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Round the World in Sixty Minutes: approaches to the evocation of space, place and location in recent multichannel works

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■ **ABSTRACT**
This article discusses some of the preoccupations of my recent acousmatic music: the evocation of place, the potential for the recognition of sources (even down to their specific locations, in some cases) and the associated concern with 'space', in terms of both geography and musical thinking. It is prompted by the release of my latest CD, *Voyages* (HARRISON, 2016). But this album did not emerge from nothing; it is the product of over 40 years of working in the studio (and performing with loudspeakers). It may therefore be useful to offer some historical perspective.

■ **KEYWORDS**
Acousmatic music, space in electroacoustic music, evocation of place, recognition of sources, multichannel sound systems.

■ **RESUMO**
Este artigo aborda algumas das preocupações da minha música acusmática recente: a evocação de lugar, o potencial para o reconhecimento das fontes (até mesmo em relação aos seus locais específicos, em alguns casos) e a preocupação associada com o 'espaço', tanto em termos da geografia quanto do pensamento musical. É motivado pelo lançamento do meu último CD, *Voyages* (HARRISON, 2016). Mas este álbum não surgiu do nada; é o produto de mais de 40 anos de trabalho no estúdio (e de performances com altofalantes). O artigo pode, portanto, ser útil para oferecer alguma perspectiva histórica.

■ **PALAVRAS-CHAVE**
Música acusmática, espaço na música eletroacústica, evocação de lugar, reconhecimento de fontes, sistemas sonoros multicanal.

Some personal history

I have always had a preference for 'real' sound sources in my acousmatic music, ever since my first attempts to compose in the studio as a postgraduate student at the University of York, UK in 1974. Those earliest efforts are probably best forgotten but, from the very start, I was drawn less to synthesis and more to exploring the qualities of real sounds: the variability, inconsistency and unpredictability of the interior grain; the tendency towards a richer frequency spectrum; and – possibly above all – the sense of 'truth' they possess in their unfolding in time and in the physicality of their gestural shaping. This preference may owe something to my previous musical experience as a pianist and horn player: instrumental performance involves causality and energy. So the ability to understand a sound event in terms of its *plausible* existence in the real world remains a crucial subconscious element in my assessment of sounding materials for inclusion in my music.

This is not to say that sound synthesis has no role at all in my work – analogue synthesiser sounds, made on the EMS Synthi-100 in the studio of the University of East Anglia, dominate my earliest acknowledged acousmatic piece, *Pair/Impair* (1978) (HARRISON, 1995), though they were significantly transformed by standard *musique concrète* techniques involving tape splicing, mixing and analogue tape recorders; and *Klang* (1982) (HARRISON, 1996; 2000a), commissioned by Magyar Rádió/MAFILM, contains both analogue and digitally synthesized material alongside significantly more 'everyday' sounds which I shall discuss presently. In addition, my mixed works from the late 70s and early 80s often employ analogue and digital

synthesis to varying degrees.

Pair/*Impair* and *Klang* – and my involvement with acousmatic music altogether – owe a great deal to Denis Smalley, whom I first met when he arrived at the University of York as a doctoral student in around 1972. He introduced me to *musique concrète* and the aesthetic approach of the Groupe de Recherches Musicales (and even allowed me to sit in the studio and watch him work, thereby providing all the instruction in studio technique I ever received!). He left York in the mid-70s to take up a Composition Fellowship and then a Lectureship at the University of East Anglia in Norwich, and invited me to work in the studio there during the summer vacation of 1978. By then, I was living in London, working occasionally on productions at the National Theatre, where my job was to produce tape materials to link and integrate simple sound effects with the music composed by Harrison Birtwistle and Dominic Muldowney.

The PRS Prize for Electroacoustic Composition, which I won with *À Vent* (1979) for oboe and tape, commissioned by Robin Canter, offered a second chance to work in the studio at UEA, in 1981 – and, as Denis was away, he said I could stay in his apartment. I discovered two beautifully resonant casserole dishes in his kitchen cupboard, which I recorded in the studio. I did not use these recordings immediately but stored them away in my library, later adding some related materials. An invitation to work in the experimental studio of Hungarian Radio in 1982, following winning first prize in the Mixed category of the 1981 Bourges International Composition Competition with *EQ* (1981) (HARRISON, 1996; 2000b) for soprano saxophone and tape, commissioned by John Harle, prompted a re-examination of these materials, and Denis's New Zealand pottery dishes can be heard, almost unaltered, at the beginning and end of *Klang*.

I say 'almost unaltered' because the sounds are, in fact, significantly manipulated in terms of timing, placement and phrasing, with only subtle processing. So, whilst the opening of *Klang* may *sound* like an improvisation on the casserole dishes (I was once invited by a radio station to come along to perform the piece live on air), it is actually a construct, a fake 'improvisation'. This ambiguity of what is 'real' (or *really* real!) and what only *seems* to be real is, along with its ability also to embrace 'everyday' sounds from our ('non-musical') environments, a unique quality of the acousmatic medium.

Abstract and/or real world

The ability to reference the 'real world' in a more direct and obvious way than was available to composers before the advent of sound recording and storage is well documented and does not need expansion here. In terms of my own development as a composer, though, it is worth emphasising that, whilst the majority of the sound materials in my earlier works were indeed 'real' (i.e. physically existing sound sources, captured with microphones and stored on magnetic tape), the works in which they are used make little or no reference to their 'real world' context or signification. The fact that *Klang* features the sound of casserole dishes has no bearing on the work itself; the listener does not need to know what the sources are and there is no sense in which the provenance of the sounds plays any meaningful role in the *musical* unfolding of the work. In other words, *Klang* is not 'about' casserole dishes;

there is no programmatic extra-musical narrative at work. The piece engages in a purely musical discourse, growing entirely from the sonic qualities of the source materials themselves.

This stance echoes Pierre Schaeffer's notion of *ecoute réduite* (reduced listening), in which what is important is the sound itself, not the thing that made the sound, nor the manner of its making, nor the context in which that sound production may normally be found, nor any social, human or environmental implications that such sound production may imply. The sound is to be understood as something detached from, abstracted from the real world.

My early acousmatic works, then, are fairly classically Schaefferian *musique concrète*. The 'real worldness' of their materials is not important; only their abstract(ed) (EMMERSON, 1986) sounding qualities have any signification in the resulting pieces, and recognizing the sources of the sound will not enlighten the listener or lead to a deeper understanding of the music. As well as *Pair*/*Impair* and *Klang*, I would include *Aria* (1988) (HARRISON, 1995), commissioned by the Groupe de Musique Expérimentale de Bourges, and …*et ainsi de suite*… (1992) (HARRISON, 1995; 2004) in this broad category of relatively abstract works – and possibly some later pieces, to which I shall return. But I must first address a difficult topic in order to articulate an additional strand of my compositional journey.

Technology

Discussion of the technological bases of acousmatic music is problematic, and many people (myself included) have expressed dismay at technology-driven approaches to composition, preferring instead to engage with acousmatic music primarily at the musical and expressive levels. Nevertheless, technological changes in any field inevitably cause changes in working practice as well as opening up new possibilities, so it is impossible to discuss acousmatic music, without some reference to its underpinning technology at any given moment. But I want to focus here on only one significant technological development, as it mirrors (or, perhaps, explains) a shift of focus in my own compositional concerns: the emergence of affordable portable recording devices.

The source sounds for my earlier acousmatic pieces were all recorded *in the studio*. The reason for this is straightforward: portable tape recorders were either extremely poor quality or extremely expensive, so I had to bring my sound materials to the studio in order to record them on a high quality, but fixed, mains-powered tape recorder. Inevitably, my focus was on smaller (portable) sound-producing objects and, in order to combat the other great enemies, noise and tape hiss, sounds were recorded in small, fairly 'dead' rooms, with microphones placed as close as possible to the sound source. This offers several benefits in relation to some of the issues I mentioned earlier: one is only recording the sound itself; there is little or no acoustic context (and hopefully no competing sound), so the sound is already to some extent abstracted from the real world; close miking may reveal interior detail unavailable to the normally positioned ear… and (important for me from the very start) close miking with two microphones (I hardly ever record in mono) amplifies even the tiniest hint of spatial information in the source sound.

The gradual emergence of reasonably priced digital recorders during the

latter half of the 80s began to open up other possibilities. At Birmingham, we bought Betamax-based digital recorders and, shortly afterwards, some DAT machines – including a portable recorder.

A new direction?

In 1992, Birmingham hosted a year-long arts festival as the UK City of Culture. Birmingham City Council had taken the brave step of appointing a Head of Arts, Anthony Sargent, who approached me as Director of BEAST (Birmingham ElectroAcoustic Sound Theatre – both the concert sound system and also the group of composers associated with it and the University of Birmingham Electroacoustic Music Studios) to ask for a short work to herald the event at the opening concert on New Year's Eve 1991.

Five composers were involved in the project: a sound portrait of Birmingham as a vibrant, active, exciting city. Large areas of the city centre were under reconstruction at the time, offering interesting sound materials: drilling, hammering, cement mixers, the characteristic squeal of buses' brakes, the idling of taxi engines and local people speaking. Just a few years earlier, it would have been almost impossible to contemplate making field recordings in this environment – the technology was simply beyond our means. But the portable DAT machine made it feasible. I also made recordings on 'steam day' in the Science Museum, gathering historical sounds from steam engines, various belt-driven machines and a Van der Graaf generator, and visited both a local automotive parts manufacturer and a gun factory to record further material. Some of the composition team worked during the day, others overnight, processing and developing the sounds in our own individual ways, and then leaving our material for the next member of the team to elaborate. The final piece, *PulseRates* (1991), commissioned by Birmingham City Council, is credited to Jonty Harrison, Andrew Lewis and Dan Rodger, with additional material by Alistair MacDonald and Robert Dow.

It was the experience of working on *PulseRates* that gave me an appetite for recording and exploiting real world sound materials that could carry some of their real world meaning and signification into my music. The incorporation of this material gives rise to all kinds of expressive possibilities, through evoking recognition, personal memory and recollection (for example, of other times and other places) and through the resulting ambiguity of meaning – and these have been compositional concerns of mine for the past 25 years. On a more mundane level, working on *PulseRates* also made me realise that I needed my own portable field recording equipment.

Since the early 1990s, I have owned a variety of microphones and portable recording devices (DAT, minidisc, hard disk and solid state) ranging in quality from consumer products to fully professional gear, and this equipment has accompanied me on virtually all my travels. I became obsessed with being able to capture 'found' sound materials – not only because of their intrinsic interest as sonic phenomena (Schaeffer's *objets sonores*, if you like, but not recorded in the neutral environment of the studio) but also as signifiers of location, representing in some way the context in which I found them.

My existing preference for 'real', physically existing sounds, recorded with microphones, and then be transformed, manipulated, mixed and structured in the studio, was now expanded by a willingness to include *recognisable* sounds from the wider environment. If my earlier music was in the tradition of *musique concrète*, in which recognition by the listener of the actual (physical) source of the sound is irrelevant to the role it may play in a piece and to the listener's understanding of the work, I was now entering a compositional space where greater ambiguity was possible. The inclusion of field recordings as sources for my works, which started with *PulseRates* and that portable DAT recorder, marked an undeniable shift of emphasis in my music and an expansion of what I might be able to 'address' in and through composition.

'Middle period' works?

Strange as it may seem, the importance of this shift of emphasis did not immediately occur to me; I assumed that the use of field recordings in *PulseRates* was a 'one-off', and I was much more focused on pursuing the other new technical means used in the making of the work (samplers and computer editing) than in developing what amounted to a new aesthetic approach. It was not until 1995 that I realised that something significant had happened to me as a composer, when another 'group commission', this time for *Web*, commissioned by the BBC and Birmingham City Council, led to several BEAST members composing individual works to be performed at the Bond Gallery in Birmingham. My contribution to this project was *Sorties* (1995) (HARRISON, 2000a), and this was quickly followed by *Hot Air* (1995) (HARRISON, 1995), commissioned by INA-GRM, and *Unsound Objects* (1995) (HARRISON, 1995; 1997), commissioned by the ICMA for the 1995 ICMC in Banff, Canada. I mention the speed of composition (all three works were composed during a sabbatical in early 1995) because these pieces share significant amounts of both material and processing chains. Because of this, and although the works are all quite different in character, these audible correspondences and 'reminiscences' of each other suggest that, at a subliminal level at least, they are all part of the same 'cycle' of pieces.

The original agreement among the composers involved in *Web* was that each work should be short, as they were to be looped and played concurrently in different parts of the Bond Gallery. Because of the link with the City Council as one of the co-commissioners, I dipped once again into the pool of 'Birmingham' material we had gathered for *PulseRates*, supplemented by the recordings I had made since buying my own portable DAT machine. *Sorties* starts with sounds strongly reminiscent of parts of *PulseRates*, but develops rapidly into new areas and I soon realised that I was going to exceed the agreed 5-minute time limit. The main reason for this was that the actual process of composition flowed very easily – something that had not always been my experience. By this time I was far more comfortable with the digital tools I was using and the working environment offered by Pro Tools – *PulseRates* (despite using DAT machines, Akai S1000 samples triggered by C-Lab Notator and the Playlist function of Sound Tools) still relied on analogue mixing. But the *musical* ideas also took on a life of their own, leading me into areas I had always previously thought of as musically 'off-limits'. I found myself engaged in the creation of

plausible (if somewhat bizarre) 'scenes' that just might have a feasible existence in some sort of slightly deranged 'reality'.

For me, these three 1995 works are characterised by this sense of 'flirtation' with reality. Recognisable sounds rub shoulders with sounds whose origin is much less clear or which have been subjected to high levels of processing; ambiguity of meaning is compounded by harnessing the potential for recognition by listeners. Sounds that are spectromorphically linked with sonic elements within a plausible scene, but which have no real world connection with that scene, are introduced to offer a 'way out' of the scene, linking it to the next, unconnected sonic environment. Above all, believability – what I referred to earlier as 'plausibility' – in the aural domain is utilised to construct scenes that, whilst having an affinity with reality, in fact never existed (and could never exist) in the form in which they are presented in the work.

The way these three works move in and out of a kind of 'reality focus' and repeatedly rely on recognition on the part of the listener of the sound sources' real world origins and context (related to what Smalley (1997) calls source-bonding) implies a critique of Schaeffer and reduced listening, whilst simultaneously functioning at the level of spectromorphological connection (Smalley's spectromorphology being to some extent an expansion of Schaeffer's 'typologie'[1]). My position in relation to Schaeffer could thus be said to be, at the very least, ambiguous (possibly even Oedipal). This implied critique is underlined by the title of the last of the three 1995 works: *Unsound Objects* – simultaneously a pun on the normal English translation ('sound object') of Schaeffer's *objet sonore* and a hint that either critiquing the father of *musique concrète* and/or entering the realm of composing with listeners' memories and their variable levels of recognition is extremely dangerous (unsound) territory indeed!

There is one last point I should like to make about this 'informal cycle' from 1995. Whilst *Sorties* and *Unsound Objects* both point to real world environments, the 'places' evoked are fairly unspecific; no particular geographical location is implied and the source sounds were recorded in a number of different countries. *Hot Air*, on the other hand, is much more geographically focused, with many of the source sounds having been recorded in Italy (cicadas, night insects, church bells, ferry, pizza oven, thunderstorm and an associated brief conversation – friend's daughter: 'What are you doing?'; me: 'Recording the thunder!'; friend's daughter's friend, associating microphones with singers: 'Per cantare?'). Even so, recognising the precise location is not a pre-requisite for understanding the piece (though I would hope that some sense of a benign Mediterranean climate comes across – in the title, if nothing else). Many of the other sources, however (the Birmingham Science Museum's Van der Graaf generator; trains, planes and children in rural Oxfordshire; the rattling windows in our house in Birmingham; geese in a nearby park; non-smoking announcements on a flight to Amsterdam), have no geographical link with Italy, only a potential *sonic* one!

[1] Smalley (1986).

Moving on

My next work, *Surface Tension* (1996) (HARRISON, 2000a), commissioned by the Institut International de Musique Electroacoustique de Bourges (formerly GMEB), appears to return to a more Schaefferian world of abstraction. Nevertheless, the work features two moments of real world sound – in this case, rain. I could justify its inclusion by pointing out the noise-like spectral content of this sound; it is certainly prefigured in some of the more articulated material in the piece, which is all made from rubbish: Styrofoam and plastic packing materials from a new, so-called 'eco-friendly' refrigerator. But here is the other rationale for introducing the rainfall's two brief appearances (from 7'53 to 8'15 and from 12'29 to the end of the work at 13'00) – an underlay of environmental concern.

In my next piece, *Splintering* (1997) (HARRISON, 2000a), commissioned by INA/GRM (Institut National de l'Audiovisuel/Groupe de Recherches Musicales), the balance between abstract and more concrete, real world reference is somewhat restored. The work is largely an exploration and elaboration of sounds coaxed from a fallen tree trunk, recorded in the open air on a suburban golf course. Of additional interest here is a new layer of reference – to the parallel 'real world' of existing music. Taking the notion of 'wood' in several meanings in English (the material, but also 'a wood' meaning a small forest, for example), I decided to draw on my musical background by quoting from three works from the non-electroacoustic repertoire, all of which contain references to woods or forests, and most of which evoke more or less directly the dark forest of the subconscious: Schoenberg's *Erwartung*, the 'Forest Murmurs' section of Wagner's *Siegfried* and Debussy's *Pelléas et Mélisande*.

Some thoughts on 'space'

I must now make another sideways leap to a third strand in my compositional development and concerns: space (or spatiality) in music – the implicit and explicit manipulation of spatial information in acousmatic music, in both composition and performance. The reason I introduce this issue at this stage is simply because, apart from some short 'homage' pieces to mark the retirements and/or significant birthdays of fellow composers, I have not composed in stereo since *Splintering*.

Once again, technology (the availability in the 90s of low-cost 8-channel recorders like the ADAT machine and the emergence of 8-channel computer sound cards) partially influenced my decision to embark on multichannel composition. But my major motivation was musical, not technological.

From its beginnings in 1982, BEAST was predominantly concerned with the public performance of stereo works, using multiple pairs of loudspeakers to deliver different qualitative spatial images (close, distant, high, low, behind, diffuse, etc). I have written about this extensively elsewhere (HARRISON, 1988; 1998; 2000c; 2000d) and further publications are currently in preparation, so I shall not reiterate everything here. Suffice it to say that I had developed a core configuration of loudspeakers – 'the BEAST Main 8' (Figure 1) – which I consider the absolute minimum for the diffusion of stereo works and the delivery of the spatial images I just mentioned.

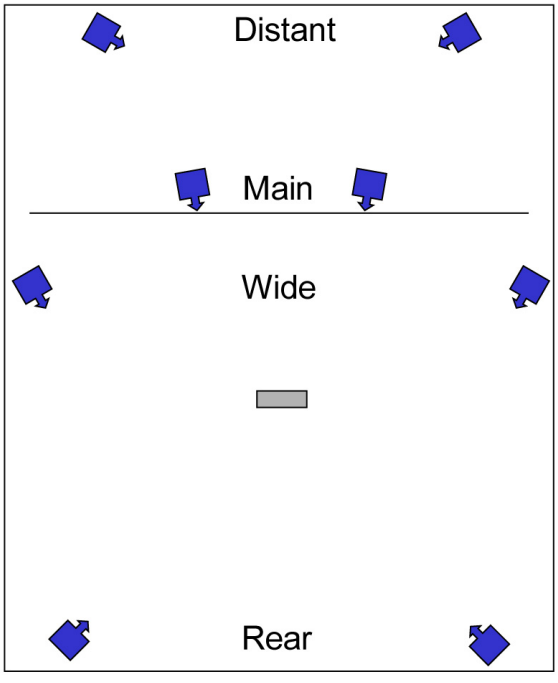

Figure 1. The BEAST Main 8.

In 1998, my Birmingham colleague, Vic Hoyland, asked me to compose a piece for the University Orchestra. I had renounced instrumental composition in 1992, so I was reluctant at first, but agreed on condition that I could include a tape part. The BEAST Main 8 configuration echoed the frontal focus of the concert platform by having the Distant, Main and Wide loudspeakers around the orchestra, whilst the Rear speakers also enabled envelopment of the audience. I felt I also needed the sense of size and clarity that eight separate tracks could offer; I feared that, alongside the orchestra, diffusing a stereo tape over eight speakers could easily become 'muddy'.

Despite its scale, writing *Abstracts* (1998) (HARRISON, 2001) was another moment of compositional joy – largely because I made the entire tape part *before* starting work on the score. The piece combines the very large orchestra with sound materials from a completely different source (trains), and the orchestral part is largely an elaboration of the rather abstract sounds on the tape (the result of extreme processing). This, combined with the spatial differentiation *within* the tape, as well as *between* orchestra and tape, resulted in a sound world that seems to have huge mass and great depth. I could hardly wait to start an 8-channel acousmatic work.

My chance came the following year with *Streams* (1999) (HARRISON, 2000a; 2007), commissioned by the Sonorities Festival, Belfast. As its title suggests, *Streams* is an exploration of the sounds of water – or, rather, as the programme note puts it, '…the turbulent points of confluence of water, earth and air (liquid, solid, gas).' Appropriately, most of the source recordings were made in Ireland and, as

well as references (with varying degrees of realism) to trickling streams and the wave-like motion of the sea, the piece also features sounds derived from the traditional Irish drum, the bodhrán, and human footsteps on a pebble beach.

Although I did not realise it at the time, my approach to the handling of space in *Streams* (which, once again, uses the BEAST Main 8 speaker configuration to deliver a range of qualitative spatial images over the sub-sets of the speaker array) prefigures the methodology of my more recent works. In *Streams*, the Mains and Wides deliver extremely detailed frontal images across an unusually wide arc, with the Distants and Rears offering more generalised ambience, and enabling 'effects' – extreme distance and the disconcerting appearance of the footsteps in the Rears.

My next work, *Rock'n'Roll* (2004) (HARRISON, 2007), also uses the BEAST Main 8 but this time the Distants, Wides and Rears are used to provide an 'outdoor ambience', in contrast to a close, solo image on the Mains, featuring extremely intimate recordings of stones and rocks. The source materials for this piece were recorded in our garden in Birmingham: an old, stone garden roller with an iron 'tyre' was pushed along concrete paths, occasionally hitting stone walls. This prompted further close-miked examination of the wall material and – inevitably – led to the title of the work. Beyond this, though, it occurred to me that, as this piece featured sounds relating to 'earth', and I already had *Streams*, based on water materials, I was already half-way to a cycle of works based on the four elements, imbued with substantial ecological overtones.

I was, however, concerned with the difficulty I had experienced in getting performances of both *Streams* and *Rock'n'Roll* because of the idiosyncratic nature of the BEAST Main 8. In most festivals, 8-channel arrays were circular, in either the blue or yellow configurations shown in Figure 2, so I resolved to investigate these in the next two pieces.

Recycling

In 2006, I was invited by a former Birmingham colleague, Dr Erik Oña, to work in the Elektronisches Studio of the Musikhochschule in Basel, Switzerland, supported by an Atelier Zum Kleinen Markgräflerhof residency. I had already started working on the 'fire' piece of my 'elements' cycle by making recordings of car and motorcycle engines with both air microphones and contact mics (accelerometers), and had also visited Birmingham International Airport to record planes coming in to land. I had recordings of trains, buses and bicycles in my library, along with the Birmingham Science Museum recordings of various older bits of machinery. Ideas for the work were already forming and *Internal Combustion* (2005-06) (HARRISON, 2007) was completed in the multichannel studio in Basel; it uses the blue 8-channel array from Figure 2. The fact that I was revisiting some of my sound materials and, indeed, some of the extra-musical ideas that I had already addressed, plus the resonance of ecological concerns led me to *ReCycle* (HARRISON, 2007) as the overall title for the cycle of four works. All that remained was to compose the 'air' piece.

In 2007 I was invited by Annette Vande Gorne to a residency in the Studio Métamorphoses d'Orphée in Ohain, Belgium. By this time, I had more or less decided that the sequence of the works in *ReCycle* should be: earth; fire; air; water. Having already explored certain aspects of 'air' in *Aria* (and, to some extent, along with

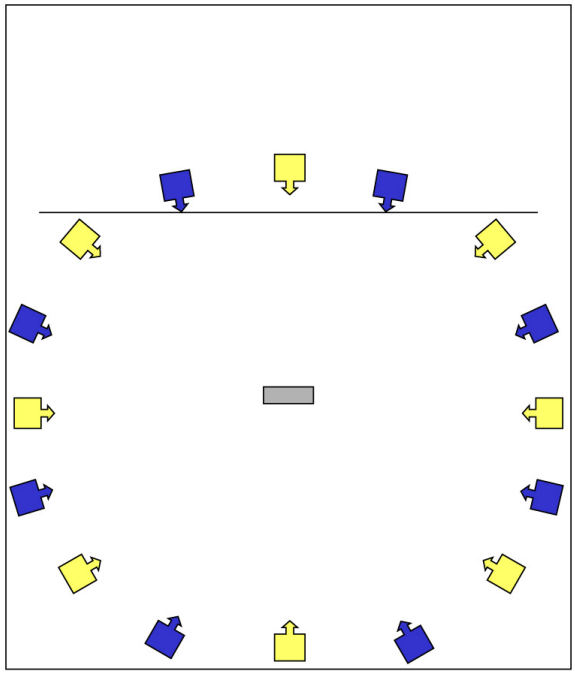

Figure 2. Two common but incompatible 8-channel standards.

fire, in *Hot Air*), I decided to base *Free Fall* (2006) (HARRISON, 2007) on the visual/spatial image of 'falling *through*' the air, with everything rushing past from front to rear (the aural equivalent of free-fall parachute jumping). I therefore opted for the yellow 8-channel loudspeaker array from Figure 2 (sometimes referred to as the 'double-diamond'), as this offered five, rather than four discrete planes in the front/rear axis. As I was soon to discover when trying to move my sounds through the 8-channel space, our ears do not resolve front-to-back motion as well as we perceive lateral movement, so I had to 'cheat' by also introducing a hint of left-right motion into my movement trajectories. I felt that this third work in the cycle should have the character of a *scherzo* (often the third movement in a symphony), so decided to 'recycle' sounds from the other three pieces and have them fly past the listener's ear in a highly improbable, surreal way – how likely are you to hear a river or a car engine whizzing past if you have just jumped out of a plane?

Standardisation?

My next three acousmatic works are all 8-channel, using the blue array from Figure 2. Most of the sounds in *Undertow* (2007) (HARRISON, 2007), commissioned by La Compagnie Pierre Deloche Danse, were recorded (in mono!) with a hydrophone, then shaped into the 8-channel space. The project involved several works

of exactly 10 minutes, separated by 'straight' sea recordings. *Undertow* thus opens with sea sounds but the piece proper really begins with the image of diving beneath the waves. Exactly 10' later, we emerge once more to a naturalistic seascape.

Afterthoughts (2007) (HARRISON, 2007) reworks material originally used in a dance piece, *Ellipsis* (2000), commissioned by the University of Birmingham Drama Department, and evokes the image of drowsing in the garden on an English summer afternoon. *Phantom Power* (2007-08), commissioned as part of a Parry Williams Visiting Composer Fellowship at the University of Bangor, is a reworking of instrumental sounds first used in a rare mixed piece, *Force Fields* (2004-06), commissioned by the Thürmchen Ensemble, Cologne, which I describe as '*musique concrète* for 8 instrumentalists and fixed sounds'. In the purely acousmatic context, only a 'ghostly presence' of the original instrumental material remains, and references to the Welsh locations are introduced by including recordings of slate and a wind turbine on Anglesey.

Stems and beyond

By 2010, I was beginning to feel the need to move beyond a standard 8-channel configuration, as performing 8-channel pieces on just eight speakers is scarcely better than performing stereo works on just two. In BEAST, we had started *diffusing* 8-channel works over multiple 8-channel loudspeaker arrays, in a manner reminiscent of stereo diffusion but with lots more speakers, thereby achieving *8-channel images* that were close, distant, high, diffuse, etc. We had expanded the concert system in 2005 and, in 2006, my colleague Dr Scott Wilson was awarded an Arts and Humanities Research Council grant for a project called *Development of an intelligent software controlled system for the diffusion of electroacoustic music on large arrays of mixed loudspeakers*, for which I was Co-investigator. One of the main outcomes of this project was the BEASTmulch software which is used to route the signals and control the system in concert[2].

BEASTmulch features a number of plug-ins that can be used to spatialise material in real-time during performance. In this scenario, the channels in a work can be thought of as 'stems' for spatial processing, rather than indicating a pre-composed space (as is normally understood by descriptions like 8-channel, 5.1, etc). *BEASTory* (2010) (HARRISON, 2012) uses this approach. The work is a 'BEAST portrait', based on the sounds of the system being installed, dismantled and loaded on and off trucks and in the BEAST store. For a number of reasons, including a lack of rehearsal time in the concert space to fine-tune the values in the plug-ins, this way of working proved problematic and in another work using the same source materials, *BEASTiary* (2012), I took a very different, though still stem-based approach.

When the Birmingham Music Department moved into its new home in the Bramall Music Building in the summer of 2012, we installed the full BEAST system in the newly built Elgar Concert Hall for a week, enabling us to try things out in this unknown space. The experience of hearing a range of loudspeakers in various locations and of listening to different materials on different speakers in different positions led me to think of composing a seriously multichannel work containing specific ma-

[2] <http://www.birmingham.ac.uk/facilities/ea-studios/research/mulch.aspx>

terials for specific sub-sets of speakers within the total array. *BEASTiary* was composed as a 72-channel work for the opening festival of the building (which coincided with BEAST's 30th anniversary) – my idea was to exploit *this* system in *this* configuration in *this* space. Of course, such a high channel count condemns a work to very few performances so, for pragmatic reasons, I have since made other versions (60, 20 and 8 channels) for performances on other systems in other venues.

Evocations of place

My interest in placing different materials on different sub-sets of the total speaker array developed further when BEAST was invited to present an event in the Ikon Gallery in Birmingham in 2014. The space was actually three interconnected galleries on the top floor, plus an adjacent education room and a stairwell. The event was to be presented as a concert, not an installation, but with the audience free to move around and between the various galleries during the performance.

It occurred to me that this venue and the nature of the event presented an ideal opportunity to engage with the library of recordings I had been accumulating on my travels for the previous 20 years. My idea was simply to present, simultaneously but in different parts of the five spaces and with minimal transformation, recordings from multiple geographical locations. These materials could not possibly co-exist in the same environment in 'real life' but they could co-exist in sound. The fact that the geographical locations might well be recognisable reinforces the surreality of hearing something we know to be impossible and enhances the sense of 'dislocation'. The different spaces and the fact that listeners were free to move around enabled the creation of multiple individual experiences of foreground and background, of proximity and distance, and of perspective.

This 20-channel site-specific work, *Hidden Vistas* (2014), was the first of three related pieces exploring these ideas. The last one, *Secret Horizons* (2014) was also a gallery work, this time in 14 channels and played on a loop in the RBSA Gallery in Birmingham as part of the Birmingham Sculpture Trail. The second piece to be composed, however, *Espaces cachés* (HARRISON, 2016), is a 30-channel concert piece; the audience is not able to move around the space, so I had to determine the listeners' orientation for them by deploying different images on different parts of the loudspeaker array.

I had still barely scratched the surface of my sound library, however, and there were parts of the world that I had not been able to visit but which I felt would yield interesting sounds. So, as I approached my retirement from the University of Birmingham, I applied (successfully) to the Leverhulme Foundation for a Leverhulme Emeritus Fellowship. This enabled me to undertake field recording trips to two major locations of interest to me – Australia and Iceland – and funded two of my former PhD students, James Carpenter and Chris Tarren, to develop software for multichannel signal processing. This is in the process of being incorporated into the BEASTtools suite of Max patches[3].

The work that emerged is *Going* / *Places* (2015) (HARRISON, 2016), commissioned by Pierre Alexandre Tremblay and supported by the National Lottery via

[3] <http://www.birmingham.ac.uk/facilities/ea-studios/research/beasttools.aspx>

an Arts Council England Grants for the Arts award. It is 60 minutes long and was composed in 32 channels (see Figure 3), so it is certainly not something a promoter would programme lightly! The piece comprises 23 'scenes', each based on a real place (or multiple locations) but, as you might expect, what appears to be real is almost certainly not! Once again, my obsessions with ambiguity, plausibility and causality are in evidence but the different sub-sets of the loudspeaker array are used to fashion a more believable three-dimensional 'place' for each scene, rather than to present multiple simultaneous locations as in *Hidden Vistas*, *Espaces cachés* and *Secret Horizons*; there is also a far greater degree of processing involved than in the 2014 works. In this respect, *Going* / *Places* suggests a return to earlier acousmatic concerns, as well as a continuation of recent preoccupations.

Of course, the problem of finding performances of a work of this scale persists; there will inevitably come a time when I shall have to make reduced versions. So how, you may be wondering, is it possible to issue a stereo CD of pieces like these? The answer is: ambisonics. Another former PhD student, Joseph Anderson, now a researcher at DXARTS at the University of Washington in Seattle, undertook the rendering of *Espaces cachés* and *Going* / *Places* by sampling with a virtual microphone the sound field created by my 30 or 32 tracks being played back over 30 or 32 virtual loudspeakers in the locations I specified, and then decoding that to stereo. The CD is not 'the same' as the original, of course – but a sense of the qualitative distinctions between close, distant, diffuse, high and low images comes through startlingly well in the CD version.

Where next?

After *Going* / *Places*, I feel it is time for a change of direction in my compositional output. I have explored a number of different 'themes' in my work over the past 40 years and I am sure they will continue to lurk under the surface of what I do. But I have also been considering other areas of exploration – for example, existing music, a theme that appears only fleetingly in *Splintering*.

I also need to ensure that my technical requirements are well matched to the musical job at hand. I no longer have automatic access to BEAST, so it seems foolish to continue to compose 'seriously multichannel' works – as a composer, I want people to be able to *hear* my music. So I am currently considering other strategies, options and approaches. One route might be to return to a standard 8-channel configuration, or to promote a modestly-sized 'standard', based on a hybrid of a circular array of 8 speakers, the BEAST Main 8 and a few additional channels to create images like 'high' and 'low'. Since working on the new CD, I have also grown increasingly interested in the possibilities offered by ambisonics; I might even re-examine stereo… Watch this space!

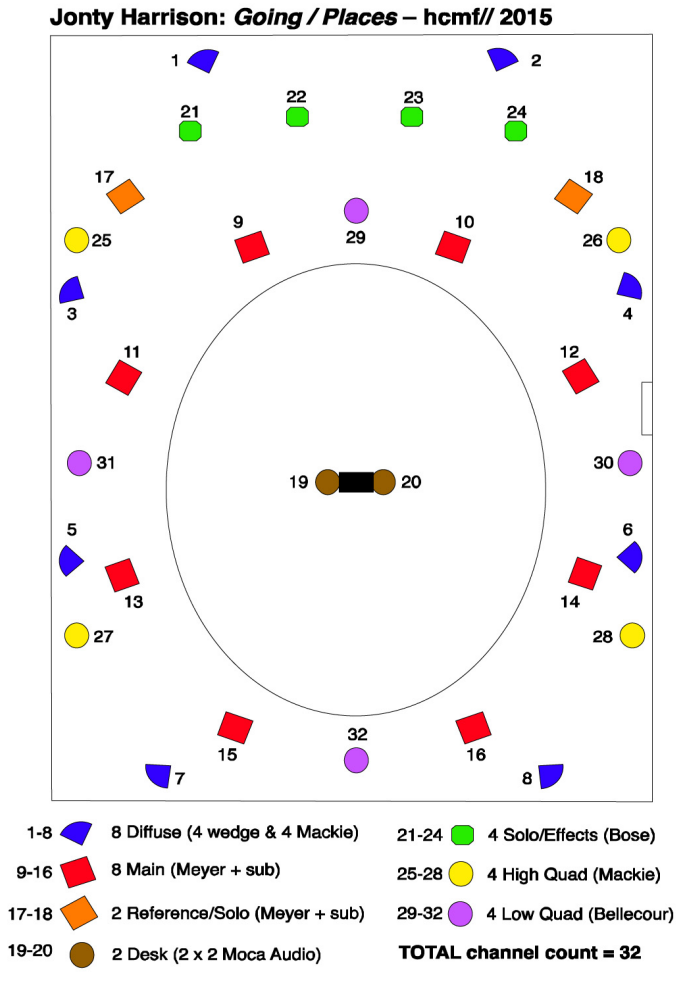

Figure 3. Channel/loudspeaker layout for *Going* / *Places* at the Huddersfield Contemporary Music Festival, 2015.

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