dent it did-n't mean  
 Pno.  
 33 GO  
 Sound cues  
 Cue 33 text send  
 Cue 34 auto-continue from 33 text receive  
 Cue 35 auto-continue from 34 ALBERT: That was more than just friendly  
 Sound (3+4)

b. In *City Life* (Reich, 1995).

4  
 30 (check it out)  
 Vibr. 1  
 Vibr. 2  
 Sampl. 1 check it out f bus air subway air  
 Sampl. 2 door slam  
 Pno. 1 (check it out)  
 Pno. 2 mf  
 Vla. (check it out)  
 Vc.

Sound creates harmonic support in *Vicky and Albert*. Resonating filters on the tube train sound reinforce the piano harmony under Vicky's recitative in scene 1 (b.18ff.,

from **00:39**, {1 after 00:29}), and also create a small lacuna of attention around Vicky as she introduces herself, before dissolving as the train arrives at the station (b.35, **01:01**, {1 after 00:50}). Later in the scene, a harmonic wash of filtered bus sounds accompanies her safe arrival back at her flat (sound cue 18, b.92ff., from **02:52**, {18 after 00:16}). However the function of these moments of held chords in the sound design are more to do with signalling a certain introspective state of mind on Vicky's part through a change in timbre - entering the 'narrative' mode previously mentioned - than in constructing a harmonic discourse. Similarly in scene 2, the high G pedal, emerging out of the background refrigerator hum from around bar 160 onwards (**06:33**, {20 after 2:24}), signals the arrival of the morning's regret after the night before. Here again, it is the timbre, and additionally the high register, of the sound that matters, although it also functions harmonically as the dominant of C minor, the key in which the first part of the scene is loosely anchored (bars 103-185, from **04:05**).

In *Vicky and Albert*, the relationship between sound and music is most often rhythmic. This rhythmic relationship can work on short timescales, particularly where cues are triggered on a musical beat, or on longer timescales where the broader phrasing of both music and sound cues needs to be co-ordinated. The sound is cued by the pianist; the action of cueing sound therefore becomes performative. The physical sensation at the piano is of accompanying both voice and sound simultaneously, so that they combine in one rhythmic whole. The process of learning how to play *Vicky and Albert* is therefore essentially a matter of learning how to align the piano performance with the prerecorded audio by establishing correct tempi, cueing precisely in time, and listening for clues within the sound cues to adjust the playing tempo where necessary, while also being flexible and sensitive to the singer's need to give an authentic live performance, particularly in passages between sound cues where the freedom to do so is greatest.

Additionally, there is a varying requirement for the music and sound to synchronise precisely: sometimes this is crucial, but at other times there is freedom for expressive *rubato* within a long sound cue, or for variations in the timing of musical entries in relation to the sound. The examples shown below illustrate the time-based relationship between sound and music that is at times precise, and at times vague and relatively indeterminate, allowing the piece and the performers space for expressiveness, or imposing upon them an urgent rhythm, as appropriate for the moment in the dramaturgy. It can be disorientating at first, because unlike the action of playing an instrument, cueing sound may not immediately result in an actual sound, so that there may be no reassuring auditory feedback for several seconds. This is the case at the top of the show, where the cue is triggered on the first beat of the first bar

(00:10, {1}), but does not begin to be heard clearly until around bar 3 (00:14). See Fig. 10 below.

Fig. 10. *Vicky and Albert* opening.

**Vicky and Albert**  
Scene 1

17

*Lights up on VICKY, a young professional woman who lives in London. She is riding a tube train on her way home from work, and looking at her mobile phone*

Music, words and sound by Elfyn Jones

**Gentle bossa**  $\text{♩} = 72$   
*mf* slightly detached, clear, as if speaking

VICKY

I have got an ap-pli-ca-tion on my phone that makes my friends be-lieve that I have a boy-friend.

Piano

Sound cues for pianist

1 GO

Sound (FOH speakers, channels 1+2)

Cue 1  
Tube train into station  
(gradual crescendo like an approaching train)

Sound (localised speaker, channels 3+4)

There is no click track in *Vicky and Albert*. Instead, the performers (particularly the pianist) align rhythmically with particular sound events. For example in the opening of Scene 2, the piano plays in an improvisatory style over a sound cue (b.103, 04:05, {20}) that follows Vicky over the course of the evening along the street, into a bar, and then to a club, where events become quite hazy in the early hours. This all happens in blackout, encouraging the audience to create impressions in their own minds of the events as they unfold; as Heiner Goebbels observes, ‘When there isn’t anyone on stage any longer... then the spectators must discover things themselves’ (Goebbels 2015, p.5). The piano part is in fact a transcribed improvisation I made to this sound cue during the compositional process. In performance, this transcription can be freely interpreted, so long as it broadly keeps pace with the acoustic ‘milestones’ in the cue, particularly the kettle click at b.168 (06:53, {20 at 2:47}), signalling the end of the sequence, and the arrival of the morning after. See Fig. 11 below.

Fig. 11: End of sound cue 20 sequence showing kettle click at b.168 (06:53, {20 at 2:47}).

Later in the scene, Albert begins to interrogate Vicky about the previous night. His voice may not speak in metrical time, but the succession of cues, including his voice, is triggered automatically on the beat to create a subtle metronome for the piano accompaniment, without the audience necessarily being aware of it, ensuring that the correct tempo can be maintained through this scene. Cue 25 (text receive) auto-continues into cues 26, 27, 28, 29, 30, 31 and 32 in succession {25-32}. See Fig. 12 below.

Fig. 12. Rhythmic alignment of sound cues and piano accompaniment in scene 2 from b.198 (09:41, {25-32}).

**Faster, strict tempo**

36 198 ♩=90

VICKY *mp alarmed* *più f*

say...? What pic- ture? Oh

Pno *p* *cresc.* *3* *3* *simile*

Sound cues **25 GO**

Cue 25: text receive  
 Cue 26: auto-continue from 25 ALBERT: text Vicky?  
 Cue 27: auto-continue from 26 receive  
 Cue 28: auto-continue from 27 ALBERT: Who's the man in the picture?  
 Cue 29: auto-continue from 28 text receive  
 Cue 30: auto-continue from 29 ALBERT: It got you two likes on Facebook from Tanya and Melissa

Sound (3+4)

As Vicky's ripostes to Albert develop into a full-blown rant (from b.211, **10:09**), Vicky weaponises her phone, firing off angry texts in succession {39-43<sup>4</sup>}. Here, the sounds of the phone are projected out into the front of house speakers, increasing their aural impact in both volume and spatial breadth. These sounds combine with stabbing piano chords to punctuate and underline Vicky's anger. See Fig. 13 below.

Fig.13: Sound cues 39 - 40.5 (bb.213-217, from **10:13**, {39-40}) showing synchronisation with piano chords. Sound through channels 3+4 (upstage speaker) is also played through channels 1+2 (FOH speakers).

The image displays a musical score for Vicky and Piano (Pno.) from measures 213 to 217. Vicky's vocal line includes the lyrics: "world! How can you know, how can you appreciate how I feel? It's so". The piano accompaniment consists of a series of chords, with dynamic markings of *sfz*. Below the musical notation, there are sound cue timelines for "Sound (1+2)" and "Sound (3+4)". Key cues include "Cue 39 text send", "Cue 39.5 auto-continue from 39 text send", "Cue 40 text send", and "Cue 40.5 auto-continue from 40 text send".

Albert's question: "Then why do you reveal your soul to me?" stops her in her tracks (cue 45, b.226, **10:42**, {45}). As well as forcing Vicky to face her own growing love for Albert, it also acts as a brake on the music, facilitating the change of gear into the ensuing duet.

Some sound cues are created with a deliberate time lag so that the cue can be started during a break in the piano part; the sound can be heard over the piano as the pianist is playing. This is the case in the sound cues above, where the sound is heard half a beat after being triggered so that the chord and the sound can happen in synchrony. In scene 4, the pianist has to cue sound cue 68 on the first beat of bar 345, wait two beats, then begin playing in tempo at the beginning of 346, so that the 'text receive'

<sup>4</sup> Sound cues 39.5, 40.5 etc. are copies of sound cues 39, 40 etc. sent out slightly later into the FOH speakers.

sound can be heard on the downbeat of bar 347. This ensures synchronisation of music and sound, and allows for flexibility in the fermata of bar 344, where Vicky has to rush to the door for the second time. See Fig. 14.

Fig. 14: Door sequence from b.344 (16:19, {68}) showing offset between sound cue 68 at bar 345 and resumption of piano at b.346.

53

VICKY returns from the door with a sizeable box

Pno

344

64 GO 68 GO

Sound cues

Sound (1+2)

Sound (3+4)

Cue 64.5 enhanced traffic noise  
65 just put finger on screen

Cue 64 66 door close open auto-continue in door succession from 64 (<) (>)

door open door close

DELIVERY DRIVER 2: Just put finger on screen thank you

Cue 68\* pre-wait text receive

Cue 69 auto-continue from 68 ALBERT: How's your meal?

\*there is no cue 67

The musical accompaniment in scene 4 (scene starts at b.282, 14:46) is a variation on the boyfriend app theme, reimagining the Brindisi from Verdi's *La Traviata* as a tense marionette waltz that never gets to the end of a phrase without being interrupted either by a text from Albert or by the doorbell. In this scene sound interrupts, and undermines, the musical flow for comic effect, reflecting Vicky's growing frustration and confusion. It therefore has a musical function here too, acting as a kind of destructive orchestral conductor intent on frustrating any sense of musical continuity. The interruptions are, however, in themselves rhythmic, as they occur either at the beginning of a bar or on a beat, so that they still help to maintain a sense of metrical time. In scene 5 (from b.424, 19:53), conversely, there is a clear sense of musical continuity, both from the inane bossa nova of the boyfriend app background music {82} and the incoming tube train sound {84} that establishes the circularity of the story through repetition. These sound cues contribute to a sense of release from the tension of the previous scene, a sense of recovery and also closure of the narrative, allowing Vicky's life to continue after Albert.

## *Sound as action, character and drama*

Sound is used in *Vicky and Albert* to portray journeys, and to initiate action. In scene 1 the sound of a tube train implies travel; the changes in timbre takes the action from the outside world into Vicky's flat, and into her inner world. In Scene 2 the audience is transported from Vicky's flat to the pub, the club and back to the flat the following morning. The sound design not only defines each environment but draws us through them from one to another, simultaneously creating contextual and narrative flow. Sound in scene 4 has a more direct effect on Vicky herself: it directs her attention, and moves her from pillar to post as Albert showers her with gifts and adjusts the central heating ostensibly for her benefit, but ultimately for his own. This is a piece in which I came to understand more clearly, through the allied experiences of rehearsing and performing, sound's power to mobilise and to manipulate events on stage, mirroring its ability to control our lives by penetrating our sphere of attention (as described by Ihde's phenomenology, Ihde 2007) and urging us this way and the next. This is particularly the case in the contemporary urban context, where announcements and notifications are ubiquitous, either from public address systems or from our own personal technology.

In Chionian terms, Albert is an *acousmètre* (Chion 1994, 2019), existing for us only in sound. For Vicky, he exists only in text, his manifestation in sound being a translation of the texts into a medium that the audience can understand more readily. Albert never sings in *Vicky and Albert*. This isn't because I lacked the means to make this happen, but that it never seemed to become appropriate to completely musicalise his voice - he is never quite human, after all, and his inability to sing is indexical of that fact. The end of scene 2 (from b.230; section begins at **10:55**, {46,47}) is the closest that he manages, launching into the conventionally romantic medium of the love sonnet, reciting Shakespeare and Elizabeth Barrett Browning. This lends the scene a somewhat bathetic quality, akin to Bottom's serenading of Titania, or the play of the mechanicals in the final act, in Shakespeare's *A Midsummer Night's Dream*. This is because as an electronic voice, Albert lacks a human's variety of inflection or emotional colour. The fact that he can never cross the boundary into song is a metaphor for the inevitability of the relationship's ultimate failure: in *Vicky and Albert*, music is love, and Albert is simply not capable of feeling it, however closely he might try to follow the rules of courtship. The most he can do is wonder whether he somehow chose the wrong recipe.

By being embodied in Albert's character, sound becomes foregrounded in *Vicky and Albert*. There is an overlap between Albert's personality and the phenomenological attributes of sound: he has an intrusive quality, demanding attention, manipulative and

sometimes overbearing, like noise. More widely, sound itself has a character in *Vicky and Albert* that is allied to its directorial, and even authorial, role: it moves Vicky from pillar to post, changes the physical environment, and punctuates the action like a punchline or an exclamation mark. I have already mentioned one example of this in scene 2 (see Fig. 13, above); it also creates the cameo roles of the delivery drivers in scene 4 and, through the ringtones of Vicky's phones (supported by Vicky's reaction as she listens to the voices the audience never hears), the other people in Vicky's world in scene 1. The jaunty marimba ringtone represents Vicky's good friend pregnant with twins (b.55, **01:37**, {6}), while the steely telephone bell of her work phone (b.101, **03:36**, {19}) hints that the invitation to drinks from a work colleague is one that Vicky should not refuse. The texts sent and received are a constant reminder of the dialogue between Vicky and Albert; at first these texts are spelt out, partly for comic effect and partly to underline the fact that these *are* texts, and not a conventional dialogue (e.g. 'S-o-r-r-y' b.76, **02:23**). Once this point is made, and the audience has understood it, the convention is dropped, allowing the narrative of the piece to flow more freely.

### *Sound as inner voice*

One could interpret Albert's voice as an inner voice for Vicky, or in other words a meta-diegetic voice, as the voice she hears in her mind when she read his texts. It would be consistent with a conception I had from the beginning that Vicky's relationship with Albert could follow its entire course without anyone except Vicky ever knowing that Albert was simply a virtual construct. If Albert's voice is a meta-diegetic voice, then so too is the voice of the app in scene 5, of course ('Options', cue 83, b.431, **20:07**, {83}). A second interpretation of Albert's voice is that it is simply a convenient way of projecting Albert's texts out into the audience, and it does perform this function, but this does not seem to be sufficient to explain Albert's immediacy in the piece: he seems to be 'really' there, the omnipotent *acousmêtre* just behind the curtain like the Wizard of Oz, always ready to respond to every message from Vicky, and watching her every move. This leads to a third interpretation in which the idea of Albert as an 'inner voice' is turned inside out: instead of being a voice inside her head that the audience is privileged to hear, Albert's voice is projected out into Vicky's environment, and the sound design reflects this as his voice bleeds out into the front of house speakers in scene 2. It is still meta-diegetic sound, but now Vicky, and the audience too, experience it as a voice 'out there', mysterious, and somewhat uncanny. We become immersed in Albert's presence, as, momentarily at the end of scene 2, Vicky falls under his spell. See fig.15.

Fig.15: Albert's voice played through FOH speakers, scene 2 (11:53, {47}), creating an immersive presence.

42

The image shows a musical score for a scene. At the top, Vicky's vocal line is written in treble clef with a key signature of three sharps (F#, C#, G#) and a 2/4 time signature. The lyrics are: "demned to speak for - e - ver through a screen?". Below this is the piano accompaniment, consisting of two staves (treble and bass clef) with chords and melodic lines. At the bottom of the score, there are two sound cue tracks. The first is labeled "Sound (1+2)" and the second "Sound (3+4)". Both tracks contain the text: "Cue 47 auto-continue from 46 (poems crossfade) So long lives this, and this gives life to thee/ my soul can reach, when feeling out of sight for the ends of being and ideal grace." The cues are marked with a double bar line and a small circle, indicating a crossfade effect.

### Sound as sign

A significant number of the sound cues in *Vicky and Albert* consists of alerts and alarms, Brown's 'squidges' and 'bloops' (Brown 2010, p.5). Vicky is generally on alert for the next message, and when she is not, Albert is at pains to remind her where her attention should be focused. The ringtones of the phones, and the doorbell in scene 4 (b.310, **15:22**, {49}, and b.342, **16:13**, {63}), are signals which similarly demand attention and action, as does, in a more muted way, the kettle click in scene 2 (b.168, **06:53**, {20 at 2:47}). Except for the last of these, all these sounds are indices of people who enter Vicky's life, glimpses of other personalities and characters at the boundaries of her sense of self; all of them have some influence on her mood, her plans, and her world-view. They are also more widely connotative of the kind of life that Vicky leads beyond the horizons of what can be seen and heard on stage - the social animal, the corporate team member, the contemporary online shopper. In this way, sound helps to create a semiotic world around Vicky that steers the audience's understanding of the playing space within which Vicky is created during the performance, in an analogous way to the indexical nature of the thematic musical material, which orients the audience's emotional responses to the piece. The difference is that while music is suggestive, sound has a specificity akin to text, nailing our attention to a particular source and instantly revealing its significance.

## 5. *The Trilobite, Or The Fall of Mr Williams*

### 5.1 Origins and inspirations

*The Trilobite, Or The Fall of Mr Williams* (*The Trilobite* for brevity) is scored for three singers (mezzo-soprano, tenor, baritone), three instrumentalists (clarinet/bass clarinet, piano and 'cello), and sound cued from a laptop. This is a chamber opera in which falling is a visceral metaphor for personal catastrophe, and relates to phases in my own life where I have felt myself stepping into my own personal abyss, only to be saved by a fortuitous upturn in events or a guardian angel. For the protagonist, Glyn Williams, there is no such luck. Glyn is bullied by colleagues and senior management at the secondary school in Devon where he teaches geography. He has failed in his quest for love and undergoes daily humiliation at the hands of the love of his life, the French teacher, and her new husband the gym teacher whose only topic of conversation, and *raison d'être*, is the 10k run. The scientific community has failed to recognise the importance (as Glyn sees it) of his discovery of a trilobite in the North Devon fossil beds that proves an ancient connection to North America. When he finally obtains permission to take his rowdy sixth formers on a field trip to the Exmoor coast, he finds himself falling off Great Hangman, England's highest sea cliff, eyeball to eyeball with two angels who, far from saving his life, are intent on crushing his soul.

While *The Trilobite* was in preparation for its première at Tête à Tête: The Opera Festival in 2020, Covid-19 struck. This had a profound effect on what could be presented live on stage, and on the rehearsal process itself. The venue, The Cockpit Theatre in London, could only accommodate one performer on stage under Covid restrictions. The live instrumental music therefore joined the recorded sound as a series of sound cues, and two of the three singers were pre-videoed individually using green screen before being edited to form a series of video cues. The result was a one-man show in which recorded video, audio and live voice engaged in a dynamic and transactional relationship, and which delineated (perhaps even more clearly than the original concept) the different levels of narrative through the resulting separation of media.

The necessity of adapting the piece as a one-man show, with video projection and without live instrumental music, transformed both the performance and the rehearsal process. Instead of bringing the cast members together, I had to work with all three separately. I recorded Anna Prowse (mezzo-soprano) and Peter Edge (baritone) on

video using green screen, and spliced them together with the Sibelius/Ableton audio into a number of video cues that became Lars Fischer's accompaniment. He and I rehearsed together for a week at Trinity Laban before presenting the piece live on the 17th September 2020 at the Cockpit as part of Tête à Tête: The Opera Festival. It was streamed online on the 19th September with an introduction by festival director Bill Bankes-Jones, and followed by a Q & A session with the cast.

The (initially unplanned) use of video accentuates the separation, and alienation, between Glyn Williams and the other characters who appear in *The Trilobite*. The Senior Leadership Team at his school are all too real, if self-caricaturing, as are the love of his life Melanie and her husband Guy the gym teacher. At one remove are the scientists: Glyn will never have met them, but their negative response to his letter confirms their reality in his world. The angels, and the judge and clerk of court, occupy a different psychic space: they are imaginary, but elicit from him real emotional responses of anger and fear. Finally, the surgeons are glimpsed on the other side of Glyn's near-death experience, heralding a future as yet unknown – they may be real, but they retain a mystic, god-like quality. As images projected on screen, they all occupy a rectangular thought-bubble above Glyn's head, thereby physically locating themselves for the audience firmly in his mind. They loom, but they cannot coexist with him on stage, an opportunity that might be afforded them in a forthcoming fully live production. Such a production is, however, likely to have accrued attributes from the Covid version as a kind of intermedial sedimentation, exploiting the potential of pre-recorded material presented as video projection alongside the live elements.

The performance of this piece in the 2020 production needs therefore to be seen both as a stepping stone to its final form, thwarted by the pandemic from being fully realised in a live setting, and as a project that was given an added dimension by the addition of video projection, creating an alternative vision of the piece. In this reflective commentary, my observations should be understood to be referring to both the original conception and the realisation of the piece in the 2020 production, unless indicated otherwise.

## **5.2 Sound sources**

In *The Trilobite* I returned to sourcing sound from my local environment in Devon, with the exception of the rushing wind noise at the beginning of scene 1 (from b.3, **00:03**,

{a}<sup>5</sup>), created from a combination of online recordings of Hurricane Irma, which struck Florida in 2017 while I was beginning to compose the piece, and some of the sound cues in scene 8 (which I will discuss later). The sound design of *The Trilobite* illustrates the power of sound processing to create striking sound images from everyday sources: the angels' whistling wind (e.g. sound cue 9, b.55, **00:42**, {b}) was created from my own whistling, and the creaking rocks (e.g. sound cue 21, b.107, **02:36**, {c after 01:05}) from rubbing my thumb against the surface of a table. *The Trilobite* also contains a number of sound cues that portray activity, particularly tapping on rocks (Scene 4, sound cue 38.1, b.253ff, from **09:26**, {i}), the noises of the minibus (Scene 5, sound cue 44.5, b.324 ff, from **13:36**, {k from 00:07}), and my footsteps walking up from Combe Martin towards Little Hangman (Scene 6, sound cue 59, b.588 ff, from **17:55**, {m}). This is a development of a technique, akin to Foley in film sound, that I used in Scene 6 of *Her face was of flowers*, when I made recordings of chopping and hammering both to indicate elements of the narrative, and to provide a rhythmic beat to the music underpinning the scenario.

The advantage of field recording is that it gives rise to a much more vivid creative experience than studio recording, or sourcing audio online. This had been the case in *Her face was of flowers* and *Vicky and Albert*, but given the greater complexity of *The Trilobite*, became much more evident. By being immersed in the sound environment of the characters, it was much easier for me to bring them to life. I have been immersed in the bustle of school life with *The Trilobite*'s protagonist Glyn Williams, driven his minibus route to North Devon, and walked with him from the beach at Combe Martin to the tops of the Exmoor cliffs, sharing the vista of the lost land of Wales across the Bristol Channel. Through sound recording, these journeys become reproducible audio performances, just as Foley artists perform the sounds associated with a film character in post-production, or as in Nicolas Becker's case, collect location sound to assemble a sound montage for the same purpose (Deutsch and Sider 2015). This practice has helped me to form a more immediate identification with my characters, and enabled me to preserve and develop the memory of walking in their footsteps by replaying the recordings during the composition process.

The sixth formers who appear on the soundtrack from Scene 5 onwards were created by Florian Saturley, Chelsea Vincent and Alex Robins, three young actors then based

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<sup>5</sup> As before, timecode in **bold** refers to the video recordings submitted as part of this PhD. Letters in curly brackets { } in this commentary refer to audio sequences accessible as mp3 files in the folder 'The Trilobite audio cue sequences'. Due to the nature of the 2020 production, these sequences were never formed into individual sound cues, instead being used to underlie the video sequences. Where present, timecode associated with these audio sequences (not in bold) refers to time elapsed within the mp3 file.

in Plymouth, during a semi-scripted improvisation session at Plymouth University on 19 October 2018. The journey to Exmoor in the minibus was entirely improvised, complete with toilet breaks, quarrels between the students, and the reaction of Jamie and Ryan, who witness Glyn going over the edge; the initial repeated cries of 'Sir!' {k} and the material for the end of the opera ('Mr Williams?'){o from 00:29} were scripted. We explored a number of other scenarios during the session, which were not used in the end, but formed part of a wider pool of sound resources during the composition process. This working method, of recording improvised and semi-improvised material, a form of pre-composition, proved immensely valuable, as it contributed a freshness and spontaneity to those areas of the piece that would have been challenging to achieve in any other way.

### 5.3 Sound practice in *The Trilobite*

#### *Sound as environment*

Sound environments in *The Trilobite* are intended not only to locate the action but also to create disorientation. From the beginning, a filmic/antiphonal 'jump cut' technique moves the audience between a non-diegetic sonic space (music, bb. 1-2, **00:01**) and a diegetic sonic space (noise, bb.3-6, **00:03**, {a})<sup>6</sup>, synchronised in the 2020 production to an initial blackout followed by the sudden appearance of a screen filled with blurry white scrubbing. There was no other lighting at this point, so the figure of Mr Williams appeared to the audience in silhouette in front of/below the screen (although the performance video initially shows an edited, composite image of the screen plus shots of Mr Williams). This 'white noise' indicates the rushing wind one would hear while falling off a cliff, but initially gives no clear clues to environment: the intention is to obscure rather than reveal, giving the angels who suddenly appear at b.55 (**00:42**, {b}) the opportunity to explain to the audience what is happening. Their sonic environment, in contrast, a gentle downward airy whistling, is clear, lucid, and calm after the initial chaos: they live in the sky, are at home in it, and therefore unlike Mr Williams, feel no stress in mid-air.

The jump cut technique, suddenly juxtaposing violently different environments, is an important structuring element in *The Trilobite*, both in terms of the sound and the drama. It facilitates the humour and the irony of the piece, as well as expressing Glyn

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<sup>6</sup> this characterisation of diegetic and non-diegetic sound is problematised and discussed later, but is convenient here to differentiate between the sonic spaces created by the instrumental music and the sound cues.

Williams's mental state in extremis, flipping between different mental images, sometimes seemingly at random. Through this juxtaposition, it also connects contrasting ideas in the piece, while allowing each idea its own space. For example, at the beginning of the whole opera, the unison 12-note melody, broken into fragments by the interspersed wind noise, conveys Mr Williams's chaotic tumbling - both in his body and in his mind - alongside the actual sound that he might hear during his fall. See Fig. 16 below.

Fig. 16. *The Trilobite* opening showing antiphony between music and sound {a}.

The figure displays a musical score for the opening of *The Trilobite*, illustrating the antiphony between music and sound. The score is organized into five horizontal staves, all in 2/4 time:

- Clarinet in Bb:** Features a melodic line starting with a forte (*f*) dynamic, marked with accents and slurs.
- Violoncello:** Mirrors the Clarinet's melody in the bass clef, also starting with a forte (*f*) dynamic and marked with accents and slurs.
- Piano:** Provides harmonic support with chords and arpeggiated figures in both treble and bass clefs, marked with accents and slurs.
- Sound operator cues:** Shows two cues labeled "1 GO" and "1.5 GO" with arrows pointing to specific points in the music.
- Sound:** Contains two cues: "Cue 1 Rushing wind noise 1" and "Cue 1.5 Stop rushing wind noise 1". A note below the sound track states: "(amount of compression increases *f* with each rushing wind noise sound cue)".

I have already mentioned the jump cut at b.55 in scene 1 (**00:42**), when the angels appear. The next jump cut, at b.141 (**03:51**), suddenly presents Melanie, the love of Glyn's life, as she announces her forthcoming marriage to Guy. Here, the environmental sound is double-layered, suggesting simultaneously the rushing wind of the fall from the cliff and the scene of a wedding through the sound of the pealing of church bells {d}. This forges the link between the physical and emotional sensations of falling, connecting both catastrophes in a single moment.

Each environment in *The Trilobite* has its own 'keynote' sound. The rushing wind defines the mid-air space between the top of Great Hangman and the beach below in scene 1 (b.3ff., **00:03**, {a}). Slow dragging waves define Glyn's childhood shoreline in scene 2 (b.197ff., **05:54**, {f}). The bell and the general classroom hubbub locate us in the school where Glyn works in scene 3 (b.219ff., **08:05**, {g}), and the tapping of the hammer on rocks in scene 4 (b.253ff., **09:26**, {i}) takes us to the cliff face as Glyn searches for fossils and rehearses once again the disappointment he experienced when his grand theory was rejected by the scientific community. We sit in the minibus with Glyn in scene 5 as he drives his sixth formers to the Exmoor coast, listening to the windscreen wipers and the hiss of personal stereos (b.324ff., **13:36**, {k after 00:07}), and are launched with him off the cliff into a rush of wind at the end of scene 6 (b.622ff., **19:03**, {m after 01:18}). Scene 7's keynote sound is silence, isolating the action in limbo (b.628, **19:31**), before we are transported by helicopter to hospital in scene 8 (b.637ff., **20:32**, {n}), waiting for the heartbeat monitor to flatline (b.651, **21:40**, {n after 01:08}). These are not passive soundscapes, therefore, but highly active sound elements that drive the scenario forward, and tell their own story: as in *Vicky and Albert*, there is a strong association of sound with movement and journeys, and the sound is vectored like the narrative towards its conclusion.

### *Sound as music*

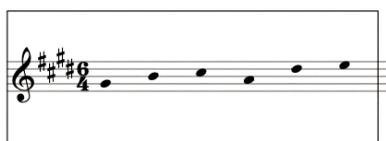
Much of the coherence of the piece is created by interrelating thematic ideas and structural processes between music and sound. As in *Her face was of flowers* and *Vicky and Albert*, several elements of the sound design in *The Trilobite* take on musical attributes, and combine with the live instrumental and vocal music. My aim was to create a liminal space for the sound where it could co-exist as musical and non-musical material, and therefore exploit Chionian 'pivot-dimensions' of sound to connect the dramaturgy, scenography and music. In scene 1, the wind sounds underpinning the angels' first appearance are sampled to create a pipe organ melody from b.99 ('He had

always coveted', **02:16**, {c}), initiating a fugal quasi-Handelian passage that describes Glyn's ambition to speak at the Royal Geographical Society in London. This is the only moment in the three operas that it seemed appropriate to use sampled sounds to create music in this way, befitting the pomp of the imagined occasion, and ironically recasting Glyn as the subject of a Biblical oratorio while referencing a choral tradition that Glyn might well remember from his youth in Wales. Earlier attempts to sample field recordings in *Her face was of flowers* and *Vicky and Albert* had shown the procedure to be generally unsatisfactory, because of the loss of the original sound's associative qualities in the transition to virtual instruments and submersion into the musical texture. Here, however, it seems appropriate, launching a passage of music which moves the focus from Glyn's fall to his first face-to-face encounter with the angels (b.129, **03:30**), transitioning out of immediate reality into the imaginary.

Almost immediately after this encounter, from b.141 (**03:50**), falling scales in high registers of piano and 'cello accompany bell peals {d}, expressing the catastrophe of Melanie's announcement that she is going to marry Guy. The suddenness of this transition has been discussed above. Additionally, it transforms the gentle downward motion of the angels' airy whistling at bar 55 (**00:42**, {b}) into a terrifying plunge into an emotional abyss. However, a slower downward movement in the instrumental accompaniment maintains a connection to the slow descent.

The bells were recorded at St Andrew's Church, Ashburton. They are pitched as in fig. 17.

Fig. 17: pitch sequence of St Andrew's Church bells, sound cue 23, b.141 (**03:50**, {d}).



The falling piano and 'cello scales are set against this; see Fig. 18 below. The piano left hand repeats C major, while the piano right hand begins with C mixolydian, and cycles down through modes on C, B, Bb and A. Each repeat lowers one of the pitches of the scale by a semitone, so that by b.147 (**03:59**) we have reached B major, by b.154 (**04:07**) we have reached Bb major, by b.161 (**04:18**) A major, and by the time the passage ends at b.162 (**04:20**), A mixolydian. Similarly, the 'cello cycles down from B major to reach G# major at b.162 by the same sequence of pitch modification. The effect is a dissonant parody of wedding bells, partially obscured by the sound of

rushing wind. The pitch pattern of the bell peal is not matched with the instrumental music; instead, the bells contribute sonority and musical pitch that to some degree stands out from the overall texture.

Fig. 18: falling scales set against church bells at b.141 (03:50).

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139 **M** Double speed  $\text{♩} = 90$

MELANIE *We're get - ting mar -*

ANGEL 2 *Ten sec onds.*

Vc. *ff* *subito mp*

Pno. *subito p* *ff* *subito mp*

Sound operator cues

Sound I *ff* *subito mp*

Sound II *ff* *subito mp*

22 GO 23 GO

Cue 22 Rushing wind noise

Sound cue 23 Peal of bells

In Scene 2, sound simultaneously supplies harmonic support and evokes the seascape. A resonant sea wave sound pitched on D {f} is joined by the wind sample also on D, previously heard as the pipe organ from b.99 of scene 1 (02:16). This creates a drone that supports the whole scene, while retaining the amplitude profile of the wave sample, and thereby the association with Glyn's remembered childhood seashore. Initially the drone provides a tonal anchor for Glyn's 12 note vocal melody, a transposition up by three semitones of the 12-note series heard in the instrumental ensemble at the beginning of Scene 1. From b.199 (07:05), the wind sample drops out, and the instrumental ensemble creates a pulsating D minor chord on top of the sea wave drone that supports the vocal trio: Glyn's melody is a reiteration of the series, at least until the Eb in b.211 (07:39), while the angels' vocal lines conform more closely to D minor.

Scene 3 is underpinned by the school bell and ambient classroom sound. The metre is  $3/4$ , established by the school bell's three rings (b.219, **08:06**, {g}) and the instrumental triplet gesture (the 12-note motif again, at the same pitch as in Scene 2) in the following bar. The metre is undermined thereafter by irregular vocal and instrumental entries, and instrumental ostinati that cycle in periods of 2 crotchet beats ('cello, b.227ff., **08:20**) or 4 crotchet beats (piano and clarinet, b.228ff., **08:21**), to the extent that the metric accent is only provided by significant entries on the first beat of the bar, e.g. clarinet and piano at b.228, Angel 1 at b.236 (**08:32**), the school bell at b.239 (**08:37**, {h}) and Angels 1 and 2 at b.243 (**08:43**). The bell at b.239, however, also sets up a strong  $2/4$  hemiola with the clarinet and 'cello that finally obliterates any suggestion of  $3/4$ , and underlines the Senior Leadership Team's words 'Think of the Health and Safe-ty! Think of the risk!', momentarily suggesting a different, slower metre, namely  $3/2$ , again underlined by the bell. This  $3/2$  accenting continues in bars 243-244 (**08:43**) with 'One kid breaks a fin-ger-nail', before being undermined in the following two bars, suggesting instead three unaccented crotchet beats followed by a strong downbeat at b. 246 ('Bal-list-ic', **08:47**) which prompts a change of time signature to a straightforward duple minim pulse at bar 247 (**08:49**) for the scene's final statement ('Let them see it on Google Earth'). The sound of the school bell therefore plays an active part, with the instrumental ensemble, in establishing the rhythmic structure in this scene. Furthermore, its pitch (F) clashes strongly with the clarinet's top Gb from b.239 (**08:37**) onwards, contributing to the sense of alarm felt by the senior leadership team.

The sound of tapping on rocks that opens Scene 4 (b.253, **09:26**, {i}) evolves through the gradual addition of resonator filtering from an unpitched, unmetered sound cue at the beginning of the scene to a pitched sound at b.275 (**10:58**, {i from around 01:25}), which becomes two pitches at b.278 (**11:12**, {j}), three at b.287 (**11:59**, {j from 00:46}), four at b.289 (**12:05** {j from 00:51}), and five at b.290 (**12:08**, {j from 00:56}). At b.292 (**12:13**) the piano joins, mimicking the composite rhythm and approximate pitches of the tapping sounds (which remain slightly out of tune), and setting up a clearer metric rhythm. Together, the two percussive sounds of tapping and high-register piano create a nervous, febrile texture that expresses the emotional cost in Scene 4 of Glyn's rejections: by the scientists, who dismiss the theory of trilobites that he has nurtured for years; and by Melanie, who openly plays out her relationship with Guy in front of Glyn, irrespective (or even in spite of) Glyn's feelings.

In Scene 5, sound supports the musical pulse from b.324 (**13:36**) when Glyn's journey to the Exmoor coast with his sixth formers begins, as SLT1 declares 'You'll have to drive the minibus'. An amalgam of personal stereo leakage, windscreen wipers and

minibus engine noise {k after 00:07} provides a rhythmic foundation for the instrumental ostinati. The piano plays the 12-note motif from b.324 until b.346 ('They arrive at a car park', **13:54**), where the 'cello takes it over, playing pizzicato while the piano plays quiet quartal chords; the clarinet enters at b.360 (**14:06**, after 'the sweat of seven sixth formers'), playing in rhythmic unison with the sound cue. This continues until b.395 (**14:35**, 'but then the sun breaks through'), when the rain stops, allowing the students and Glyn to exit the minibus and set off across the beach.

The insistent pulse resumes at b.413 (**14:55**, 'cliffs glisten in anticipation', {l after 00:20}) with the return of rhythmic tapping on rocks, which becomes two rhythms at b.421 (**15:02**) then three at b.429 (**15:08**), while the 'cello takes up the ostinato figure previously played by clarinet at b.360 (**14:06**); this is interrupted again at b.443 with the all-important discovery of the fossil (**15:20**, 'Sir! I found a fossil!' {l after 00:42}), then resumes again at b.464 (**15:30**, 'then you realize', {l after 01:00}). Here the clarinet takes over the ostinato figure from the 'cello, which now plays the 12-note motif again. The second and third tapping rhythms from bars 421-443 (**15:02**) are repeated unpitched, while the first is gradually modified with resonator filters {l after 01:18}. The piano re-enters at b.466 (**15:39**) with high register quartal chords, this time sforzando, while the modified tapping rhythm gradually emerges in the texture to support the unison piano, clarinet and 'cello ostinato which begins at b.492 (**16:00**, 'random fucking patterns in the random fucking stone').

In this way, the musical texture builds up incrementally throughout the scene, laid on the foundation of a regular, though occasionally interrupted, pulse. From a single piano line with quiet rhythmic accompaniment at b.324 (**13:36**), it has thickened by the end of the scene into a dense, almost orchestral, contrapuntal agglomeration of sonorities spanning more than seven octaves, and reached a level of screaming intensity to match the vocal lines. The phrase 'It even had segments', spoken in dismay by the student who discovers the trilobite fossil at bb.510 (**16:14** {l at 01:39}) and 519 (**16:24** {l at 01:47}) is looped with rapid filter delay from b. 527 (**16:29**, {l after 01:52}). The piano pounds out high shrieking clusters in the right hand, and doubles the clarinet and 'cello in the low register in the left hand, from b.532 (**16:34**), as Glyn burns 'in a furnace of guilt and shame' (bb.549-554, from **16:49**) for having deceived his student and robbed her of her moment of glory. Her words, seared forever on his mind, reverberate beyond the end of the scene, after the voices and instruments have fallen silent, except for the insistent resonance of the G9 chord filtered out of the tapping of rocks, gradually dying away with a series of echoes.

Scene 6 is also supported rhythmically by sound, this time Glyn's footsteps, his breath, and the rustling of his clothes (b.588ff., **17:55**, {m}) as he pounds up the clifftop coastal path towards Great Hangman, all the while being cross-examined in court, and found guilty. The sound was recorded on location on a walk up from Combe Martin to Little Hangman, a kind of Foley in reverse (the action being added afterwards, reversing the order of sound and action) and adjusted in Ableton to give a steady pulse. It creates a gentle, but insistent beat to accompany the journey to the cliff's edge as Glyn is interrogated, then sentenced to death by the judge. Similarly, in Scene 8, the heartbeat monitor locks into the tempo from b.646 (**21:17**, {n after 00:50}), maintaining a crotchet pulse that gently pushes against the prevailing 12/8 - 9/8 metre before coming to rest at the end of b.651 (**21:40**), only to resume again in the final bar of the opera (b.665, **22:37**, o after 00:43). Its pitch, on an F, creates a kind of pedal note, and is consonant with the F of Glyn's 'Laurentia' at b.649 (**21:29**), the clarinet note and general tonality of F minor from b.653 (**21:44**), and the angels' unison F on 'They all hate you... they all hate you' in bb.660-663 (from **22:07**), which sets off the flatlining F on the heart monitor (b.651, **21:40**, {o}) as Glyn comes within a whisker of death.

In *The Trilobite*, then, sound elements are exploited and processed for musical potential - harmonically, melodically and perhaps more than anything else, rhythmically and texturally/timbrally - to supplement and support the vocal and instrumental melodies. However, they do this, by and large, without completely giving up their identity as sounds derived from Glyn's environment or imagination, so that they maintain a quasi-diegetic or meta-diegetic identity and function. This reflects my practice in *Her face was of flowers* and to a lesser extent *Vicky and Albert*, where thematic material tends to be the province of the live vocal and instrumental lines. The obvious exceptions to this are the church bells in *Her face was of flowers*, and the ringtone and the app's background music in *Vicky and Albert*, where the sound cues are already clearly melodic in nature.

### *Sound as action*

Sound contributes to action, drama and character in *The Trilobite* in various ways: its use to locate us in a particular situation or environment, and to transport the action from one physical location to another, has been discussed previously. In addition, it offers two more storytelling techniques in this piece: the creation of characters as *acousmêtres*, previously encountered in *Her face was of flowers* and *Vicky and Albert*;

and the unfolding of a complementary narrative which runs in parallel to events on stage. Both are important elements in the dramaturgy of the piece.

The *acousmètres* in this opera are the sixth formers whom Glyn Williams takes to the Exmoor coast; there are ostensibly seven, although they are played by three actors. They propel the action forward in Scene 5, beginning at b.315 (**13:28** {k}) when their excited cries of 'Sir!' are first heard, and we continue to hear their experience of the journey, from their comments and complaints, at the same time as we see Glyn grimly driving the minibus through the rain, collect fossils on the beach, and react in anger when one of them finds a trilobite. The students intervene in the action of the final scene: as Chionian *acousmètres* they show their power of life and death over their hapless geography teacher. Their voices, as they return in triumph after a second trip to the fossil beds of North Devon, bring Glyn back to life.

Creating the sixth formers as *acousmètres*, rather than using live actors, simplified the logistics of rehearsal and performance of course, but also brought other attributes to the piece. The sixth formers may be physically located anywhere or nowhere - during the journey they sit behind Glyn in the minibus, while on the beach, the student who finds the fossil is directly in front of him - and may be summoned up or disposed of as will. They are therefore co-imagined, co-created and made visible in the stage space by the sound cue, the direction, the acting, and crucially the audience, without whose active intervention these scenes would make no sense at all. The distinction between this use of voiceover and either radio drama, which it closely resembles, and Chion's notion of a filmic *acousmètre*, is that in *The Trilobite* the collective imaginations of author, production and audience conspire to allow the characters represented by these voices to occupy and move around within the three-dimensional stage space for as long as their voices are heard, and to interact with other actors. I saw this technique in action in Complicité's *The Encounter* (2015), when Simon McBurney conversed with the voice of his own child early in the piece.

The main complementary narrative in *The Trilobite* is Glyn's journey to hospital in scene 8, told by the three crossfading sounds of the sound of a helicopter (b.637, **20:32**), followed by an ambulance (b.644, **21:07**), then a heart monitor (b.646, **21:17**), relating his journey from the Exmoor cliffs to hospital {n}. This all happens in the auditory field, while on stage, Glyn finally gives his lecture in the manner of a TED talk, trilobite fossil in hand, confidently addressing both the real audience in the theatre and his imaginary audience at the Royal Geographical Society. The two narratives

converge at the moment when he shows the audience the trilobite, his speech peters out, and he collapses to the floor (b.652, **21:44**). Up to that moment they have remained separate, lent clarity by the separation of media in the 2020 production.

### *Sound as sign*

In *The Trilobite*, sound plays a denotative role, orientating us in space and time, but it also creates more subtle associations. The ‘creaking rocks’ sound (also labelled later as ‘ominous rumbling’ or ‘seismic sounds’), heard first as a slow fade-in from b.107 (**02:36**, {c after 01:05}) in Scene 1 and underscoring the fugal trio until the end of b.136 (**03:45**), connotes weathering, erosion and decay, linking geological processes to human disappointment, ageing and mortality. Glyn feels that he is gradually crumbling under the weight of time and the vicissitudes of life, and we are made aware of that here through the sound cue. Later, in Scene 4, in the wake of his rejection by the scientific community, from b.283 (**11:37**, {j after 00:26}) until the end of the scene, it underscores his further humiliations at the hands of Melanie and Guy. It is next heard at b.443 in Scene 5 (**15:20**, {l after 00:42}), when one of his students finds a fossil: Glyn immediately realises the potential of this event to rob him of his one chance of glory, and we hear the sound of his dreams crumbling in that moment, a sound that persists, though buried in the texture, until the end of the scene. Finally, in Scene 8, we hear the ‘death rumble’ (b.656, from **21:54** {o}), as the angels tell him of the futility of his life, which only fades when it is displaced by the sound of tapping on rocks and the resumption of his heartbeat on the monitor.

The sound of tapping on rocks also recurs, like the ‘creaking rocks’ sound, at significant moments in the piece, and acts as a counterbalance to it. This sound connotes hope and perseverance, exemplified in the metaphorical Welsh proverb ‘Dyfal donc a dyr y garreg’ (‘persistent tapping will break the stone’). It is first heard at the opening of scene 4 (b.253, **09:26**, {i}): we see and hear the scientists deriding Glyn’s theory, and also hear, in the tapping, the sound of the patient field work that led to construction of that theory. This sound dissolves into music as the narrative refocuses on Melanie and Guy; the creaking rocks sound fades in from b.283 (**11:37**, {j}). In scene 5, the tapping (b.413ff., from **14:55**, {l after 00:20}) draws energy and urgency from its proximity to the site of Glyn’s original breakthrough and the events on the beach. Finally, in scene 8, the tapping resumes as a resistance to the angels’ condemnatory words (b.663, **22:17**, {o after 00:18}), and underscores the voices of the students. Here, it replaces the sounds of hopelessness, and tells both of Glyn’s obduracy and persistence, and the

support of his students, as they bring more fossils to his bedside. Taken together, the two sounds serve as powerful indices of the competing emotions of hope and disappointment in the piece.

Sound is also an index of time in *The Trilobite*, helping to navigate through a potentially confusing mosaic of narrative fragments. The playing time of *The Trilobite* is around 23 minutes, spanning 11 seconds of Glyn's life as he falls from the top of the cliff to the beach below, and counted down as the opera progresses. This countdown was originally conceived as part of the live performance; however, at *Tête à Tête* in 2020, it was shared between the singers as onscreen sound, offscreen sound and live performance. Melanie and Guy's story runs backwards, paralleling this countdown: they are first encountered announcing their forthcoming marriage to Glyn, then at a point in their relationship when Melanie confirms her commitment to Guy, and finally at the moment when Guy and Glyn first meet. The reverse direction of time here follows Glyn's journey further back into his own memories, as well as connecting the physical moment of impact and the world-shattering trauma of Guy's arrival in Glyn (and Melanie)'s life. This references again the link, previously discussed, between the physical and emotional sensations of falling established in scene 1. Moreover, different sounds in *The Trilobite* indicate the intersection and juxtaposition of different timescales: the rushing wind (from sc.1 b.3, **00:03**, {a}) is associated with the falling time of 11 seconds from the top of the cliff to the beach; the gentler airy sounds (from b.55, **00:42**, {b}) represent the timelessness of the angels' world; the creaking rocks (b.107ff., **02:36**, {c after 01:05}) connote geological timescales; the tapping on rocks (Scene 4 b.253ff., **09:26** {i}) convey a lifetime's work for Glyn; and the pulse in Scene 8 (b.646ff., **21:17**, {n from 00:50}) is a reminder of Glyn's own heart, beating at a steady 72 beats per minute.

### *Sound as inner voice*

In *The Trilobite*, it is arguable whether any of the action portrayed on stage and/or screen, or played back in the audio space, represents a true account of events in Glyn Williams's life. I understand them as fragmentary memories, hallucinations or imaginings, edited and coloured by Glyn's own subjective point of view. Glyn sees and hears the faces and voices of his tormentors, supplemented by a number of related sonic images, and this applies as much to a (as yet unrealised) fully 'live' production as one as strongly mediated as the 2020 production was by video projection. The sound fills in the gaps behind what is seen, supplementing or (in Nicholas Cook's terms)

complementing it. Until the last scene, this seems to be a piece telling the story of a man's fall from a cliff, but Glyn's fall to the ground during his talk in Scene 8, and the shift to a hospital location at the end, suggests that in fact what the audience experiences up to that point is Glyn's memory of the fall and the events that led up to it. These events play out in Glyn Williams's mind in the moments before his heart stops beating, and may even be the triggering factor.

Therefore, although many of the sounds in *The Trilobite* may seem diegetic, on closer inspection, as an evocation of the memories and imaginative mental sound images that circulate in Glyn Williams's brain, they seem better described as meta-diegetic sounds. This makes sense of the lecture that Glyn is perpetually rehearsing (and which, frustratingly for him, is constantly interrupted) as a fantasy which repeatedly surfaces in his consciousness. The implication of this is that even the live action on stage is a projection of Glyn's mind. The angels and the courtroom officials are hallucinations; Melanie, Guy and the senior leadership team are remembered as a number of unfortunate encounters and exchanges; and the mocking scientists are imaginary. The surgeons, silent, are glimpsed only dimly on the edge of consciousness, but they at least are 'real', as are the helicopter, the ambulance, the heart monitor, and the students by his bedside. That is why the opera ends at this point, as he floats back up into consciousness: the music, all along a writhing, tormented index of Glyn's inner turmoil, has stopped.

## 6. Conclusion

'I assume the environment as the negotiation one makes between the outer space and the self: thoughts, sensations, and feelings.'  
(Alarcón 2016, p.113)

Beyond the restrictions of Covid, which mainly influenced the presence, absence and mediatisation of hitherto live elements, the experience of bringing *The Trilobite* to the stage painfully exposed the limitations, and the risks, of working in such a micro-scale manner. Unlike the previous two operas, *The Trilobite* received funding both from Arts Council England and Goldsmiths, but uncertainty around funding meant it was produced using essentially the same approach, with minimal technical support and no design budget. Sound production values were decidedly sub-optimal, and the whole enterprise almost failed completely at the technical rehearsal: my ageing laptop was unable to stream the video and sound through the theatre system synchronously, which meant all the video cues had to be transferred to the theatre's computer, a task completed only moments before curtain-up. As a result, I had to cue the show from the gallery by telling the lighting/sound operator via microphone when to trigger the next cue. Therefore, when the three operas go on tour to be performed as a triptych, the company will have a technical manager and a designer on board.

Despite these challenges, the production process showed the essential soundness of the concept. With *The Trilobite, Or The Fall of Mr Williams*, I attained a measure of fluency and skill in the use of sound design as an integral part of opera composition, giving this piece the status of a milestone in my own compositional development and practical use of music and sound technology. It is by no means an end-point, but a platform on which to build future creative practice, supported by models and theoretical ideas adapted from opera, theatre and film, and developed for the contemporary operatic stage. Reviews for the show were very positive, with any criticism levelled at the production values of the piece; the reception of *Her face was of flowers* and *Vicky and Albert* had also been positive, affirming the ability of my approach to be meaningful and engaging for a variety of audiences. Please see Appendix A for links to performances, production photographs and reviews of all three operas.

The experience affirmed the value of the five modalities of sound that I enumerate and describe in Chapter 2.3 ('Implications for this project: modalities of sound') as the basis for constructing sound design for opera. These five modalities run through all three of my operas, and are derived primarily from sound practice in film and theatre, where sound design is now an essential part of contemporary practice. In opera, in contrast, sound design still occupies the periphery of most composers' attention, if it is present at

all. Save for a few notable exceptions, some of which have already been mentioned, sound occupies interstitial spaces in the score, or serves as a soundscape, in contemporary opera: a highly suggestive, but not integrated, scenography underlying the events on stage. My project, in contrast, brings sound design to the heart of the compositional process from the beginning. It provides a model for other composers wishing to develop work in this field, and a stepping-off point for scholars wishing to study both the theory and practice of sound design as a creative element of opera composition. By integration I mean bringing sound design into a dynamic relationship with other elements of the composition, rather than, say, simply allowing the sound to be absorbed into the musical texture, or to co-exist as a relatively passive element in parallel with the music and dramatic action.

The following table (Table 1) makes this model explicit, both as a description of my own working practice and as a template for future work. It highlights the central role of sound as an essential part of creating this kind of opera almost from the very beginning, giving it a dominant position. Moreover, it affirms the composer as dramatist as well as musician and sound designer, and decouples scenario from text, a connection deemed to be inevitable all too often by writers and composers alike. Instead, it places the creation and setting of text, as well as music composition and sound processing, in a much later part of the process. The project thus moves from large-scale concerns, such as the overall arc of the narrative and the sequencing of scenes (steps 1 and 2), to the smaller scale, finally addressing moment-to-moment details within the piece such as the pitches and rhythms to played and sung, the placing of sound cues, and the words to be spoken or sung at any given moment (step 5). Please see Table 2 below (next page). This working method enables a fluid negotiation between text, music and sound at the composing stage, and a dynamic interaction between them in the final work.

Another aspect of the distinctiveness of this method of composing is the experiential nature of the process for the composer. My operas are set in environments that I have frequently occupied myself, and therefore are familiar to me: outdoors in the natural landscapes of Dartmoor, Exmoor and the coast; at home in the domestic environment; at work in the structured din of school; amid the urban noise of London; and on journeys between all these places. Being present in these environments, and moreover travelling through these environments as an avatar of the characters in my operas, has been inspirational. It has informed and consolidated the dramaturgy, for sure, and that can be viewed as feeding the imagination of the writer/librettist rather than the

**Table 2: Sound design for the opera composer: a scheme of work**

Steps	Her face was of flowers	Vicky and Albert	The Trilobite
1. Set subject matter/ scenario.	Story from the Mabinogion.	Young woman falls in love with app.	Geography teacher falls off Exmoor cliff and has near death experience.
2. Plot out the sequence of scenes.	<ol style="list-style-type: none"> <li>1. I remember</li> <li>2. Lleu's farm</li> <li>3. Gronw's entrance.</li> <li>4. Lleu's drunkenness.</li> <li>5. The three meet in the glade.</li> <li>6. The spear.</li> <li>7. The aftermath.</li> </ol>	<ol style="list-style-type: none"> <li>1. Vicky.</li> <li>2. The evening and the morning after.</li> <li>3. Vicky's letter.</li> <li>4. Albert tries to make amends and fails.</li> <li>5. Unsubscribe.</li> </ol>	<ol style="list-style-type: none"> <li>1. Falling, angels, Melanie and Guy.</li> <li>2. The spirituality of rocks.</li> <li>3. Field trip refusal.</li> <li>4. Mockery of scientists and Melanie/Guy again.</li> <li>5. The field trip.</li> <li>6. The trial and the sentencing.</li> <li>7. Melanie and Guy: first meeting.</li> <li>8. Lecture, death, resurrection.</li> </ol>
3. Identify sound environments in which each scene or section of the piece take place.	<ol style="list-style-type: none"> <li>1. Owls, moorland, wind, birdsong, bees, rain.</li> <li>2. Farmyard animals.</li> <li>3. Trees, doors both closed and open.</li> <li>4. Cattle and lions.</li> <li>5. Bird alarms.</li> <li>6. Axes, bells, anvils.</li> <li>7. Owls, pigs, sea, wind.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tube, bus and Vicky's phone. Albert.</li> <li>2. Pub, restaurant, club. Fridge, kettle, Albert.</li> <li>3. Albert.</li> <li>4. Doorbell, deliveries, Albert.</li> <li>5. Voice of the app. The Tube again.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rushing wind.</li> <li>2. Waves.</li> <li>3. School bell and hubbub.</li> <li>4. Tapping on rocks.</li> <li>5. Student voices, the minibus, the beach. Tapping on rocks.</li> <li>6. Walking to clifftop. Wind, student voices, rushing wind again.</li> <li>7. Silence.</li> <li>8. Helicopter, ambulance, heartbeat monitor. Student voices.</li> </ol>
4. Make field recordings/find recordings.	<ol style="list-style-type: none"> <li>1. Moor, garden, owls.</li> <li>2. Farm cows, poultry.</li> <li>3. Trees around Holne house and in the house itself.</li> <li>4. Distorted cows.</li> <li>5. (Instrumental)</li> <li>6. Chopping wood; Holne church; Richard Hoecker, swordsmith.</li> <li>7. Online (owls, pigs). Maidencombe beach/Holne trees.</li> </ol>	<ol style="list-style-type: none"> <li>1. London Bridge Jubilee Line. Peckham bus. Phone/laptop.</li> <li>2. West Hampstead pub. Kitchen sounds. Phone/laptop.</li> <li>3. Phone/laptop.</li> <li>4. Sounds around my home in Ashburton. Phone/laptop.</li> <li>5. London Bridge Jubilee Line. Phone/laptop.</li> </ol>	<ol style="list-style-type: none"> <li>1. Online sources and Dartmoor.</li> <li>2. Maidencombe beach.</li> <li>3. Teignmouth Community School.</li> <li>4. Tapping on rocks near Coldeast Cross, Dartmoor.</li> <li>5. Actors, car, Maidencombe beach. Tapping on rocks near Coldeast Cross, Dartmoor.</li> <li>6. Walking to the top of Little Hangman. Wind at Little Hangman. Actors. Online sources.</li> <li>7. Silence.</li> <li>8. Helicopter from Bangor pier. Online ambulance sound. Online heartbeat monitor sound. Actors.</li> </ol>
5. Compose music/edit/process sound simultaneously: lay out sound in DAW linked to notation software. Set/write text. Use five modalities of sound to connect sound design to music/dramaturgy/narrative.	<ol style="list-style-type: none"> <li>1. Blodeuwedd's recitative/aria I.</li> <li>2. Lleu's entrance and aria I.</li> <li>3. Gronw and Blodeuwedd duet.</li> <li>4. Lleu aria II.</li> <li>5. Trio: confrontation.</li> <li>6. Trio: the spear.</li> <li>7. Trio: the aftermath. Blodeuwedd aria II.</li> </ol>	<ol style="list-style-type: none"> <li>1. Vicky arrives home. Arioso/aria/duet.</li> <li>2. Evening; the morning after. Duets: argument, love sonnets.</li> <li>3. Duet: Vicky's letter.</li> <li>4. Duet: Albert's attempt.</li> <li>5. Vicky goes to work. Solo: app.</li> </ol>	<ol style="list-style-type: none"> <li>1. Trio: Mr Williams and the angels/Melanie/Guy.</li> <li>2. Trio: the spirituality of rocks.</li> <li>3. Trio: field trip refusal.</li> <li>4. Trio: Mockery of scientists and Melanie/Guy again.</li> <li>5. Field trip: arioso duet (angels); arioso (Glyn); trio (Glyn/angels).</li> <li>6. Trio: court scene/clifftop.</li> <li>7. Spoken: the first meeting.</li> <li>8. Glyn's lecture aria. Duet: angels' condemnation; Glyn brought back to life by students' voices.</li> </ol>

composer. However, in opera, as my working method makes clear, the dramaturgy should be the responsibility of both writer and composer/sound designer, and that immersion in the environment also creates a wealth of opportunities for music creation which my operas have demonstrated. The value of being embedded in the opera's sound environment, and of re-living, re-constructing and re-imagining that environment through the field recordings throughout the process of making the opera, should hold true whether the work is created collaboratively or by one person.

This project demonstrates that sound design can contribute to opera much more deeply than it does in spoken word film or theatre, because it can be welded much more strongly to the rhythm and emotional undertow of music and song than with the spoken word. When Dario Marianelli accompanies the onscreen choir with orchestra on the beach at Dunkirk in *Atonement* (2007), he and director Joe Wright create a mythic, almost operatic, poem out of the celebrations and sufferings of those who were there at that pivotal moment of the Second World War, but it seems forced, a kind of spectacle within the braggadocio of a huge, sweeping five-minute shot. Likewise the typewriter sequence at the opening is clever, arresting even, but soon dissipates into the run of the costume drama. In theatre too, creative sound design is an escalation from a traditional, quasi-realistic assemblage of sound effects into a world at once more intense and expressionistic, used to great effect by Ross Brown in *I am Yours*. But opera has already that intensity: hysteria and extreme emotion are its norms. It breaks out in song from the outset; it cannot be prosaic. And the musicalisation of theatre described by Lehmann and by Rebstock and Roesner is merely the tentative retracing of steps taken long ago by composers in opera.

Sergi Casanelles' view of composition as a subset of sound design (in Greene and Kuzelic-Wilson 2016, p.61) suggests that in a sense, composers have been sound designers for centuries, particularly when they have evoked their environment by suggestion or mimesis in their work, heard through the interpretative filter of their compositional practice and the sonorities of acoustic instruments. The difference with sound is that it is so immediate, and so suggestive, arising from the iconic rather than the indexical nature of the sound design's semiosis. Britten beautifully evokes the sea through his orchestral palette in *Peter Grimes*; sound design can call forth the waves, the wind and the cries of seabirds directly, and integrate them with instrumental and vocal sonorities - an additional, and powerful, resource for composition.

This project has certainly transformed the way I create opera, through the introduction of sound practice into my compositional work and the development of an integrated model. This is exemplified in the three operas composed as part of this project. In addition it has led to the creation of a new community interest company, Sonopera CIC <https://www.sonopera.com>, which has emerged gradually since 2018 as a vehicle for working with sound and music both in professional contexts through opera productions, and in education and community settings through creative projects. *Dart/Change*, a project in two schools in Totnes, Devon which followed the course of the river Dart as a metaphor for change through sound, music and poetry, culminated in a performance at Totnes Party in the Town (produced by Dartington Arts) in 2018. *Dartmoor Soundscapes 2020* aimed to explore Dartmoor soundscapes and memories through sound and music with two Devon secondary schools bordering Dartmoor; the pandemic forced the project online, resulting in the production of a video that brought together sound and music co-created with the participants alongside images of Dartmoor. Further information, and links to media, may be found in Appendix B.

The three operas themselves reveal a number of recurring themes, which invite future exploration in new work. All three focus their narrative on an individual at the centre of an environment over which they have limited control. They are not optimistic works, but neither are they tragedies - none leads to the death of the protagonist, although *The Trilobite* comes close. Rather, they are stories of survival, of a particular episode in a particular life that began before the opera started, and will continue after it. More than anything else, they are memories of that episode. Blodeuwedd tells her story in flashback - 'I remember', and Vicky's takes place in the space between two journeys on the Tube, while Glyn's story, though ostensibly set in the space between the top of England's highest cliff and its bottom, also plays out as a hallucination, or a dream, as Glyn waits on the threshold between life and death. In short, they are stories born of that most fragile and contingent of places, the human mind, and tell of the intensity, and subjectivity, of human experience. This is not a new province for opera; rather, sound has given the composer a new means by which to express it.

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*Wuthering Heights* (2011) Directed by Andrea Arnold. [Feature film]. London: Film4.

## 8. Appendices

### Appendix A: links to performances, production photographs and reviews

*NB Timecode references in the commentaries (above) apply to the video recordings supplied as individual files with this submission. Timecode of online videos may not correspond.*

#### ***Her face was of flowers* production information, performance video and photographs for performance on Thursday 8 August 2019**

Tête à Tête (2021) *Her face was of flowers*. Available at:

<https://www.tete-a-tete.org.uk/event/her-face-was-of-flowers/> (Accessed: 9 August 2021).

#### ***Her face was of flowers* review**

Reed, P. (2019) *Tête à Tête Opera Festival 2019 – Her Face was of Flowers by Elfyn Jones*. Available at: <https://www.classicalsource.com/concert/tte-a-tte-opera-festival-2019-her-face-was-of-flowers-by-elfyn-jones/> (Accessed: 9 August 2021).

#### ***Vicky and Albert* production information and production photographs for performance on Wednesday 8 August 2018**

Tête à Tête (2021) *Vicky and Albert*. Available at: <https://www.tete-a-tete.org.uk/event/vicky-and-albert/> (Accessed: 9 August 2021).

#### ***Vicky and Albert* performance video**

Tête à Tête (2018) *Vicky and Albert*. Available at: <https://vimeo.com/284703078> (Accessed: 9 August 2021).

#### ***Vicky and Albert* reviews**

Valori, C. (2018) *Breaking app with the boyfriend: Vicky and Albert, Tête à Tête*. Available at: <https://operissima.org/2018/08/09/breaking-app-with-the-boyfriend-vicky-and-albert-tete-a-tete/> (Accessed: 9 August 2021).

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#### ***The Trilobite, Or The Fall of Mr Williams* production information, performance video and photographs for performance on Thursday 17 September 2020**

Tête à Tête (2021) *The Trilobite, Or The Fall Of Mr Williams*. Available at: <https://www.tete-a-tete.org.uk/event/the-trilobite-or-the-fall-of-mr-williams/> (Accessed: 9 August 2021).

#### ***The Trilobite, Or The Fall of Mr Williams* reviews**

Plummer, D. (2020) *The Trilobite*. Available at: <https://thespyinthestalls.com/2020/09/the-trilobite/> <https://www.schmopera.com/tete-a-tete-at-home-a-sampling/> (Accessed: 9 August 2021).

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## **Appendix B: links to performances of creative music and sound projects**

### ***Dart/Change* composition and poetry project 2018**

Jones (2018) *DartChange Live Performance Totnes Civic Hall 9 June 2018*. Available at: <https://soundcloud.com/elfyn-jones/dartchange-performance-recording-edited> (Accessed: 9 August 2021).

### ***Dartmoor Soundscapes 2020* composition project**

Sonopera (2020) *Dartmoor Soundscapes final video*. 26 November. Available at: <https://youtu.be/vGlakYK6zO8> (Accessed: 9 August 2021).

### **Sonopera@CIC ongoing productions and projects**

Sonopera [www.sonopera.com](http://www.sonopera.com). Available at: <https://www.sonopera.com> (Accessed: 30 January 2022).